BY ORDER OF THE COMMANDER
AIR FORCE RESEARCH LABORATORY
(AFRL)

AIR FORCE RESEARCH LABORATORY
INSTRUCTION 17-220

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Cyberspace

SPECTRUM MANAGEMENT

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This instruction implements the following publications: Manual of Regulations and Procedures for Federal Radio Frequency Management (NTIA Manual), OMB Circular No. A-11, *Preparation, Submission, and Execution of the Budget,* ACP 190, US Supp 1(D), *Guide to Frequency Planning,* DODI 4650.01, *Policy and Procedure for Management and Use of the Electromagnetic Spectrum,* and DAFI 17-220, *Spectrum Operations*. This instruction defines duties and responsibilities of users of the radio frequency spectrum within AFRL. This instruction applies to any user of the radio spectrum within AFRL. Ensure all records created because of processes prescribed in this publication are maintained in accordance with (IAW) AFI 33-322, *Records Management and Information Governance Program,* and disposed of IAW the Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). This publication may be supplemented at any level, but all direct supplements must be routed to the OPR of this publication for coordination prior to certification and approval. The authority to waive requirements in this publication resides with the AFRL Vice Commander (CV). Submit requests for waivers through the chain of command to the Publication OPR for non-tiered compliance items.

1. Overview.

1.1. The usable part of the radio frequency spectrum is a finite natural resource. With the ever increasing demand of modern technology for this resource, it is incumbent upon all users to ensure it is used in the most efficient manner possible without causing harmful interference to other users. This instruction defines the processes by which AFRL gains the spectrum approvals required to support its programs.

1.1.1. This instruction is meant to explain the various processes and timelines required for the various types of spectrum support needed by AFRL programs in locations other than the local installation. In many cases, spectrum support is required in numerous areas not associated with a host installation. This instruction is aimed primarily at those requirements and is not meant to override the process of an installation.

1.2. In the United States, radio spectrum may be allocated for either Federal or non-Federal use exclusively, or for shared use. Regulatory responsibility for the radio spectrum is divided between the Federal Communications Commission (FCC) and the National Telecommunications and Information Administration (NTIA), an operating component within the Department of Commerce. The FCC, an independent regulatory agency, is assigned responsibility for the regulation of non-government interstate, intrastate, and foreign telecommunications. The presidential authority for Federal Government RF spectrum use has been delegated to the Administrator, NTIA.

1.3. Within the Federal government, the approval process for the use of the Radio Frequency (RF) spectrum involves every other Federal agency, such as, the Departments of Justice, Interior, etc. through a subcommittee procedure. Any of the 20+ agencies can disapprove the use of the RF spectrum by any other agency.

2. Roles and Responsibilities.

2.1. **LABSMO.** The HQ AFRL Spectrum Management Office (LABSMO) is the primary conduit for all spectrum matters within AFRL to the higher levels of spectrum management within the Air Force. Spectrum matters for AFRL will flow through the LABSMO to the AFMC Spectrum Management Office (SMO) (AFMC/A6IX) and the AF SMO (AF A2/6LS). Pursuant to spectrum management directives, the LABSMO will:

2.1.1. Assist AFRL spectrum users in properly carrying out Air Force policy, practices, and procedures for managing the use of the electromagnetic spectrum.

2.1.2. Be actively involved in AFRL spectrum use planning and assist in coordinating and obtaining radio frequency support to meet AFRL’s mission.

2.1.3. Upon request, conduct AFRL spectrum customer education and discuss current spectrum operations issues.

2.1.4. Ensure AFRL compliance with the frequency assignment review program.

2.1.5. Provide electromagnetic spectrum guidance to the AFRL program managers and other users.

2.1.6. Manage electromagnetic spectrum use in the concept, planning, deployment, operation, and evaluation phases of AFRL’s supported operations.

2.1.7. Process and obtain frequency assignments, equipment certifications, Electronic Attack (EA) clearances, Host Nation Coordination (HNC) and International Telecommunication Union satellite registration for spectrum-dependent (SD) systems in support of testing, experimental and operational requirements within AFRL.

2.1.8. Ensure AFRL users understand the technical parameters and any imposed operational restrictions of their radio frequency assignments (RFA) and equipment certifications.

2.1.9. Provide guidance on the use of the electromagnetic spectrum early in the concept, exploration, demonstration, and validation phases of the AFRL process.

