



Langley Research Center

LPR 2570.5M

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RADIO FREQUENCY SPECTRUM MANAGEMENT

National Aeronautics and Space Administration

Responsible Office: Research Directorate-

PREFACE

P.1 PURPOSE

- a. The Radio Frequency (RF) spectrum management procedural requirements contained in this directive are based on established Federal regulations, Agency Policy and Procedures, and Government-industry standards, supplemented where necessary by a minimum of requirements peculiar to the NASA Langley Research Center. This LPR is pursuant to NPD 2570.5, "NASA Electromagnetic Spectrum Management," and NPR 2570.1, "NASA Radio Frequency (RF) Spectrum Management Manual."
- b. The purpose of this directive is to set forth procedural requirements and responsibilities for the management and utilization of the RF spectrum, particularly the purchase and use of RF frequency transmitting devices, at the Langley Research Center. This procedural requirement document will be maintained by the Langley RF Spectrum Manager.

P.2 APPLICABILITY

This LPR is applicable to Langley Research Center employees, including Component Facilities and Technical and Service Support Centers.

P.3 AUTHORITY

NPD 2570.5, "NASA Electromagnetic Spectrum Management".

P.4 APPLICABLE DOCUMENTS AND FORMS

NPR 2570.1, "NASA Radio Frequency (RF) Spectrum Management Manual."

P.5 MEASUREMENT/VERIFICATION

None

P.6 CANCELLATION

LPR 2570.5, dated May 21, 2014.

Original signed on file

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Chapter 1

1.0 DESIGNATIONS

In accordance with NPD 2570.5, "NASA Electromagnetic Spectrum Management," the Center Director designates the LaRC Spectrum Manager. The Spectrum Manager and Alternate(s) are identified in the LaRC Electronic Telephone Directory <https://phonebook.larc.nasa.gov>.

Chapter 2**2.0 RESPONSIBILITIES****2.1. LaRC Spectrum Manager**

2.1.1 Coordinates all the Radio Frequency (RF) spectrum requirements pertaining to activities and projects involving Langley Research Center (LaRC) with the Agency Spectrum Program Manager, in compliance with NPD 2570.5 and NPR 2570.1.

2.1.2 Assigns experimental call signs for NASA radio nets, when applicable.

2.1.3 The LaRC Spectrum Manager (with Responsible Office approval) may appoint Alternate(s) to provide technical and administrative backup. An Alternate Spectrum Manager may be a contractor, however at least one Alternate must also be a civil servant "Deputy", to comply with the succession plan requirement of NPD 2570.5 Section 5.h.(7).

2.2 LaRC Alternate Spectrum Manager

A LaRC Alternate Spectrum Manager assists and serves as backup for the LaRC Spectrum Manager.

2.3 Individuals Using Assigned Radio Frequencies

2.3.1 All users of frequencies allocated to LaRC are to adhere to the procedures set forth in this LPR.

2.3.2 All non-LaRC users assigned radio frequencies by other than the LaRC Spectrum Manager must receive LaRC Spectrum Manager approval before using those frequency assignments at LaRC.

2.4 Office of Procurement

Ensure that the LaRC Spectrum Manager or Alternate has approved all purchase requests for equipment intended to emit radio frequency signals prior to procurement of the equipment. Prior to Spectrum Manager approval, the requiring Customer shall ensure coordination with the Safety and Mission Assurance Office with regard to Radio Frequency Program requirements and associated contract clauses, as required on the LF 17PR Langley Special Approvals and Affirmations, which accompanies the purchase requisition for new requirements.

2.5 Contracting Officers

Ensure that the affected contractors are apprised of, and comply with, the provisions of this LPR, as required by their respective contracts. Prior to Spectrum Manager approval, the requiring Customer shall ensure coordination with the Safety and Mission

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Assurance Office with regard to Radio Frequency Program requirements and associated contract clauses, as required on the LF 17PR Langley Special Approvals and Affirmations, which accompanies the purchase requisition for new requirements.

2.6 Program Managers

All programs requiring the use of radio spectrum approved through the National Telecommunications and Information Administration (NTIA) shall apprise the LaRC Spectrum Manager starting during Pre-Phase A development as defined by NPR 2750.1. The Spectrum Manager is to be involved subsequently with the life cycle reviews for those projects as specified in NPR 2570.1.

