

RADIO COMMUNICATIONS MANAGEMENT

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1. PURPOSE

This Directive establishes the radio technology policy and overall Animal and Plant Health Inspection Service (APHIS) goals to improve Agency radio operations and security while reducing technology costs through the Radio Program Management Office (RPMO) within the Office of the Chief Information Officer (OCIO).

2. SPECIAL INSTRUCTIONS AND REPLACEMENT HIGHLIGHTS

a. This Directive supersedes 3330.1. Radio Communications Management, dated 08/12/1998.

(1) The principal changes included in this Directive are as follows:

- (a) Section 6 Policy: added f. Frequency Authorizations, o. Purchasing Radios, p. Non-Licensed Devices, q. Wireless Communications, Radio Devices, and Satellite Equipment. r. Radio Maintenance.
- (b) Section 3. Authorities and References, added links to Supporting documentation and policy.

- (c) Modified 6 Policy: h. Cooperative Communications, l. FOIA Exemptions, and s. Disposition of Wireless Equipment

b. This Directive is in force until canceled or superseded.

3. AUTHORITIES AND REFERENCES

This Mission Area Directive must be applied in conjunction with:

- a. Communications Act of 1934, as amended
<http://transition.fcc.gov/Reports/1934new.pdf>
- b. Presidential Reorganization Plan No. 1 of 1977, and Executive Order 12046, dated March 26, 1978. <http://www.archives.gov/federal-register/codification/executive-order/12046.html>
- c. Department of Commerce Organization Order 10-10, dated October 5, 1992. http://www.ntia.doc.gov/files/ntia/publications/redbook/2012-05/1_12.pdf
- d. National Telecommunications and Information and Administration (NTIA) [Manual of Regulations and Procedures for Federal Radio Frequency Management](#), as amended.
- e. <http://www.ntia.doc.gov/page/2021/manual-regulations-and-procedures-federal-radio-frequency-management-redbook>.
- f. Office of Management and Budget (OMB) [Circular A-130: Management of Federal Information Resources](#)
- g. USDA Department Regulation (DR) [3330-1, Telecommunications](#), USDA Telecommunications Network Stabilization and Migration Program of 1997 (Appendix C – Wireless Communications)
- h. Code of Federal Regulations, CFR 47 – Telecommunication
<http://www.gpo.gov/fdsys/browse/collectionCfr.action;jsessionid=X8SLSCTKJwnpkgTr08gVDrhjMTf9Ygt9t2DvL5BLcftWmQFppNzH!-1603316207!-1202715569?selectedYearFrom=2013&go=Go>

- i. Security regulations pertaining to radio technology as defined by the National Institute of Standards and Technology (NIST) (if applicable) located at NIST publications [Search Publications | NIST](#)
- j. Security regulations pertaining to radio encryption technology as defined by the National Security Agency (NSA [Encryption Standards](#))
- k. Telecommunications Industry Association (TIA) 102 Standards and Specifications. Project 25 is a common air interface (CAI) solution for interoperability (Restricted Access Require Subscription)
- l. Radio Public Safety Interoperable Communications Program (SAFECOM): The President's e-government initiative pertaining to radio interoperability often referred to as Project SAFECOM

4. DEFINITIONS

For the purpose of this directive, the following definitions are provided.

- a. Radio Communication System: Sends signals by radio. Types of radio communication systems deployed depend on technology, standards, regulations, radio spectrum allocation, user requirements, service positioning, and investment. A radio system is a considerable investment which may have a decades-long lifespan. Operators must ensure that their choices allow their communications to mature and adapt, as their needs and the available technologies evolve. Invest enough to stay on the air through critical events (backup generator at repeater sites for example).
- b. Wireless Communication: Is the transfer of information between two or more points that are not connected by an electrical conductor. Radio is the most common use of wireless communication. For the purpose of this document, two-way radio is primarily used for Land Mobile Radio (LMR) operations. Radio signals are analog or digital. A radio transmits voice or data information from one radio to another.
- c. Land Mobile Radio (LMR) System: A two-way radio consists of a transmitter, receiver, and antenna. A radio system may be fixed or mobile or both. A base station and mobile or portable radio is an example of a fixed system. A mobile and portable radio is an example of a mobile system. A base station, mobile and portable is an example of both. Adding a repeater into the mix provides extended

signal coverage from Point A (base station) through the repeater to Points B and C (mobile and portable). Air-to-Ground (A/G) radio communication is an aircraft transmitting to a ground location. Conversely, a ground location transmits to an aircraft.