2.1.10. Ensure coordination with the appropriate agencies (e.g., DOD Area Frequency Coordinators (AFCs)) is accomplished prior to frequency assignment.

2.1.11. Review the plans for spectrum use by AFRL programs.

2.1.12. Provide quality control and updates to frequency records in the Frequency Resource Record System (FRRS).

2.1.13. Assist in the reporting and resolution of interference events involving assigned frequencies in accordance with DAFI 17-221, *Spectrum Interference Resolution Program*.

2.1.14. Review spectrum supportability risk assessment (SSRA) submissions ensuring each required assessment component has been properly and accurately completed and presented.

2.2. **User Organization.** IAW the listed references, user organizations, to include but not limited to acquisition, program, operational, and test units within AFRL, will:

2.2.1. Obtain spectrum guidance from the LABSMO prior to purchasing SD equipment or entering any contractual obligations for the use of SD equipment. An equipment certification application may be required. (See Section 3)

2.2.2. Obtain an RFA through the LABSMO prior to operation of any SD devices that radiates RF energy. Deviations from this policy can be obtained from the LABSMO when coordinating spectrum use is more expedient with direct contact with certain DOD test ranges, e.g., Yuma Proving Grounds (YPG).

2.2.3. Maintain a copy of the equipment certification document and the RFA received from the LABSMO. Ensure action on review dates and expiration dates are taken within appropriate lead times.

2.2.4. Provide a copy of the equipment certification and the RFA received from the LABSMO to AFRL/EZ for airworthiness review/approval if the certification or RFA is for flight testing/operations.

2.2.5. Ensure SD system operations comply with authorized parameters identified in the RFA.

2.2.6. Act promptly to notify the LABSMO of any incidents of radio frequency interference (RFI) and assist in resolving any incidents of RFI.

2.2.7. To ensure all aspects of spectrum support are addressed for a program, identify and maintain a point-of-contact with the LABSMO for program spectrum matters. This point-of-contact should be cognizant of all the spectrum requirements for the program and should be identified in the test plan.

2.2.8. Every RFA has either an expiration date (for temporary assignments typically used for tests or experiments) or a mandatory review date (for permanent assignments in support of long-term requirements). It is the user responsibility to track those dates. When an RFA is no longer required, inform the LABSMO so that spectrum space can be used by other users. If the RFA is required beyond the expiration or review date, the owning organization must contact the LABSMO at least 90 days prior to that date.

2.2.9. Obtain approval from the LABSMO before modifying any previously approved SD system or antennas (e.g., increase power, change antenna height or gain), if outside of the assigned parameters of the existing RFA or the equipment certification document.

2.2.10. Assist the LABSMO in reviewing and verifying equipment parameters during mandatory periodic reviews of the RFA.

2.2.11. Contact the LABSMO for interpretation or guidance of any international, national, or department-level spectrum management policy.

2.2.12. Process SSRA inputs through the LABSMO, when an SSRA is deemed necessary.

2.2.13. For Host Nation Coordination (HNC) of deployable RF systems outside the United States and Possessions (US&P), consult the LABSMO prior to beginning the process. Refer to **Para. 5** of this instruction.

2.2.14. Obtain electromagnetic attack (EA) authorizations through the LABSMO prior to testing, training, or exercises.

3. Equipment Certification.

3.1. Within the DOD, approval for use of the RF spectrum requires the execution of two separate processes. Certifying the RF equipment is the first step. This process must be complete before a license to operate (RFA) can be obtained. Obtaining an RFA is the second process.

