

**SUBCHAPTER J—NAVIGATIONAL FACILITIES
[NEW]**

[Reg. Docket No. 5034]

PART 171—NON-FEDERAL NAVIGATION FACILITIES [NEW]

This amendment adds Part 171 [New] to the Federal Aviation Regulations to replace Part 407 of the regulations of the Administrator and is a part of the Agency recodification program announced in Draft Release 61-25, published in the FEDERAL REGISTER on November 15, 1961 (26 F.R. 10698).

Part 171 [New] was published as a notice of proposed rule making in the FEDERAL REGISTER on May 7, 1964 (29 F.R. 6017), and given further distribution as Notice No. 64-24.

Many of the comments received recommended specific substantive changes to the regulations. Although many of the recommendations appear to be meritorious, they cannot be adopted as a part of the recodification program. The purpose of the program is simply to streamline and clarify present regulatory language and delete obsolete or redundant provisions. To attempt substantive changes, other than relaxatory ones that are completely noncontroversial, would

Recodification

delay the project and be contrary to the ground rules specified for it in Draft Release 61-25. However, as stated in Notice No. 64-24, it is recognized that the substantive contents of this regulation are in need of updating and revision, and the Agency is now in process of preparing a substantive revision to be published as a separate notice of proposed rule making. The substantive comments received as a result of the circulation of the notice will be considered in the substantive revision.

Apart from comments of the nature described above, very few comments were received on the notice. Two comments suggested deletion of the rule that requires the owner to obtain the permission of the FAA before shutting down a facility. The comments indicate some misunderstanding of the purpose of the provision, which is simply to allow the FAA an opportunity to notify the public of the shutting down of the facility concerned and to provide substitute service, if possible under the circumstances. It should be understood that this entire regulation applies only to facilities that have a public use aspect and the permission of the FAA is therefore required in the interest of protecting public use of the facility. In no case would permission to close the facilities be arbitrarily denied. It would be delayed only until the FAA's published procedures were appropriately modified.

Two of the comments suggested that § 171.31(b) (10) be changed to delete the requirement of monitoring each MH facility on a one-half hour basis. Deletion of this language might have the adverse effect of requiring the facility to be continuously monitored. In some cases this could thereby increase the burden and, under the ground rules explained above, such a change could not be accomplished in the recodification program.

One comment suggested that sections of the regulation that make reference to other documents, such as ICAO standards, also give information on how to obtain copies of them. This comment has merit and therefore language has been added to show where copies of these documents may be obtained.

The definitions, abbreviations, and rules of construction contained in Part 1 [New] of the Federal Aviation Regulations apply to Part 171 [New]. This amendment, as the first rule to be published in Subchapter J "Navigational Facilities", adds that subchapter to the Federal Aviation Regulations.

Interested persons have been afforded an opportunity to participate in the making of this regulation, and due consideration has been given to all relevant matter presented. The Agency appreciates the cooperative spirit in which the public's comments were submitted.

In consideration of the foregoing, effective October 1, 1964, Chapter I of Title 14 is amended by adding a new Subchapter J reading as follows, and Chapter III of Title 14 is amended by deleting Part 407.

Issued in Washington, D.C. on July 31, 1964.

N. E. HALABY,
Administrator.

PART 171—NON-FEDERAL NAVIGATION FACILITIES

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AUTHORITY: The provisions of this Part 171 [New] issued under secs. 305, 307, 313(a), 601 and 606 of the Federal Aviation Act of 1958, as amended; 49 U.S.C. 1346, 1354(a), 1421, 1426.

SUBPART A—VOR FACILITIES

§ 171.1 Scope.

This subpart sets forth minimum requirements for the operation of non-Federal VOR public use facilities that are to be involved in the approval of instrument flight rules and air traffic control procedures related to those facilities.

§ 171.3 Requests for IFR procedure.

(a) Each person who requests an IFR procedure based on a VOR facility that he owns must submit the following information with that request:

- (1) A description of the facility and evidence that the equipment meets the performance requirements of § 171.7 and is installed in accordance with § 171.9.
- (2) A proposed procedure for operating the facility.
- (3) A proposed maintenance organization and maintenance manual that meets the requirements of § 171.11.
- (4) A statement of intention to meet the requirements of this subpart.