- d. Line-of-Sight (LOS): If one radio antenna can electrically 'see' another antenna, reliable radio communication is possible.

- e. Project 25 (P25) Radio: Is a long-standing partnership between the public safety communications community and industry manufacturers whose goal is to satisfy the complex and evolving mission-critical communication needs of users for interoperable, narrowband Land Mobile Radio (LMR) equipment and systems. P25 is the government standard for digital radios. As government agencies evaluate their mission-critical, narrowband two-way radio systems, requirements for the future, many practitioners and operators are reaching similar conclusions.
 - 1) Radio spectrum is becoming more congested
 - 2) Systems require increased voice and data functionality
 - 3) Improved voice quality is essential over extended coverage areas
 - 4) Secure communications (encryption) is a growing necessity
 - 5) Equipment migration must be feasible
 - 6) Users primarily include public safety, but may include others
 - 7) Independent assessment of equipment compliance is needed
 - 8) Interoperability has become critical to achieve

- f. Radio Bands: APHIS at this time uses three bands for LMR Communications, but HF band is a contingency band used for Emergency Operations to communicate with other Departments when needed or required.
 - 1) Air Band - VHF - 118-137.975 Megahertz. This band is divided into 760 channels for amplitude modulation voice transmissions in steps of 25 kHz, and used for communications at airports (tower, ramp control, movement area, etc...
 - 2) Land Mobile Radio Band - VHF - 150-174 Megahertz 150-162 Megahertz is used by non-government radio stations and controlled by the Federal Communications Commission (FCC). 162-174 Megahertz is used primarily by Government (Federal) radio stations and controlled by the National Telecommunications Information Administration (NTIA).
 - 3) Land Mobile Radio Band - UHF - 401- 420 Megahertz, used primarily by Federal stations for linking VHF systems, but can be used for Land Mobile Radio Systems.

- 4) High Frequency (HF) – Land Mobile Radio over High Frequency (LMR over HF) allows two or more geographical operations to connect via HF where LOS between geographically separated operations is not possible.
- g. Telemetry: Telemetry frequencies are controlled and assigned by the Department of Interior (DOI) US Fish and Wildlife Service (USFWS). Radio collars used for tracking/monitoring wildlife hazards, predators that cause cattle, horse, and sheep deprivation, among others. Telemetry frequencies are also utilized for trap monitoring.
- h. Satellite Positioning and Orbital Tracking (SPOT): Satellite GPS Messenger: Provides a vital line of emergency assistance communication when you need it.
- i. Radio Types: There are 6 types of radios used by the Agency for LMR operations and noted below.
- 1) Base Station
 - 2) Mobile Radio
 - 3) Aircraft Radio
 - 4) Portable Radio
 - 5) Repeater Radio System
 - 6) Vehicle Repeater Radio System
- j. MRP Enterprise Infrastructure (MEI): A strategically planned, inter-networked, centralized communications infrastructure developed to provide connectivity for APHIS, MRP and AMS information systems operated within and throughout the three geographically dispersed computer rooms. It provides the connectivity platform for all Program Units to connect their information systems to one centralized core backbone. It provides complete IT support services to employees and contractors working to fulfill the mission of inspecting and protecting animal and plant materials within the United States and Possessions.
- k. RoIP (Radio over IP): Radio over IP is a way of sending and receiving digital voice packets (audio, data) by way of an existing Internet Protocol (IP) infrastructure. Radio over IP gateways now enable two-way analog or digital transceivers to interface with both local and wide area networks.