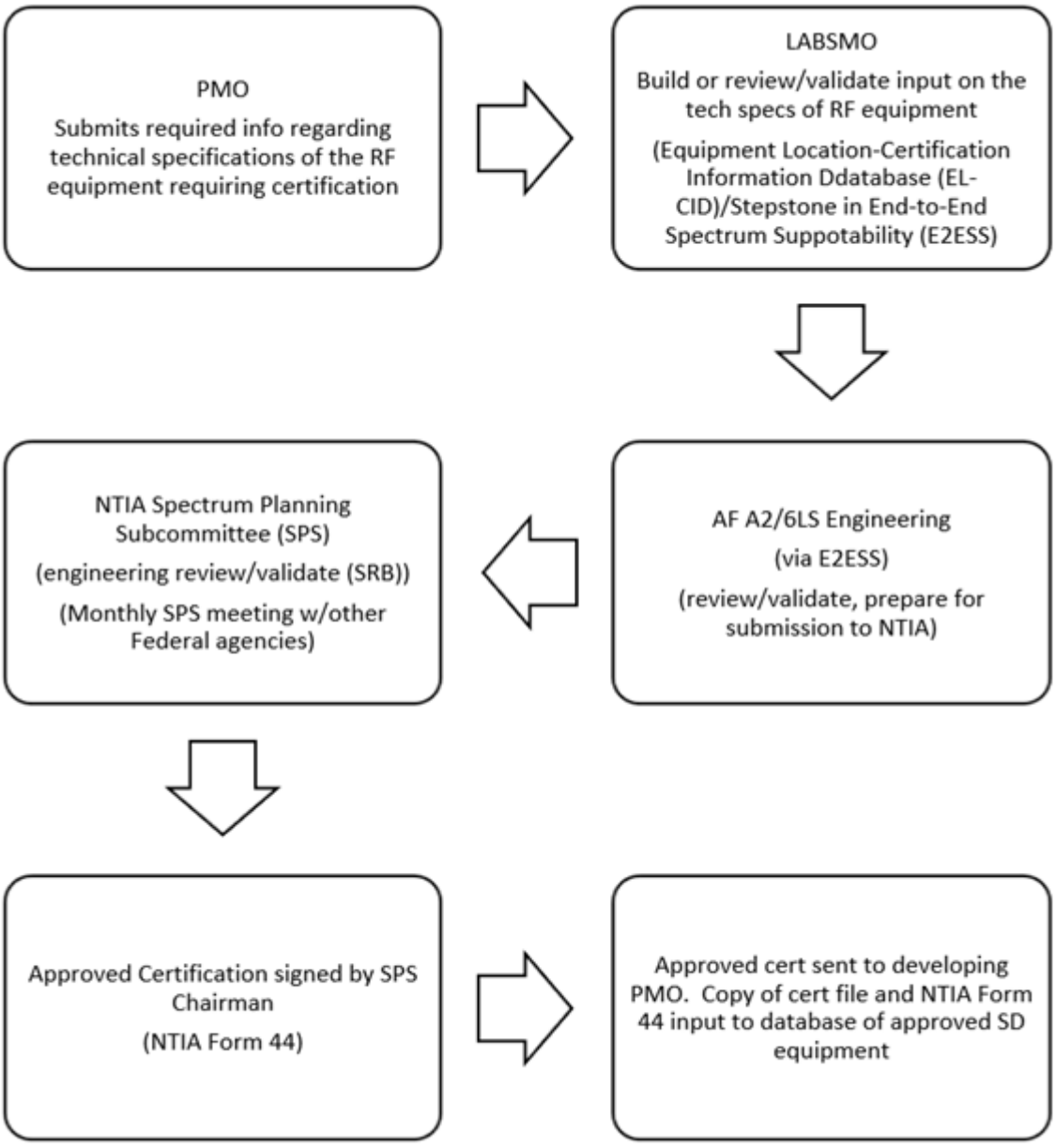
3.2. Equipment certification is the statutory process whereby the regulatory bodies for spectrum use, the NTIA, the FCC and the Military Command, Control, Communications, and Computers Executive Board (MC4EB), review SD systems for compliance with national spectrum standards and determine electromagnetic compatibility. This applies to all SD and commercial-off-the-shelf (COTS) systems, unless specifically exempt IAW Chapter 10, NTIA Manual.

3.2.1. All SD equipment must be certified through the national approval authorities unless specifically exempt IAW Chapter 10, NTIA Manual. No approval to operate any SD equipment can be granted without certification.

3.2.2. Contact the LABSMO for final determination on the need for certification.

3.3. Equipment Certification has four Stages: Conceptual, Experimental, Developmental, and Operational. Consult the LABSMO to determine at which stage of the development path your system needs to be processed.

Figure 1. Certification Process.



3.3.1. The certification process for RF systems can take from 10 to 24 months, depending on the complexity of the system and the frequency band in which it works. This process must be part of the planning for RF use within AFRL.

3.3.2. The program office requiring the spectrum support is responsible for working with vendors and the LABSMO to ensure all information required to obtain national-level certification is acquired. Equipment certification requires detailed information on the technical characteristics of the RF device including, but not limited to, occupied bandwidth, transmit power, type of signal, antenna type and gain, harmonic and intermodulation measurements, etc.