(b) After the FAA inspects and evaluates the facility, it advises the owner of the results and of any required changes in the facility or the maintenance manual or maintenance organization. The owner must then correct the deficiencies, if any, and operate the facility for an in-service evaluation by the FAA.

(c) Requests for deviations from the requirements of this section must be submitted to the Regional Director of the Region in which the facility is located.

(d) After the FAA inspects and evaluates the facility, it advises the owner of the results and of any required changes in the facility or the maintenance manual or maintenance organization. The owner must then correct the deficiencies, if any, and operate the facility for an in-service evaluation by the FAA.

(e) Requests for deviations from the requirements of this section must be submitted to the Regional Director of the Region in which the facility is located.

§ 171.5 Minimum requirements for approval.

(a) The following are the minimum requirements that must be met before the FAA will approve an IFR procedure for a non-Federal VOR:

- (1) The facility's performance, as determined by air and ground inspection, must meet the requirements of § 171.7.
- (2) The installation of the equipment must meet the requirements of § 171.9.
- (3) The owner must agree to operate and maintain the facility in accordance with § 171.11.
- (4) The owner must agree to furnish periodic reports, as set forth in § 171.13, and must agree to allow the FAA to inspect the facility and its operation whenever necessary.
- (5) The owner must assure the FAA that he will not withdraw the facility from service without the permission of the FAA.
- (6) The owner must bear all costs of meeting the requirements of this section and of any flight or ground inspections made before the facility is commissioned.

(b) If the applicant for approval meets the requirements of paragraph (a) of this section, the FAA commissions the facility as a prerequisite to its approval for use in an IFR procedure. The approval is withdrawn at any time the facility does not continue to meet those requirements.

(c) The monitor is checked periodically, during the in-service test evaluation period, for calibration and stability. The tests are made with a standard "Reference and variable phase signal generator" and associated test equipment, including an oscilloscope and portable field detector. In general, the ground check is conducted in accordance with section 8.4 of FAA Handbook AF P 6790.9 "Maintenance Instruction for VHF Om-niranges", adapted for the facility concerned.

(d) Flight tests to determine the facility's adequacy for operational requirements and compliance with applicable "Standards and Recommended Practices" are conducted in accordance with the "U.S. Standard Flight Inspection Manual", particularly section 201.

(e) The facility must be of permanent construction, built and installed according to accepted good engineering prac-

§ 171.7 Performance requirements.

(a) The VOR must perform in accordance with the "International Standards and Recommended Practices, Aeronautical Telecommunications, Part I, Paragraph 3.4" (Annex 10 to the Convention on International Civil Aviation) except that part of paragraph 3.4.7 requiring removal of only the bearing information. In place of that removal, all radiation must be removed during the specified deviations from established conditions and during periods of monitor failure.

(b) Ground inspection consists of an examination of the design features of the equipment to determine that there will not be conditions that will allow unsafe operations because of component failure or deterioration.

(c) The monitor is checked periodically, during the in-service test evaluation period, for calibration and stability. The tests are made with a standard "Reference and variable phase signal generator" and associated test equipment, including an oscilloscope and portable field detector. In general, the ground check is conducted in accordance with section 8.4 of FAA Handbook AF P 6790.9 "Maintenance Instruction for VHF Om-niranges", adapted for the facility concerned.

(d) Flight tests to determine the facility's adequacy for operational requirements and compliance with applicable "Standards and Recommended Practices" are conducted in accordance with the "U.S. Standard Flight Inspection Manual", particularly section 201.

§ 171.9 Installation requirements.

(a) The facility must be of permanent construction, built and installed according to accepted good engineering prac-

tices and applicable electric and safety codes.

(b) The facility must have a reliable source of suitable primary power, either from a power distribution system or locally generated, with a supplemental standby system, if needed.

(c) Dual transmitting equipment with automatic changeover is preferred and may be required to support certain IFR procedures.

(d) There must be a means for determining, from the ground, the performance of the equipment, including the antenna, initially and periodically.

(e) A facility intended for use as an instrument approach aid for an airport must have or be supplemented by (depending on circumstances) the following ground-air or landline communications services:

(1) At facilities outside of and not immediately adjacent to air traffic control areas, there must be ground-air communications from the airport served by the facility. Separate communication channels are acceptable.

