BY ORDER OF THE COMMANDER
99 TH AIR BASE WING (ACC)

NELLIS AIR FORCE BASE
INSTRUCTION 17 - 220

21 DECEMBER 2023

Cyberspace Operations

SPECTRUM OPERATIONS

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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RELEASABILITY: There are no releasability restrictions on this publication.

OPR: 99 CS/SCXF

Certified by: 99 CS/CC

Pages: 7

This publication implements Department of Air Force Instruction (DAFI) 17-220, Spectrum Management and outlines the responsibilities and rules for management of radio frequencies within the jurisdiction of Nellis Air Force Base. This instruction applies to all units assigned, attached, and assigned under US Air Force Warfare Center (USAFWC) who use radio frequencies within the Nellis Installation Spectrum Management (ISM) Office Area of Responsibility. Ensure that all records generated as a result of processes prescribed in this publication adhere to Air Force Instruction 33-322, *Records Management and Information Governance Program*, and are disposed of in accordance with the Air Force Records Disposition Schedule which is located in the Air Force Records Information Management System. Additionally, if the publication generates a report(s), alert readers in a statement and cite all applicable Reports Control Numbers in accordance with Air Force Instruction (AFI) 33-324, The Air Force Information Collections and Reports Management Program. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force (AF) Form 847, *Recommendation for Change of Publication*; route DAF Form 847s from the field through the appropriate functional's chain of command. Due to the amplified radio frequency congestion in the Nellis Air Force Base (AFB) electromagnetic environment commanders must properly manage assigned radio frequencies to meet vital mission requirements. Planning and coordination with proper command authority through the Installation Spectrum Manager (ISM) DSN: 652-3391; Commercial (702) 652-3391 is essential for all radio frequency and electromagnetic compatibility matters to provide an environment free from interference.

Chapter 1

PROGRAM OVERVIEW

1.1. Overview.

1.1.1. The electromagnetic spectrum is the range of frequencies of electromagnetic radiation extending from zero to infinity, measured in hertz (cycles per second). The radio frequency spectrum is the group of frequency sub-bands within the allocated electromagnetic spectrum associated with radio wave propagation between 9 kilohertz and 275 gigahertz. This instruction provides for the Department of the Air Force's responsibilities in the conduct of peacetime electromagnetic spectrum management.

1.1.2. International law, domestic law, and implementing regulations require effective management and use of the electromagnetic spectrum. Within the United States, the electromagnetic spectrum is allocated between federal and non-federal users with portions of the spectrum being shared as noted in the National Telecommunication and Information Administration (NTIA) Manual national table of allocations. The Department of Commerce's NTIA Manual regulates federal operations, and the Federal Communications Commission regulates non-federal operations. Federal users must utilize frequency bands allocated for government or shared use in accordance with NTIA Manual. **(T-0)**. A government frequency assignment is authorized in a non-government allocated frequency band, providing the Federal Communications Commission approves the request. Due to these policies all Nellis and Creech Installation users of the RF Spectrum must conform to the guidance in this Operating Instruction.

Chapter 2

ROLES AND RESPONSIBILITIES

2.1. The Installation Communications Commander or Director (99 CS/CC) will:

2.1.1. Ensure the installation spectrum manager has, or is able to attain, the security clearance as indicated on the unit manning document required to perform spectrum operations duties.

2.1.2. Ensure the Nellis/Creech installation spectrum manager has Secret Internet Protocol Router Network access with SPECTRUM XXI and data exchange capability.

2.1.3. Ensure the Nellis/Creech Installation Spectrum Management Office conducts operations in accordance with DAFI 17-220.

2.2. Nellis/Creech Installation Spectrum Manager (ISM) (99 CS/SCXF) The Nellis/Creech ISM is responsible to the 99th Communication Squadron installation commander, through their chain of command, for managing all spectrum use on Nellis and Creech AFB under the control of the 99 CS installation commander. The 99 CS installation spectrum manager will:

2.2.1. Ensure using organizations understand the technical parameters and any imposed operational restrictions of their assigned frequencies.