3.3.3. Included here is a link to an online program called Stepstone Editor to facilitate the start of the certification process. This program provides a method for preparing an application for equipment certification. Output can be downloaded and sent to the LABSMO for processing to NTIA for approval. **https://www.stepstoneeditor.com/esceditor/editor/home.jsp**

3.3.4. Alternatively, a writeable .pdf file can be found at **https://www.esd.whs.mil/Portals/54/Documents/DD/forms/dd/dd1494.pdf** . At this link you will find a writeable version of an outdated but still useful DD Form 1494. This can also be sent to the LABSMO for processing.

4. Radio Frequency Assignment (Authorization) (RFA).

4.1. When the equipment has been approved through the DOD certification process, a license to operate, an RFA, is required prior to any use. An RFA will contain specific parameters for use that must be observed to lessen the possibility of interfering with other authorized users in the same area. These parameters will include but are not limited to:

4.1.1. Specific frequency or frequency band.

4.1.2. Emission bandwidth and type of signal.

4.1.3. Power limitation.

4.1.4. Dates for the start/stop of authorized use.

4.1.5. Specific geographical location/area for operations.

4.1.6. Type of antenna and gain authorized for use.

4.1.7. Description of how the assignment will be used. **NOTE:** The parameters of an RFA must match the approved parameters in the equipment certification. Deviations from these parameters are not authorized without prior approval. **NOTE:** If the RF equipment being used to support an AFRL program is contractor-owned/contractor-operated, a DOD certification is not required and an RFA can be obtained through the FCC. However, if that same equipment will eventually be turned over to the Air Force, it must go through the DOD certification process as early as possible.

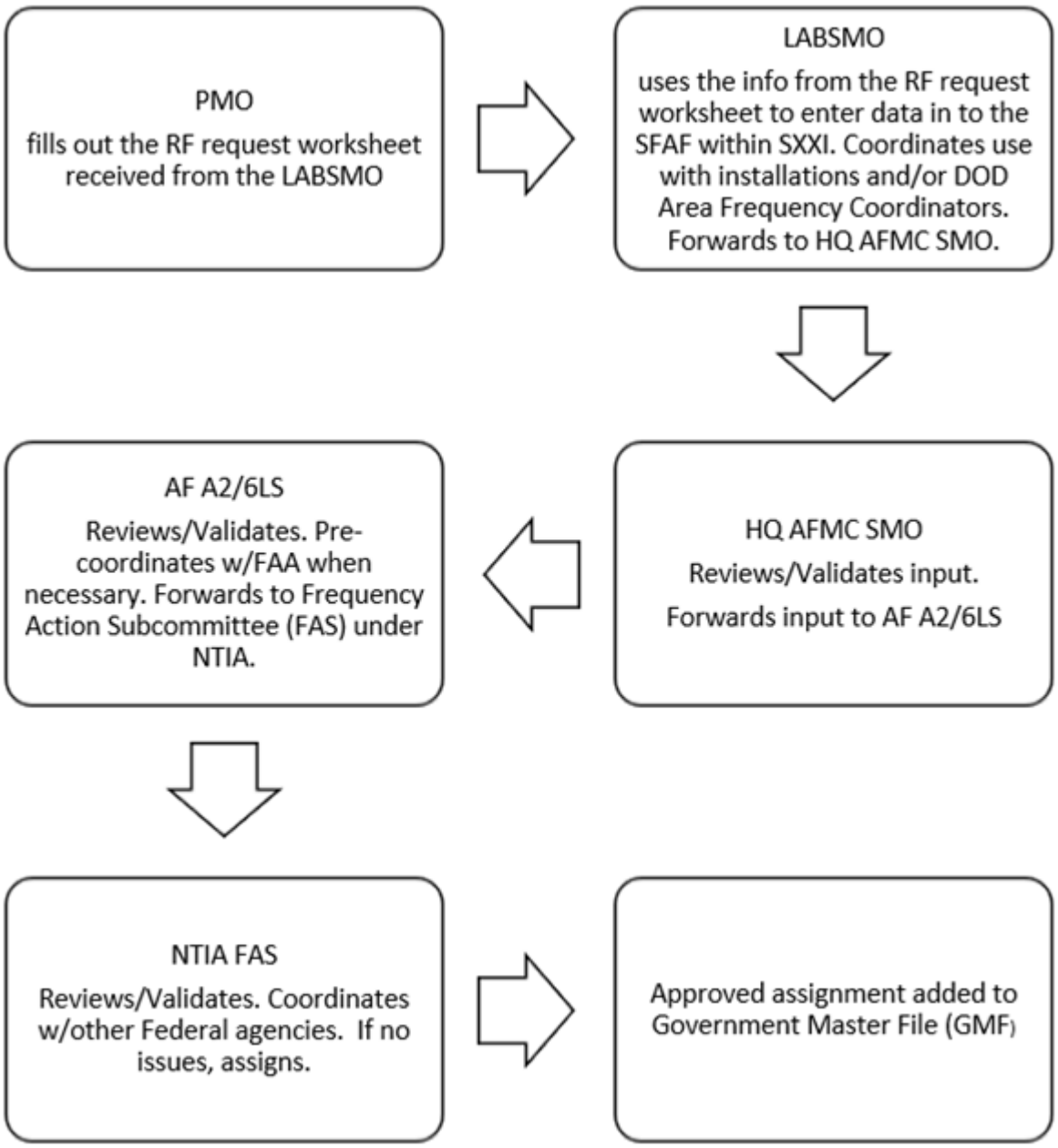
4.2. For AFRL, as Federal users, the assignment authority within the US&P rests with the NTIA. The process begins with the LABSMO who will provide an RFA worksheet to be filled out. This worksheet will capture most of the information needed to accomplish the request that will flow through AF spectrum management channels to the NTIA for approval. If spectrum support is needed outside the US&P, that process also begins with the LABSMO to be worked with the Host Nation through the associated major command.