(2) At facilities within or immediately adjacent to air traffic control areas, there must be the ground-air communications required by subparagraph (1) of this paragraph and reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communication facility.

Subparagraphs (1) and (2) of this paragraph are not mandatory at airports where an adjacent FAA facility can communicate with aircraft on the ground at the airport and during the entire proposed instrument approach procedure. In addition at low traffic density airports within or immediately adjacent to air traffic control areas, and where extensive delays are not a factor, the requirements of subparagraphs (1) and (2) of this paragraph may be reduced to reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communication facility, if an adjacent FAA facility can communicate with aircraft during the proposed instrument approach procedure, at least down to the minimum en route altitude of the controlled area.

§ 171.11 Maintenance and operations requirements.

(a) The owner of the facility must establish an adequate maintenance system and provide qualified maintenance personnel to maintain the facility at the level attained at the time it was commissioned. The maintenance personnel must meet at least the Federal Communications Commission licensing requirements and show that they have the special knowledge and skills needed to maintain the facility.

(b) The owner must prepare, and obtain FAA approval of, an operations and maintenance manual that sets forth mandatory procedures for operations, preventive maintenance, and emergency maintenance, including instructions on each of the following:

(1) Physical security of the facility.

(2) Maintenance and operations by authorized persons only.

(3) FCC licensing requirements for operating and maintenance personnel.

(4) Posting of licenses and signs.

(5) Relations between the facility and FAA air traffic control facilities, with a description of the boundaries of controlled airspace over or near the facility, instructions for relaying air traffic control instructions and information (if applicable), and instructions for the operation of an air traffic advisory service if the VOR is located outside of controlled airspace.

(6) Notice to the Administrator of any suspension of service.

(7) Detailed and specific maintenance procedures and servicing guides stating the frequency of servicing.

(8) Air-ground communications, if provided, expressly written or incorporating appropriate sections of FAA manuals by reference.

(9) Keeping of station logs and other technical reports, and the submission of reports required by § 171.13.

(10) Monitoring of the facility.

(11) Inspections by United States personnel.

(12) Names, addresses, and telephone numbers of persons to be notified in an emergency.

(13) Shutdowns for routine maintenance and issue of "Notices to Airmen" for routine or emergency shutdowns.

(14) An explanation of the kinds of activity (such as construction or grading) in the vicinity of the facility that may require shutdown or recertification of the facility by FAA flight check.

(15) Procedures for conducting a ground check of course accuracy.

(16) Commissioning of the facility.

(17) An acceptable procedure for amending or revising the manual.

(18) The following information concerning the facility:

(i) Location by latitude and longitude to the nearest second, and its position with respect to airport layouts.

(ii) The type, make, and model of the basic radio equipment that will provide the service.

(iii) The station power emission and frequency.

(iv) The hours of operation.

(v) Station identification call letters and method of station identification, whether by Morse Code or recorded voice announcement, and the time spacing of the identification.

(vi) A description of the critical parts that may not be changed, adjusted, or repaired without an FAA flight check to confirm published operations.

(c) The owner shall make a ground check of course accuracy each month in accordance with procedures approved by the FAA at the time of commissioning, and shall report the results of the checks as provided in § 171.13.

(d) If the owner desires to modify the facility, he must submit the proposal to the FAA and may not allow any modifications to be made without specific approval.

(e) The owner's maintenance personnel shall participate in inspections made by the FAA and shall show that they are proficient in maintenance procedures and using specialized test equipment.

(f) Whenever it is required by the FAA, the owner shall incorporate improvements in VOR maintenance brought about by progress in the state of the art. In addition, he shall provide a stock of spare parts, including vacuum tubes, of such a quantity to make possible the prompt replacement of components that fall or deteriorate in service.

(g) The owner shall provide all approved test instruments needed for maintenance of the facility.

(h) The owner shall close the facility upon receiving two successive pilot reports of its malfunctioning.

§ 171.13 Reports.

The owner of each facility to which this subpart applies shall make the following reports on forms furnished by the FAA, at the times indicated, to the FAA Regional office for the area in which the facility is located:

(a) *Record of meter readings and adjustments (Form FAA-198)*. To be filled out by the owner with the equipment adjustments and meter readings as of the time of commissioning, with one copy to be kept in the permanent records of the facility and two copies to the appropriate Regional office of the FAA. The owner shall revise the form after any major repair, modernization, or retuning, to reflect an accurate record of facility operation and adjustment.