2.2.2. Review and validate using organizations frequency assignment requirements, validate existing frequency assignment parameters, and submit modifications, renewal, or deletion actions through command channels in accordance with the NTIA Manual, Annex F.

2.2.3. Ensure organizations on Nellis AFB, Creech AFB and Nevada Test and Training Range (NTTR) that fall under the Nellis/Creech ISM Office must obtaining spectrum supportability guidance and validation prior to entering into a contractual obligation for all spectrum-dependent (SD) systems in accordance with the NTIA Manual and DoDI 4650.01.

2.2.4. Perform emitter surveys every 5 years, with assistance from the parent command if necessary or the Department of Defense (DoD) Nevada Area Frequency Coordinator (AFC) (when available) to ensure spectrum-dependent systems are operated in accordance with frequency licenses.

2.2.5. Drive the installation each quarter to verify no new spectrum dependent systems have been installed without the spectrum manager’s knowledge.

2.2.6. Coordinate all spectrum requirements/renewals, with appropriate DoD AFC.

2.2.7. Ensure coordination is accomplished between the using unit and 57 th Wing Weapon Safety office prior to relocating SD emitters or changing frequencies, antenna gain, and/or power characteristics of existing frequency assignments.

2.2.8. Provide using organizations with updated site license for new and modified frequency records.

2.2.9. Coordinate with the Nellis AFB safety office to identify any hazard of electromagnetic radiation to fuel and the 99 th Aerospace Medicine Squadron Bioenvironmental engineering flight to support health hazard evaluations and inventory accuracy in accordance with AFI 48-109, *Electromagnetic Field Radiation (EMFR) Occupational and Environmental Health Program*. **(T-1)**.

2.2.10. Draft and/or review memoranda of understandings or memoranda of agreements that pertain to the use of spectrum-dependent systems on Nellis AFB, Creech AFB and NTTR when needed and maintain a copy.

2.2.11. Coordinate, obtain, and provide the frequency resources for exercises and test when the 99 Communication Squadron (CS) or subordinate units under the 99 CS/ISM office have been identified as the sponsoring agencies. ACP 190 US SUPP-1 (D), Chapter **4**, **405**, a

2.2.12. Provide spectrum services on NTTR only when the using organizations requesting spectrum support are subordinate units under the 99 CS/ISM or if the Large Force Exercise, test or mission is sponsored by a subordinate unit under the 99 CS/ISM. All others will coordinate spectrum requirements with the NTTR Spectrum office via their assigned spectrum manager if available.

2.2.13. Follow guidance from DAFI 17-221 when tracking, identifying, and resolving interference issues on Nellis AFB, Creech AFB and NTTR.

2.3. The Plans and Programs Office (99 CS/SCXP) shall:

2.3.1. Coordinate with Nellis/Creech Spectrum ISM offices to provide information about SD equipment identified in a project. This includes both installation of new radio frequency equipment/structures and the removal of radio frequency equipment/structures within Nellis and Creech AFB.

2.3.2. Seek advice/authorization from the Nellis/Creech ISM office prior to purchasing any Spectrum Dependent system(s).

2.4. Nellis/Creech AFB Users Organizations. User organizations that fall under Nellis and Creech ISM office, to include but not limited to acquisition, program, operational, test, and tenant units will:

2.4.1. Obtain a frequency assignment(s) prior to operation of any spectrum-dependent devices that radiate radio frequency energy on Nellis AFB and Creech. This also applies to NTTR if the requesting organization falls under the 99CS/ISM office per NTIA Manual, Chapter 8. **(T-0)**.

2.4.2. Maintain and identify a point-of-contact to the installation spectrum manager for unit frequency matters.

2.4.3. Maintain a copy of the frequency license received from the Nellis/Creech ISM

2.4.4. Make assessment of local purchase or government purchase card orders for spectrum-dependent systems to determine spectrum supportability prior to the obligation of funds; specifically, if the system is deployed outside the continental United States in accordance with ACP 190 US SUPP-1(D), **Chapter 3**. (T-0).