4.3. The LABSMO will use the information submitted on the RF worksheet to complete the Standard Frequency Action Format (SFAF), enter it into the Spectrum XXI (SXXI) spectrum management data management tool, and send it to the AFMC SMO for validation and processing. The approval process typically takes approximately 60 business days barring any issues with the input.

4.4. **Permanent Assignments.** Permanent assignments are those that are predicted to be needed for 5 years or longer, typically for base infrastructure such as airfield systems and unit land mobile radio (LMR) requirements. These types of assignments must be reviewed every 5 years to ensure the need is ongoing and the approved parameters are still valid. The RFA will contain a review date. These records must be reviewed and an update forwarded to the NTIA a minimum of 60 business days prior to the review date. This review will update the record held in the Government Master File (GMF).

4.5. **Temporary Assignments.** Most requirements for spectrum use within AFRL are satisfied with temporary assignments. A temporary assignment is used to support testing and experiments that are not intended to last 5 years or longer. Typically, these assignments are approved for 30 days up to 2 years. The RFAs approved for this type of use come with an expiration date that must be observed. If it is determined the assignment will be needed beyond the expiration date, a renewal can be requested. The renewal must be processed within 60 business days prior to the expiration to allow for processing.

Figure 2. The RFA Process.



4.6. **Space Systems.** Spectrum approval for space systems requires a few additional steps, as described below. These additional steps add a minimum of 6 months to the approval process timeline.

4.6.1. Before launch, in addition to equipment certification and an RFA (a specific frequency nomination from USSF/SSC), spectrum use for satellites must be registered with the International Telecommunications Union (ITU). The cost involved with this registration ranges from $600 to $60,000, depending on mission and duration of orbit.

4.6.2. If the specific frequency falls in the 2025 – 2110 MHz band, coordination with the Society of Broadcast Engineers (SBE) is required.

4.6.3. Additionally, coordination with the NASA/DOD/DOC Pre-Coordination Working Group (NDD) is also required.

4.6.4. As with equipment certification and frequency assignments, these processes take time (6-8 months, longer for Experimental Payloads) and must be included in planning.