(b) *Facility maintenance log (Form FAA-406c)*. This form is a permanent record of all equipment malfunctioning met in maintaining the facility, including information on the kind of work and adjustments made, equipment failures, causes (if determined), and corrective action taken. The owner shall keep the original of each report at the facility and send a copy to the appropriate Regional office of the FAA at the end of the month in which it is prepared.

(c) *Radio equipment operation record (Form FAA-418)*. To contain a complete record of meter readings, recorded on each scheduled visit to the facility. The owner shall keep the original of each month's record at the facility and send a copy of it to the appropriate Regional office of the FAA.

(d) *Facility outage and failure report (Form FAA-3092)*. To contain a record of each equipment failure that removes the facility from service. The owner shall record each failure on a separate report and send all reports for each month, at the end of that month, to the appropriate Regional office of the FAA.

(e) *VOR ground check error data (Forms FAA-2396 and 2397)*. To contain results of the monthly course accuracy ground check in accordance with FAA Handbook AF P 6790.9 "Maintenance Instructions for VHF Omnis". The owner shall keep the originals in the facility and send a copy of each form to the appropriate Regional office of the FAA on a monthly basis.

Subpart B—Nondirectional Radio Beacon Facilities

§ 171.21 Scope.

(a) This subpart sets forth minimum requirements for the operation of non-Federal, nondirectional public use radio

beacon facilities that are to be involved in the approval of instrument flight rules and air traffic control procedures related to those facilities.

(b) A nondirectional radio beacon ("H" facilities domestically—NDB facilities internationally) radiates a continuous carrier of approximately equal intensity at all azimuths. The carrier is modulated at 1020 cycles per second for station identification purposes.

[Revision note: Based on § 407.10 (less last sentence)]

Note: § 407.10 (2d and 5th sentence) is omitted as internal FAA information only.

§ 171.23 Requests for IFR procedure.

(a) Each person who requests an IFR procedure based on a nondirectional radio beacon facility that he owns must submit the following information with that request:

(1) A description of the facility and evidence that the equipment meets the performance requirements of § 171.27 and is installed in accordance with § 171.29.

(2) A proposed procedure for operating the facility.

(3) A proposed maintenance arrangement and a maintenance manual that meets the requirements of § 171.31.

(4) A statement of intention to meet the requirements of this subpart.

(b) After the FAA inspects and evaluates the facility, it advises the owner of the results and of any required changes in the facility or the maintenance manual or maintenance organization. The owner must then correct the deficiencies, if any, and operate the facility for an in-service evaluation by the FAA.

(c) Requests for deviations from the requirements of this section must be submitted to the Regional Director of the Region in which the facility is located.

§ 171.25 Minimum requirements for approval.

(a) The following are the minimum requirements that must be met before the FAA will approve an IFR procedure for a non-Federal, nondirectional radio beacon facility under this subpart:

(1) The facility's performances, as determined by air and ground inspection, must meet the requirements of § 171.27.

(2) The installation of the equipment must meet the requirements of § 171.29.

(3) The owner must agree to operate and maintain the facility in accordance with § 171.31.

(4) The owner must agree to furnish periodic reports, as set forth in § 171.33, and agree to allow the FAA to inspect the facility and its operation whenever necessary.

(5) The owner must assure the FAA that he will not withdraw the facility from service without the permission of the FAA.

(6) The owner must bear all costs of meeting the requirements of this section and of any flight or ground inspections made before the facility is commissioned.

(b) If the applicant for approval meets the requirements of paragraph (a) of this section, the FAA commissions the facility as a prerequisite to its approval for use in an IFR procedure. The approval is withdrawn at any time the facility does not continue to meet those requirements. In addition, the facility may be de-commissioned whenever the frequency channel is needed for higher priority common system service.

§ 171.27 Performance requirements.

(a) The facility must radiate a continuous wave carrier and be identified by on-off keying of an amplitude modulating tone of 1020 cycles per second plus or minus 50 cycles. The depth of modulation must be between the limits of 40 and 95 percent. There must be a two or three letter identification transmitted at a rate of approximately seven words per minute, preferably eight to ten times per minute, unless voice modulation is used, but in any event at intervals of not more than 30 seconds. The identification may be suppressed when voice transmissions are made.