5. SCOPE

- a. This Directive applies to all APHIS, MRP and AMS organizational elements that use radio technology and spectrum management, including satellite communications equipment.
- b. This Directive will not conflict with [DR 3300-001-A](#), “Procuring and Managing Telecommunications Devices and Services” or USDA Telecommunications policy.
- c. This Directive will not conflict with [DR 3300-001-C](#), “Radio Frequency Management” or USDA Telecommunications policy.
- d. This Directive will not conflict with [DR 3300-020](#), “Telecommunications Mission Area Control Officer Roles and Responsibilities” or USDA Telecommunications policy.
- e. This Directive will not conflict with [MD # 4700](#), “Personal Communications Device Distribution” or APHIS Telecommunications policy.
- f. Exceptions or deviations to this Directive require approval of the APHIS Assistant Chief Information Officer (ACIO).

6. POLICY

The primary objective is to establish clear and concise policy for radio operations & maintenance. APHIS programs will have access to interoperable systems(s) to facilitate coordinated support when Agency programs interact. Programs requiring spectrum management support and frequencies for radio equipment shall work through the APHIS Radio Management Office (RPMO) Spectrum Managers.

- a. Spectrum Management. APHIS wireless communication systems shall be designed to utilize current technology, be spectrum efficient, and share resources among agencies whenever cost-effective and when savings can be achieved.
- b. Regulations and Procedures. APHIS Programs and staff offices shall adhere to Federal regulations and procedures for spectrum management when establishing and operating wireless communications systems and services.
- c. Delegation of Wireless Spectrum Management Representation. The APHIS ACIO has delegated to the RPMO, working through the USDA Forest Service representative to the Interdepartmental Radio Advisory Committee (IRAC), the authority to represent APHIS

to the NTIA Office of Spectrum Management, on issues concerning wireless spectrum management.

- d. Radio Frequency Assignment (RFA) Requirement. Any device which radiates electromagnetic energy through free space must be authorized prior to procurement or use by APHIS Programs or staff offices. Operations on an assigned frequency must be within the parameters of the frequency assignment. Frequency authorization must be obtained before funds can be obligated for the procurement of communications equipment requiring radio frequency support. Cellular telephones and other leased Personal Communications Services (PCS) are exempt from this requirement. They are licensed through the (Federal Communications Commission (FCC) to the service provider.

- e. Frequency Assignment Process. Applications or modifications for frequency assignment shall be submitted to the APHIS RPMO spectrum managers. NTIA has implemented SPECTRUM XXI as its preferred optional format for use in requesting frequency assignments. SPECTRUM XXI is a client/server, Window-based software system that provides frequency managers with a single information system to address spectrum management automation requirements. Programs should contact the APHIS RPMO for information concerning use of this system.
 - 1) Requests for Radio Frequency Assignments:
 - (a) Frequency requirements for new systems, or major system upgrades, must be planned in advance. Requests for these frequency assignments should be forwarded to the APHIS RPMO at least six (6) months prior to the planned radio procurement.
 - (b) A separate formal frequency assignment request shall be submitted for each frequency to be installed in a base station, repeater, group of mobile radios, or group of portable radios in a system.
 - (c) Sharing of APHIS systems among programs and agencies shall be considered prior to developing a new system or expanding an existing system. Such sharing may be required when spectrum availability is limited, unavailable, or the traffic does not justify a separate system. NTIA mandates that agencies consider the use of commercial services in any system planning.
 - (d) Requests for radio frequency assignments that are identified as Freedom of Information Act (FOIA)-exempt shall be accompanied by a justification letter stating the specific exemption(s) under the FOIA.

- f. Frequency Authorizations have a cost associated with the license, that is determined by Department of Commerce and NTIA. The cost changes each fiscal year, and it is up to the program point of contact to ensure that the authorization is still required and the information on the license is accurate after receiving the authorization from the RPMO. The Authorization will need to be reviewed annually but will require renewal in

5 years.

- g. Five-Year Review. All radio frequency assignments must reflect the actual installed format. NTIA requires all radio frequency assignments be reviewed regularly and updated within five years of the revision date on the assignment. Frequency Assignments that are not reviewed in conformance to Annex J of the NTIA manual, will not be retained and will be deleted, and will no longer be authorized for use.