2.7 Branch Heads and Project Managers

2.7.1 Submit all frequency authorization requests for use on LaRC and its vicinity to the LaRC Spectrum Manager. (See LF 400, “Langley Research Center Spectrum Management Radio Frequency Authorization Request,” and Chapter 4 of this document.)

2.7.2 Comply with NPR 2570.1, chapter 1, paragraph 1.2, when initiating action for either the development or procurement of communications-electronic systems requiring the use of the radio frequency spectrum.

2.7.3 Apprise the Spectrum Manager of previously authorized FCC or Inter-department Radio Advisory Committee (IRAC) radio frequencies prior to usage at LaRC and its vicinity, and withhold usage until approved by the LaRC Spectrum Manager and the Spectrum Manager issues a certificate of until local-use authority.

2.7.4 Promptly report Radio Frequency Interference (RFI) to the Spectrum Manager.

2.7.5 Provide any required resource to lower level management and the Spectrum Manager to remove any frequency interference.

2.7.6 Ensure compliance with this procedural requirement in requesting and utilizing frequency assignments.

2.7.7 Enforce transmission restrictions as posted.

2.7.8 Developers of new projects requiring the use of radio spectrum approved through the NTIA shall apprise the LaRC Spectrum Manager of their development starting with the initial phases. The Spectrum Manager is to be involved subsequently with the life cycle reviews for those projects as specified in NPR 2570.1.

Chapter 3

3.0 DEFINITIONS

3.1 FREQUENCY ALLOCATION - The process whereby a portion of the radio frequency spectrum is set aside for a particular use or service.

3.0 FREQUENCY ASSIGNMENT - The authorization for the use of a particular frequency for either government or non-government operations.

3.1 RADIO FREQUENCY AUTHORIZATION (RFA) - The authorization for the use of specific radio equipment on assigned frequencies.

3.2 Special Temporary Authorization (STA) – The authorized use of specific radio equipment for development, test, and evaluation for a limited, defined duration.

3.5 SPECTRUM MANAGEMENT - For the purpose of this procedural requirement, this term includes, but is not limited to, the following:

3.45.1 Coordination and consultation with appropriate technical personnel regarding procurement description of electronic radiating devices within portions of the radio frequency spectrum as they affect LaRC.

3.45.2 Coordination of frequency usage.

3.45.3 Allocation of frequencies.

3.45.4 Assignment of frequencies.

3.45.5 Efficient use of the radio frequency spectrum.

3.45.6 Reduction of radio frequency interference (RFI).

Chapter 4**4.0 ADMINISTRATIVE PROVISIONS FOR RADIO FREQUENCY SPECTRUM MANAGEMENT****4.1 Radio Frequency Authorization**

4.1.1 A Radio Frequency Authorization (RFA) or Special Temporary Authorization (STA) must be obtained through the National Telecommunications and Information Administration (NTIA) by the Spectrum Manager and delivered to the end user prior to the operation of any communications or electronic equipment that intentionally radiates or re-radiates radio frequency signals, except for the cases of FCC-licensed equipment and non-licensed equipment, as described in Sections 4.4 and 4.5.

4.2 RFA Requests

4.2.1 RFAs and STAs are obtained from the NTIA with the assistance of the NASA spectrum management organization. The user initiates the process by completing (a LF 400 form) and submitting it to the Spectrum Manager. Minimum processing time is at least 90 days for requests for use periods of one year or less and 180 days for requests for use periods of more than one year. It is not unusual for processing to take much longer. Users are advised to submit their requests as soon as possible in the project development process. LF 400 forms are available through the Langley Management System (LMS) Web site. Questions or detailed instructions should be directed to the Spectrum Manager's office.

4.2.2 Radio equipment that is not FCC type-certified, or that has undergone significant modifications from that condition, may need to have an equipment certification performed prior to requesting a RFA or STA. These certifications are obtained from the NTIA with the assistance of the NASA spectrum management organization and have a minimum processing time of at least 90 days, and it can be longer depending on the equipment type. The LF 400 form is used to start this process.