(b) The facility must perform in accordance with recognized and accepted good electronic engineering practices for the desired service.

(c) Ground inspection consists of an examination of the design features of the equipment to determine (based on recognized and accepted good engineering practices) that there will not be conditions that will allow unsafe operations because of component failure or deterioration.

(d) Flight tests to determine the facility's adequacy for operational requirements and compliance with applicable "Standards and Recommended Practices" are conducted in accordance with the "U.S. Standard Flight Inspection Manual", particularly section 207. The original test is made by the FAA and later tests shall be made under arrangements, satisfactory to the FAA, that are made by the owner.

§ 171.29 Installation requirements.

(a) The facility must be installed according to accepted good engineering practices, applicable electric and safety codes, and FCC licensing requirements.

(b) The facility must have a reliable source of suitable primary power.

(c) Dual transmitting equipment may be required to support some IFR procedures.

(d) A facility intended for use as an instrument approach aid for an airport must have or be supplemented by (depending on the circumstances) the following ground-air or landline communications services:

(1) At facilities outside of and not immediately adjacent to air traffic control areas, there must be ground-air communications from the airport served by the facility. Voice on the aid controlled from the airport is acceptable.

(2) At facilities within or immediately adjacent to air traffic control areas, there must be the ground-air communications required by subparagraph (1) of this paragraph and reliable communications (at least a landline telephone)

from the airport to the nearest FAA air traffic control or communication facility.

Subparagraphs (1) and (2) of this paragraph are not mandatory at airports where an adjacent FAA facility can communicate with aircraft on the ground at the airport and during the entire proposed instrument approach procedure. In addition, at low traffic density airports within or immediately adjacent to air traffic control areas, and where extensive delays are not a factor, the requirements of subparagraphs (1) and (2) of this paragraph may be reduced to reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communications facility, if an adjacent FAA facility can communicate with aircraft during the proposed instrument approach procedure, at least down to the minimum en route altitude of the controlled area.

§ 171.31 Maintenance and operations requirements.

(a) The owner of the facility must establish an adequate maintenance system and provide qualified maintenance personnel to maintain the facility at the level attained at the time it was commissioned. The maintenance personnel must meet at least the Federal Communications Commission licensing requirements.

(b) The owner must prepare, and obtain approval of, an operations and maintenance manual that sets forth mandatory procedures for operations, preventive maintenance, and emergency maintenance, including instructions on each of the following:

(1) Physical security of the facility.

(2) Maintenance and operations by authorized persons only.

(3) FCC licensing requirements for operating and maintenance personnel.

(4) Posting of licenses and signs.

(5) Relations between the facility and FAA air traffic control facilities, with a description of the boundaries of controlled airspace over or near the facility, instructions for relaying air traffic control instructions and information (if applicable), and instructions for the operation of an air traffic advisory service if the facility is located outside of controlled airspace.

(6) Notice to the Administrator of any suspension of service.

(7) Detailed arrangements for maintenance flight inspection and servicing stating the frequency of servicing.

(8) Air-ground communications, if provided, expressly written or incorporating appropriate sections of FAA manuals by reference.

(9) Keeping of station logs and other technical reports, and the submission of reports required by § 171.33.

(10) Monitoring of the facility, at least once each half hour, to assure continuous operation.

(11) Inspections by United States personnel.

(12) Names, addresses, and telephone numbers of persons to be notified in an emergency.

(13) Shutdowns for routine maintenance and issue of "Notices to Airmen" for routine or emergency shutdowns.

(14) Commissioning of the facility.

(15) An acceptable procedure for amending or revising the manual.

(16) The following information concerning the facility:

(i) Location by latitude and longitude to the nearest second, and its position with respect to airport layouts.

(ii) The type, make, and model of the basic radio equipment that will provide the service.

(iii) The station power emission and frequency.

(iv) The hours of operation.

(v) Station identification call letters and method of station identification, whether by Morse code or recorded voice announcement, and the time spacing of the identification.

(c) If the owner desires to modify the facility, he must submit the proposal to the FAA and meet applicable requirements of the FCC.

(d) The owner's maintenance personnel shall participate in inspections performed by the FAA and shall show that they are proficient in maintenance procedures and using specialized test equipment.