- h. Cooperative Communications. All wireless operations require radio frequency authorizations from NTIA. Prior arrangements for sharing APHIS wireless systems with other non-APHIS entities must be coordinated with the APHIS RPMO. Arrangements permitting cooperative communications of mutual benefit between programs for shared authorized radio frequencies may be made by a Memorandum of Understanding (MOU) (between Federal units) or a Cooperative Agreement (between Federal and non-Federal units) signed by the responsible official having jurisdiction and radio network control. Copies of the MOU must be on file with the program or staff office and the APHIS RPMO. A formal MOU between units within APHIS programs or staff offices is not required. Arrangements between programs or staff offices within APHIS, or with external agencies (Federal or non-Federal), must be forwarded to the APHIS RPMO when authorizations or licenses are required.

- i. Citizens Band Radio Use. APHIS programs may use frequencies allocated to the Citizens Band (CB) Radio Service under Part 95, Subpart D, of the FCC Regulations only when a need to intercommunicate between Federal government and non-Federal government stations is justified. CB communications between Federal Government entities are prohibited. CB use in APHIS is determined on a case-by-case basis.

- j. Programming and Frequency Changes in APHIS Radios. The APHIS Spectrum Management Officers may delegate the authority to program or change frequencies for which they are responsible and for which they have copies of RFAs, MOUs or Cooperative Agreements. Individuals delegated the authority to reprogram or change frequencies in transmitters must have:
 - 1) A formal delegation that includes the SPECIFIC FREQUENCIES they are authorized to program or change; and Knowledge of the terms and limitations of the RFA or license for EACH SPECIFIC FREQUENCY being changed or programmed.
 - 2) (This normally means they have a copy of the RFA or license.) Equipment shall not be programmed to operate outside the constraints of the RFA, license, or arrangement.

- k. Interference. Interference to frequencies authorized for use by APHIS wireless systems shall be reported to the APHIS RPMO for resolution.

- l. FOIA Exemptions. The NTIA will release information concerning frequency assignments unless the frequency is previously designated as FOIA-exempt. Federal agencies are required to disclose any information requested under the FOIA unless it falls under one of nine exemptions which protect interests such as personal privacy, national security, and law enforcement.

- m. Shared Radio Systems. The sharing of Government-owned wireless resources with other Federal agencies is recommended whenever cost-effective savings can be achieved. APHIS programs or staff offices shall consider carrying traffic generated by other agencies. APHIS programs, staff offices, or other Federal agencies may be required to share systems with other APHIS programs or staff offices in areas where frequencies are not available, or the traffic does not justify separate systems. APHIS programs shall not provide wireless communications services to non-Federal entities or to the private sector, except as provided in specific laws and regulations. Such use shall be reviewed by the APHIS RPMO prior to providing such services. APHIS programs requirements for use of non-Federal wireless systems shall be coordinated with the APHIS RPMO (trading services does not constitute an exemption).

- n. Technical Assistance. Technical assistance and/or advice pertaining to system design, equipment selection, sources of supply and technical specifications may be obtained through the APHIS RPMO.

- o. Purchasing Radios. All Radio purchases will be coordinated through the RPMO. Radios are acquired only with the approval of the Telecommunications Mission Area Control Officer (TMACO). Frequency Assignments must be authorized, prior to purchasing radios APHIS radios located in the Integrated Acquisition System (IAS) are considered to be sensitive property ([Ref MRP 5000.2](#)) All Radios must be recorded in the official property system of record as sensitive property with a budget code of 3141 for radios less than \$5,000.00 and code 3150 for radios in the price range of \$5,000.00 to \$24,999.99. Before purchasing new radios, the requestors inventory should be screened and ensure all radios that are past the life cycle date are scheduled to be excessed or disposed properly.

- p. Non-licensed devices subject to FCC certification, notification or verification shall bear the appropriate FCC statement of limitations to operations. Agencies purchasing or using non-licensed devices for which the FCC has granted a waiver of specific requirements of Part 15, shall operate these devices in such a way as meet all the conditions of the waiver.
 - 1) Organizations operating a non-licensed device that causes interference to an authorized radio station shall promptly take steps to eliminate the interference. Upon notification by cognizant spectrum management personnel that the device is causing interference, the operator of the non-licensed device shall cease all

radiations from the device. Operations shall not resume until the condition causing the interference has been corrected.