4.2.3 All space and airborne systems require a multi-stage equipment certification prior to requesting an RFA.

4.3 Procurement authorizations

It is Federal policy (OMB Circular No. A-11) that, pending assurance of the availability of the appropriate RF spectrum support, no funds will be obligated for the research, development, or acquisition of components; for modification of major communications and electronics equipment or systems; or for the selection, procurement, and deployment of space or terrestrial radio stations and facilities when such items require RF spectrum support. Approved RF requirements must be made a part of the specifications included with the procurement request or requisition. This policy was adopted to ensure the purchase of appropriate equipment designed to operate in Federal radio bands.

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4.4 Use of FCC-licensed devices

4.4.1 In the United States, the National Telecommunications and Information Administration (NTIA) manages the Federal Government's use of the radio frequency spectrum while the Federal Communications Commission (FCC) manages all other uses. To allow the two agencies to effectively manage the spectrum for their respective users, there are specific allocations for federal and non-federal use. All radio stations operated by or for the Federal Government receive "frequency assignments" from the NTIA and must operate in the portions of the spectrum allocated for Federal Government use. All other users receive operating licenses issued by the FCC for frequencies in the non-government spectrum allocations. Non-government users (e.g., contractors, private individuals, may use FCC-licensed devices at LaRC subject to the following restrictions:

- a. Because they are employees of the Federal Government, civil service personnel may not normally utilize RF devices that operate in the non-government spectrum in the performance of their official duties. Exceptions can be made when it is necessary for government and non-government users to communicate on the same frequency such as police, fire and other emergency situations.
- b. Equipment purchased with Government funds, either outright or GFE, is considered a Government Radio Station and may not be operated on frequencies within non-government (i.e.-FCC) spectrum allocations.
- c. When the use of FCC-licensed devices is permitted, the user must possess a valid FCC license and must receive an RFA from the Spectrum Manager prior to using the devices.
- d. The devices must not cause interference to NASA's official-use communications systems. If interference occurs, use of the devices must be terminated until the cause of interference is resolved.
- e. Resolution of RFI caused to an FCC-licensed device is the responsibility of the user.

4.4.2 Contractors shall request RFAs through the cognizant Contracting Officer. A copy of the user's FCC license must accompany the request. The devices must be retained by the contractor when the contract is terminated.

4.4.3 The use of hand-held and mobile voice communications equipment by private individuals who hold a valid FCC license in the Amateur Radio Service, Citizen's Radio Service (CB), or General Mobile Radio Service (GMRS) does not require an RFA; however, users who are found to be violating FCC rules and regulations will lose their privilege to operate on LaRC. The use of all non-voice

communications equipment (e.g., radio control, data transmission, does require an RFA.

4.4.4 The limited use of FCC-licensed devices by the broadcast media does not require an RFA, as the broadcast media are regulated by the FCC. However, a copy of the FCC license for all frequencies that will be used at LaRC may be required by the LaRC Spectrum Manager.

4.4.5 RFAs are not required for the use of cellular telephones.

4.4.6 No radio transmissions will be permitted in areas so posted.

4.5 Use of low-power, non-licensed devices.

4.5.1 The use of low-power, non-licensed devices, including wireless local area networks and wireless microphones, is permitted at LaRC, provided that the devices meet the requirements of Part 15 (47 CFR 15) of the FCC Rules and Regulations and Annex K of the NTIA Manual. Users shall submit a LF 400 for the devices prior to purchasing in order to obtain a spectrum approval certification. In addition to the Spectrum Manager's approval, users must receive approval from the Information Technology office responsible for the Center's wireless networking infrastructure when operating on the Wi-Fi bands to ensure that the devices are compatible with the LaRC wireless computing networks.

4.5.2 The use of non-licensed devices is understood to be on a non-interference basis. If devices cause interference between LaRC users, the users are responsible for mitigating the interference, or use may be terminated. Interference with non-LaRC users may require the Spectrum Manager to terminate the equipment use if the interference cannot be resolved.

4.5.3 Spectrum manager approval for using a non-licensed device does not extend beyond LaRC. Use at non-LaRC locations is subject to the approval of that location's owner or cognizant spectrum manager.