(e) The owner shall provide a stock of spare parts, including vacuum tubes, of such a quantity to make possible the prompt replacement of components that fail or deteriorate in service.

(f) The owner shall close the facility upon receiving two successive pilot reports of its malfunctioning.

§ 171.33 Reports.

The owner of each facility to which this subpart applies shall make the following reports, at the times indicated, to the FAA Regional office for the area in which the facility is located:

(a) *Record of meter readings and adjustments (Form FAA-198)*. To be filled out by the owner or his maintenance representative with the equipment adjustments and meter readings as of the time of commissioning, with one copy to be kept in the permanent records of the facility and two copies to the appropriate Regional Office of the FAA. The owner shall revise the form after any major repair, modernization, or retuning, to reflect an accurate record of facility operation and adjustment.

(b) *Facility maintenance log (Form FAA-406c)*. This form is a permanent record of all equipment malfunctioning met in maintaining the facility, including information on the kind of work and adjustments made, equipment failures, causes (if determined), and corrective action taken. The owner shall keep the original of each report at the facility and send a copy to the appropriate Regional Office of the FAA at the end of the month in which it is prepared.

(c) *Radio equipment operation record (Form FAA-418)*. To contain a complete record of meter readings, recorded on each scheduled visit to the facility. The owner shall keep the original of each month's record at the facility and send a copy of it to the appropriate Regional Office of the FAA.

Subpart C—Instrument Landing System (ILS) Facilities

§ 171.41 Scope.

This subpart sets forth minimum requirements for the operation of non-Federal public use Instrument Landing System (ILS) Facilities that are to be involved in the approval of instrument flight rules and air traffic control procedures related to those facilities.

§ 171.43 Requests for IFR procedure.

(a) Each person who requests an IFR procedure based on an ILS facility that he owns must submit the following information with that request:

(1) A description of the facility and evidence that the equipment meets the performance requirements of § 171.47 and is installed in accordance with § 171.49.

(2) A proposed procedure for operating the facility.

(3) A proposed maintenance organization and a maintenance manual that meets the requirements of § 171.51.

(4) A statement of intent to meet the requirements of this subpart.

(b) After the FAA inspects and evaluates the facility, it advises the owner of the results and of any required changes in the facility or the maintenance manual or maintenance organization. The owner must then correct the deficiencies, if any, and operate the facility for an in-service evaluation by the FAA.

(c) Requests for deviations from the requirements of this section must be submitted to the Regional Director of the Region in which the facility is located.

§ 171.45 Minimum requirements for approval.

(a) The following are the minimum requirements that must be met before the FAA will approve an IFR procedure for a non-Federal Instrument Landing System:

(1) The facility's performance, as determined by air and ground inspection, must meet the requirements of § 171.47.

(2) The installation of the equipment must meet the requirements of § 171.49.

(3) The owner must agree to operate and maintain the facility in accordance with § 171.51.

(4) The owner must agree to furnish periodic reports, as set forth in § 171.53 and agree to allow the FAA to inspect the facility and its operation whenever necessary.

(5) The owner must assure the FAA that he will not withdraw the facility from service without the permission of the FAA.

(6) The owner must bear all costs of meeting the requirements of this section and of any flight or ground inspections made before the facility is commissioned.

(b) If the applicant for approval meets the requirements of paragraph (a) of this section, the FAA commissions the facility as a prerequisite to its approval for use in an IFR procedure. The approval is withdrawn at any time the facility does not continue to meet those requirements. In addition, the facility may be de-commissioned whenever the

frequency channel is needed for higher priority common system service.

§ 171.47 Performance requirements.

(a) The Instrument Landing System must perform in accordance with the "International Standards and Recommended Practices, Aeronautical Telecommunications, Part I, Paragraph 3.1" (Annex 10 to the Convention on International Civil Aviation) except as follows:

(1) The first part of paragraph 3.1.3, relating to suppression of radiation wholly or in part in any or all directions outside the 20-degree sector centered on the course line to reduce localizer does not apply.

(2) Radiation patterns must conform to limits specified in 3.1.3.3 and 3.1.3.4, but this does not mean that suppression of radiation to the rear of the antenna array to satisfy difficult siting positions (as per 3.1.3.1.4) is not allowed. For example, if a reflector screen for the antenna array is required to overcome a siting problem, the area to the rear of the localizer may be made unusable and should be so advertised.