2.4.5. Get approval before procuring transportable Advanced Wireless Service (AWS), Cellular (Cell), or Personal Communications Service (PCS) systems, including Cell-On-Wheels (COW) and Cell-On-Light-Truck (COLT), operating in the bands 698-758, 775-788, 805-806, 824-849, 869-894, 901-902, 930-931, 940-941, 1710-1755, 1850-1990, and 2110-2155 MHz, federal agencies shall obtain a certification by NTIA per NTIA Manual 8.2.5 **paragraph 3**.

2.4.6. Submit frequency request to the Nellis/Creech ISM Office for all spectrum requirements on Nellis AFB. This also pertains to 99 CS/ISM Office organizations operating on NTTR.

2.4.7. Submit radio frequency requirements in Standard Frequency Action Format (SFAF) to the Nellis/Creech ISM's Spectrum XXI (SXXI) job account, "Nellis ISM" if requesting organization has a spectrum manager.

JOSHUA D. DEMOTTS, Colonel, USAF
Commander, 99th Air Base Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DoDI 4650.01, *Policy and Procedures for Management and Use of the Electromagnetic Spectrum*, 9 January 2009

DAFI 17-220, *Spectrum Operations*, 8 June 2021

DAFI 17-221, *Spectrum Interference Resolution Program*, 31 January 2023

AFI 91-208, *Hazards of Electromagnetic Radiation to Ordnance (HERO) Certification and Management*, 24 October 2019

ACP 190 US SUPP-1(D), *Guide to Frequency Planning*, January 2015

Prescribed Forms

None

Adopted Forms

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

ACP—*Allied Communications Publication*

AFI—*Air Force Instruction*

DAFI—*Department Air Force Instruction*

NTIA—*National Telecommunications and Information Administration*

Terms

Allotment (of a radio frequency or radio frequency channel)—Entry of a designated frequency channel in an agreed plan, adopted by a component conference, for use by one or more administrations for a (terrestrial or space) radio communication service in one or more identified countries or geographical areas and under specified conditions. Source: ITU RR.

Assignment (of a radio frequency or radio frequency channel)—Authorization given by an administration for a radio station to use a radio frequency or radio frequency channel under specified conditions. Source: ITU RR.

Commercial—**off-the-Shelf**—Spectrum-dependent systems that can be procured by the general public wholesale or retail. Source: National Institute of Standards and Technology.

Electromagnetic Spectrum Management—The operational, engineering, and administrative procedures to plan, and coordinate operations within the electromagnetic operational environment. Source: JP 3-85.

Frequency Coordination—(1) The process of obtaining approval to use the radio frequency spectrum via arrangements and technical liaison for the purpose of minimizing harmful

interference through cooperative use of the radio frequency spectrum. Source: NTIA. (2) Rules and mechanisms that control how to use the electromagnetic spectrum in specified dimensions (i.e., spatial, time, frequency, power, waveform. Source: JP 3-85. To be effective, the coordination must extend through the planning, proposal, and actual in use phases of radio frequency utilization.

Interference—(1) The effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radio communication system, manifested by any performance degradation, misinterpretation, or loss of information that could be extracted in the absence of such unwanted energy. Source: ITU RR. (2) Any electromagnetic disturbance induced intentionally or unintentionally, that interrupts, obstructs, or otherwise degrades or limits the effective performance of electromagnetic spectrum-dependent systems and electrical equipment. Also referred to as electromagnetic interference. Source: JP 3-85.

National Table of Allocations—Entry in the federal table of frequency allocations of a given frequency band for its use by one or more (terrestrial or space) radio communication services or the radio astronomy service under specified conditions. This term also applies to the frequency band concerned. Source: NTIA.

Telecommunication—Any transmission, emission, or reception of signs, signals, writings, images, and sounds or information of any nature by wire, radio, visual or other electromagnetic systems. Source: ITA RR.