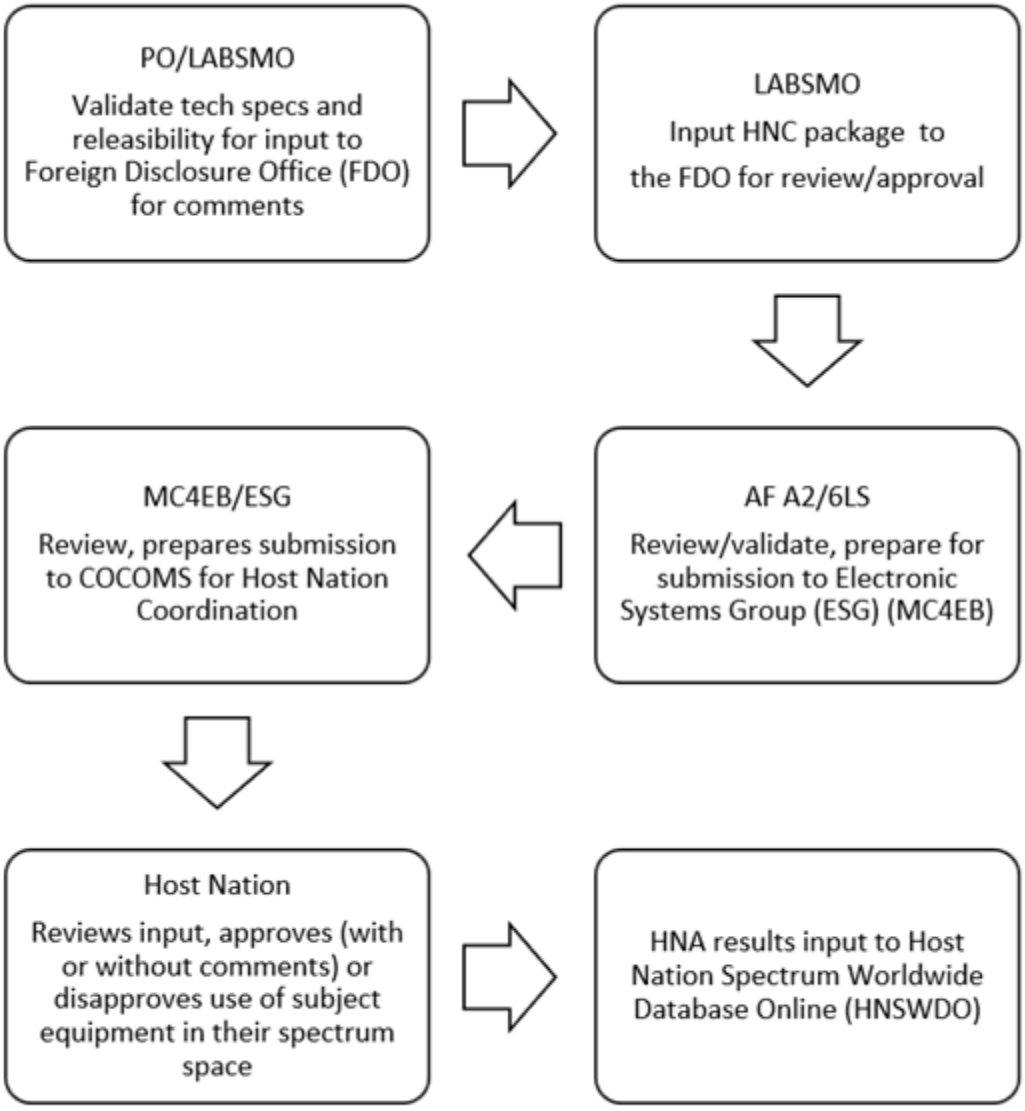
5. Host Nation Coordination (HNC)/Host Nation Approval (HNA).

5.1. Sovereign nations exercise control over the use of the electromagnetic spectrum within their own territory. This basic consideration of international spectrum management becomes extremely important when United States military forces operate abroad. In nearly all circumstances, it is necessary to obtain Host Nation Approval (HNA) before United States military forces operate any SD systems in a foreign nation. Misuse of spectrum resources or unauthorized spectrum use within a host nation may be a violation of international treaties, international law, national laws and regulations or Status of Forces Agreements.

5.2. The process for obtaining HNA for the use of SD equipment in a foreign nation begins with the project office (PO) working with the LABSMO to input only the minimum necessary technical information and validate International Traffic in Arms Regulation (ITAR) or manufacturer's approvals of data release to foreign countries. The package and request letter are then sent to the local Foreign Disclosure Office (FDO) (depends on location) by the LABSMO. The FDO verifies countries for technical information release and documents approval on AF Form 458. The approved documents are sent back to the LABSMO and input to AF A2/6LS for coordination with the chosen host nation(s).