(3) A third marker beacon (inner marker) is not required.

(b) Ground inspection consists of an examination of the design features of the equipment to determine that there will not be conditions that will allow unsafe operations because of component failure or deterioration.

(c) The monitor is checked periodically, during the in-service test evaluation period, for calibration and stability. These tests, and ground checks of glide slope and localizer radiation characteristics, are conducted in accordance with FAA Handbooks AF P 6750.1 and AF P 6750.2 "Maintenance Instructions for ILS Localizer Equipment" and "Maintenance Instructions for ILS Glide Slope Equipment".

(d) Flight tests to determine the facility's adequacy for operational requirements and compliance with applicable "Standards and Recommended Practices" are conducted in accordance with the "U.S. Standard Flight Inspection Manual", particularly section 217.

§ 171.49 Installation requirements.

(a) The facility must be of a permanent nature, located, constructed, and installed according to ICAO Standards (Annex 10), accepted good engineering practices, applicable electric and safety codes, and FCC licensing requirements.

(b) The facility must have a reliable source of suitable primary power, either from a power distribution system or locally generated. A standby system is required for localizer, glider slope and monitor accessories to supplement the primary system, unless primary power is supplied from at least two independent sources.

(c) The localizer and glide slope components must have dual transmitting equipment with automatic changeover.

(d) There must be a means for determining, from the ground, the performance of the equipment (including antennae), initially and periodically.

(e) The facility must have, or be supplemented by (depending on the circumstances) the following ground-air or landline communications services:

(1) At facilities outside of and not immediately adjacent to air traffic control zones or area, there must be ground-air communications from the airport served by the facility. Voice on the localizer controlled from the airport is encouraged to reduce channel interference and minimize airborne equipment requirements. However, separate channels are acceptable.

(2) At facilities within or immediately adjacent to air traffic control zones or areas, there must be the ground-air communications required by subparagraph (1) of this paragraph and reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communication facility.

Subparagraphs (1) and (2) of this paragraph are not mandatory at airports where an adjacent FAA facility can communicate with aircraft on the ground at the airport and during the entire proposed instrument approach procedure. In addition, at low traffic density airports within or immediately adjacent to air traffic control zones or areas, and where extensive delays are not a factor, the requirements of subparagraphs (1) and (2) of this paragraph may be reduced to reliable communications (at least a landline telephone) from the airport to the nearest FAA air traffic control or communications facility. If an adjacent FAA facility can communicate with aircraft during the proposed instrument approach procedure down to the airport surface or at least to the minimum approach altitude.

§ 171.51 Maintenance and operations requirements.

(a) The owner of the facility must establish an adequate maintenance system and provide qualified maintenance personnel to maintain the facility at the level attained at the time it was commissioned. The maintenance personnel must, as a minimum, meet the Federal Communications Commission licensing requirements and must show that they have the special knowledge and skills needed to maintain the facility.

(b) The owner must prepare, and obtain approval of, an operations and maintenance manual that sets forth mandatory procedures for operations, preventive maintenance, and emergency maintenance, including instructions on each of the following:

- (1) Physical security of the facility.
- (2) Maintenance and operations by authorized persons only.
- (3) FCC licensing requirements for operating and maintenance personnel.
- (4) Posting of licenses and signs.
- (5) Relation between the facility and FAA air traffic control facilities, with a description of the boundaries of controlled airspace over or near the facility, instructions for relaying air traffic control instructions and information (if applicable), and instructions for the operations of an air traffic advisory serv-

ice if the facility is located outside of controlled airspace.

(6) Notice to the Administrator of any suspension of service.

(7) Detailed and specific maintenance procedures and servicing guides stating the frequency of servicing.

(8) Air-ground communications, if provided, expressly written or incorporating appropriate sections of FAA manuals by reference.

(9) Keeping of station logs and other technical reports, and the submission of reports required by § 171.53.

(10) Monitoring of the facility.

(11) Inspections by United States personnel.

(12) Names, addresses, and telephone numbers of persons to be notified in an emergency.

(13) Shutdowns for routine maintenance and issue of "Notices to Airmen" for routine or emergency shutdowns.

(14) Commissioning of the facility.