- 2) Organizations operating a purchased non-licensed device have no vested or recognized right to continued use of the device in any part of the radio frequency spectrum. Non-licensed device operations must accept any interference from any federal or non-federal authorized radio station, other non-licensed device, or industrial, scientific and medical (ISM) equipment.
 - 3) Non-licensed devices, since they operate on a non-interference basis, may not provide sufficient reliability for critical radio communications functions affecting human life or property. Non-licensed devices, however, may provide valuable and unique supplemental or expendable radio communications services where needed. To ensure adequate regulatory protection, federal entities should rely only on devices with frequency assignments in the Government Master File as principal radiocommunication systems for safeguarding human life or property.
- q. Wireless Communications, Radio Devices, and Satellite Equipment: Any device that transmits on a frequency, is considered a radio. There are exceptions to how radio devices are coded above and to assist property management, with more details for classification of sensitive property, any transmitting device that requires specialized programming, Frequency Authorization or requires assigned frequencies from the FCC or NTIA, will be governed by this directive. Examples of devices that are not governed under this directive would be a cell phone, Satellite phone, or router. These devices do not require specialized programming and are FCC commercial devices with a commercial provider, that will not provide any information on how our government agency operates. There are Satellite devices that will be governed by this directive, and they are any Push to Talk (PTT) systems that require a specified talk group to communicate directly with agency employees, or cooperators. All LTE, 5G or Satellite Gateways used to back haul or transport any radio communication networks, will fall under this directive and be considered sensitive property.
- r. Radio Maintenance. [MRP 5000.2](#) specifies that Agency Property (in this case, Radios) will be repaired and or refurbished when necessary and cost-effective. Radios are categorized as sensitive property and all sensitive property requires periodic maintenance and must be serviced according to the manufacturer's recommendation. Radio maintenance and technical assistance may be obtained through the APHIS RPMO.
- s. Disposition of Wireless Equipment. APHIS programs planning to excess radio equipment shall remove "ALL" frequencies prior to release of the equipment to assure radio can no longer transmit on the frequencies originally assigned. This may be accomplished by deleting the programming within the radio. After deleting the programming, turn off the radio and turn it back on to verify that no frequencies or information remain inside the radio. After verification, use an APHIS Form [AD-107](#) or Form [AD-112](#) to excess or physically destroy equipment. Technical assistance may be obtained through the APHIS RPMO.

7. ROLES AND RESPONSIBILITIES

- a. The APHIS Administrator, through the APHIS ACIO, will be responsible for all aspects of this Directive. The APHIS ACIO will provide clear information and guidance as to how exceptions or deviations from this Directive will be granted.
- b. An Executive Committee chaired by the APHIS ACIO or his/her representative will manage Radio Program Management Office. This committee is composed of designated program representatives and the head of the RPMO. The committee will meet at least bi-annually to assist field programs in carrying out their missions related to radio technology.
- c. The APHIS Chief Technology Officer (CTO) through the APHIS Telecommunications Manager will direct the RPMO.
- d. The APHIS RPMO will:
 - 1) Coordinate the development of policy and strategy for the use of radio technologies across all programs using radio in the Agency, thus ensuring interoperability, value and standardization.
 - 2) Facilitate interoperable radio systems for all APHIS Programs by:
 - (a) Establishing APHIS policy on radio procurement strategy, operation, and maintenance for all radio activities within APHIS and its organizational elements.
 - (b) Providing complete oversight of all radio frequency management, procurement, and interoperability radio issues at APHIS.
 - (c) Ensuring radio interoperability between APHIS and all other Federal agencies to the maximum extent possible. Assists in providing interoperability between state and local radio systems when Agency missions depend on effective radio communications with non-government elements.
 - (d) Identifying duplicate infrastructure and possible resource sharing opportunities between programs in APHIS and other Federal or State entities.
 - (e) Providing the oversight on review and approval of all radio systems being procured and integrated into APHIS to ensure that the procurement complies with the functional and interoperability goals of the Agency.
 - (f) Assisting APHIS field programs in developing documents between users (MOA's or MOU's) pertaining to frequency use.
 - 3) Ensure the effective operation, management, budgeting, and procurement of all radio technology.
 - 4) Ensure the most cost effective and efficient acquisition process is used to procure radio equipment in APHIS.
 - 5) Develop policy and radio program performance metrics and standards for APHIS taking into consideration all program missions.