(15) An acceptable procedure for amending or revising the manual.

(16) An explanation of the kinds of activities (such as construction or grading) in the vicinity of the facility that may require shutdown or recertification of the facility by FAA flight check.

(17) Procedures for conducting a ground check or localizer course alignment width, and clearance, and glide slope elevation angle and width.

(18) The following information concerning the facility:

(i) Facility component locations with respect to airport layout, instrument runway, and similar areas.

(ii) The type, make, and model of the basic radio equipment that will provide the service.

(iii) The station power emission and frequencies of the localizer, glide slope, markers, and associated compass locators, if any.

(iv) The hours of operation.

(v) Station identification call letters and method of station identification and the time spacing of the identification.

(vi) A description of the critical parts that may not be changed, adjusted, or repaired without an FAA flight check to confirm published operations.

(c) The owner shall make a ground check of the facility each month in accordance with procedures approved by the FAA at the time of commissioning, and shall report the results of the checks as provided in § 171.53.

(d) If the owner desires to modify the facility, he must submit the proposal to the FAA and may not allow any modifications to be made without specific approval.

(e) The owner's maintenance personnel shall participate in inspections made by the FAA and shall show that they are proficient in maintenance procedures and using specialized test equipment.

(f) Whenever it is required by the FAA, the owner shall incorporate improvements in ILS maintenance brought about by progress in the state of the art. In addition, he shall provide a stock of spare parts, including vacuum tubes, of such a quantity to make possible the prompt replacement of components that fail or deteriorate in service.

(g) The owner shall provide FAA approved test instruments needed for maintenance of the facility.

(h) The owner shall close the facility upon receiving two successive pilot reports of its malfunctioning.

§ 171.53 Reports.

The owner of each facility to which this subpart applies shall make the following reports, at the times indicated, to the FAA Regional Office for the area in which the facility is located:

(a) *Record of meter readings and adjustments (Form FAA 198)*. To be filed out by the owner or his maintenance representative with the equipment adjustments and meter readings as of the time of commissioning, with one copy to be kept in the permanent records of the facility and two copies to the appropriate Regional Office of the FAA. The owner shall revise the form after any major repair, modernization, or retuning, to reflect an accurate record of facility operation and adjustment.

(b) *Facility maintenance log (Form FAA 406c)*. This form is a permanent record of all equipment malfunctioning met in maintaining the facility, including information on the kind of work and adjustments made, equipment failures, causes (if determined), and corrective action taken. The owner shall keep the original of each report at the facility and send a copy to the appropriate Regional Office of the FAA at the end of each month in which it is prepared.

(c) *Radio equipment operation record (Form FAA-418)*. To contain a complete record of meter readings, recorded on each scheduled visit to the facility. The owner shall keep the original of each month's record at the facility and send a copy of it to the appropriate Regional Office of the FAA.

(d) *Facility outage and failure report (Form FAA-3092)*. To contain a record of each equipment failure that removes the facility from service. The owner shall record each failure on a separate report and send all reports for each month, at the end of that month, to the appropriate Regional Office of the FAA.

Subpart D—General

§ 171.61 Materials incorporated by reference.

Copies of documents incorporated by reference in this part are available for the use of interested persons at any FAA Regional Office.

PART 171—DISTRIBUTION TABLE

Present section	Revised section
407.1 (less last sentence) -----	171.1
407.1 (last sentence) -----	171.3
407.2 -----	171.5
407.3 -----	171.3
407.4 -----	(1)
407.5 -----	171.7
407.6 -----	171.9
407.7 -----	171.11
407.8 -----	171.13
407.10 (less last sentence) -----	171.21
407.10 (last sentence) -----	171.23
407.11 -----	171.25
407.12 -----	171.23
407.13 -----	(1)
407.14 -----	171.27
407.15 -----	171.29

¹ Surplusage.

PART 171—DISTRIBUTION TABLE—CON.

<i>Present section</i>	<i>Revised section</i>
407.16 -----	171.31
407.17 -----	171.33
407.20 (less last sentence) -----	171.41
407.20 (last sentence) -----	171.43
407.21 -----	171.45
407.22 -----	171.43
407.23 -----	(¹)
407.24 -----	171.47
407.25 -----	171.49
407.26 -----	171.51
407.27 -----	171.53

¹ Surplusage.

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