- 6) Work effectively with other Federal and State agencies and local cooperating organizations to develop and, where practicable, jointly promote interoperable functionality in day-to-day operations to reduce agency costs by radio resource sharing.
 - 7) Provide radio communications support for national security and emergency preparedness system operations throughout the nation, as applicable.
 - 8) Establish a comprehensive radio frequency spectrum management program for all APHIS radio activities in accordance with applicable laws.
 - 9) Ensure the success of the President's e-government initiative through close coordination with Project [SAFECOM](#).
- e. APHIS Programs, utilizing radio communications, must:
- 1) Serve as program point-of-contact for all matters relating to wireless communications and radio management. POCs will be identified at each State level or Regional Offices.
 - 2) Identify existing radio resources and capabilities; maintain an inventory of radio transmitters or equipment within the program/staff office, including the total investment of the radio and other wireless communications system(s). This inventory shall be by radio type (base station, mobile, portable, repeater), and a copy shall be sent to the APHIS RPMO, no later than January 31, each year. Although radio transmitting/receiving equipment may not always be considered an inventory control item because of GSA established procurement cost ceilings, such equipment is considered information technology telecommunications equipment and services.
 - 3) Database management is required for radio equipment. Examples are; base stations, mobiles, portables, repeaters also antenna equipment (base station repeater antennas). Other equipment is non-accountable accessories (mobile antenna, microphone, etc.).
 - 4) Review current capabilities and identify current and future needs.
 - 5) Develop timelines identifying requirements, priorities, and acceptable delays (acceptable delays meaning delayed equipment shipment, etc.)
 - 6) Manage radio frequencies used by the program. This management includes the following:
 - (a) Maintain a file of all current MOUs/RFAs for the program.
 - (b) Submit program (MOUs/RFAs) to the APHIS RPMO.
 - (c) Disseminate approved MOUS/RFAs.
 - (d) Report and/or resolve radio interference or noncompliance with RPMO.
 - (e) Coordinate radio planning efforts with the program or staff office responsible for preparation of the Agency IRM Plan.
 - (f) Prepare and maintain a strategic plan covering Frequency Modulated Land Mobile Radio (FM LMR) use within the agency. This plan is required by Office of Management and Budget (OMB) and is due each year.

8. RECORDS MANAGEMENT

Federal records created by this Directive must be maintained in accordance with the established [General Records Schedule \(GRS\)](#) and/or the [AMS/APHIS Records Management Handbook](#), when applicable. If employees are named in an active litigation hold, Freedom of Information Act (FOIA) request, and/or other action, those records, regardless of media, must be preserved and maintained in their native format until otherwise notified by MRP's Records Officer and/or the Office of General Counsel.

- a. The APO is the record keeping official of any/all personal property records that are created under this Directive. The APO is responsible for maintaining records in accordance with the Property – Procurement (PRP) 8, 8.1, 8.2, 8.3 and 8.4 record retention requirements of the APHIS Records Management Handbook.
- b. MRP-IT, Information Management Branch (IMB) is the official record-keeper of this Directive, which is to be preserved permanently, per Paperwork and Data Management (PDM) 4-1.

9. INQUIRIES AND ADDITIONAL INFORMATION

- a. General inquiries on radio issue matters will be directed to the RPMO, Info to the APHIS TMACO at 970-494-7147 and CTO at 970-494-7140.
- b. Records management inquiries should be directed to your Program Records Management Liaison for [AMS/APHIS](#).
- c. This Directive can be accessed at www.aphis.usda.gov/library.

/s/

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Marketing and Regulatory Program Business Services

Animal and Plant Health Inspection Service