5.3. Submitting technical information relating RF equipment to a host nation for comments can take from 6 months to 2 years. Some nations do not respond until operational spectrum support is requested.

Figure 3. HNC/HNA Process.



Contact the LABSMO with any questions regarding the HNA/HNC process.

6. Spectrum Supportability Risk Assessment (SSRA).

6.1. The SSRA is the principal means by which the DoD determines whether sufficient spectrum is available for the RF equipment associated with a proposed system/platform. This section describes the AFRL SSRA process. It applies to all RF system acquisitions or development. It is intended to be used in conjunction with the guidance and suggested tasks provided in DoDI 4650.01, *Policy and Procedures for Management and Use of the Electromagnetic Spectrum.*

6.2. The SSRA is needed to ensure the Air Force procurement system uses due diligence to provide reasonable assurance its RF equipment will be able to obtain access to sufficient radio frequency spectrum in the electromagnetic environment required while using that spectrum efficiently. The Air Force owns, manages, and develops RF equipment and capabilities and must plan for future RF equipment configurations. Given the limited frequency spectrum available for DoD equipment, it is vital that the Air Force is cognizant of all existing and planned system/platform RF equipment.

6.3. DoDI 4650.01 is the principal source for SSRA requirements and procedures. Once all spectrum issues have been identified, an assessment of the spectrum supportability risk associated with the system/platform including any proposed mitigations is provided to the reviewers. For major RF systems, SSRAs are required, and are updated, at key development decision points as the system makes its way through the acquisition review lifecycle. However, all RF developers must identify and mitigate regulatory, technical, and operational spectrum supportability risks using suggested tasks in DODI 4650.01, Appendix to Enclosure 3, **Table 2**.

6.3.1. An SSRA is not required if:

6.3.1.1. The RF equipment being used by the program office for a one-time event, i.e., an experiment or a proof-of-concept.

6.3.1.2. The RF equipment has already been DoD certified.

6.3.1.3. The RF equipment planned for Space used as Telemetry, Tracking & Command (TT&C) the only transceiver system onboard the Satellite.

6.3.2. An SSRA is required if:

6.3.2.1. The new RF equipment may eventually become part of a deployed RF system.

6.3.2.2. The RF equipment being used is already DoD certified but is it being used in a new configuration along with other RF equipment to create a system of systems.

6.3.2.3. The RF equipment planned for Space use an Experimental RF Payload.

6.3.2.4. Contact the LABSMO for final determination on the need for an SSRA.

6.4. An SSRA is composed of an executive summary and four components. The four components are the Regulatory, Technical, Electromagnetic Environment Effects (E3), and Operational components. These components are combined as needed to form a single risk assessment, done by the program office, for the applicable system or platform to meet the successive developmental requirements. The Executive Summary provides a synopsis of the overall assessment for the system/platform RF equipment at that test objective decision point in the acquisition review cycle. The linking of the SSRA requirement with the program test objective approval process ensures that spectrum availability issues are addressed throughout the program lifecycle.

6.4.1. **Regulatory.** The Regulatory component addresses the equipment certification stage and status and the relative status of the acquisition with respect to the radio services authorized within the Tables of Frequency Allocations (TOAs) of the U.S. and intended Host Nations. The Regulatory component of the SSRA for a space system should also identify ITU registrations for other space systems registered in the frequency band being sought for operation. As the system matures, the Regulatory component should contain additional spectrum insights from the equipment certification and Host Nation Coordination processes. Assess whether frequency management regulations are complied with, and spectrum is available for operations in the host nation.

6.4.2. **Technical/E3.** The combined Technical/E3 component assesses the ability of the platform or system to operate without intersystem and intra-system interference. The Technical component focuses on candidate technologies and available technical parameters, such as system type, platform type, bandwidth requirements, etc., to generate initial quantification of potential mutual electronic component interactions. DoD Components developing or acquiring RF systems, including Commercial Items (CI) and Non-Developmental Items (NDI), are required to perform limited E3 assessments as part of the SSRA. As a minimum, EMC and EMI are to be addressed to determine the potential for interactions between the proposed system and its anticipated operational Electromagnetic Environment (EME). The assessment also includes an analysis to determine the possible effect on operational performance because of any EM interaction. Analyses of additional E3 disciplines (e.g., HERP, HERF, HERO, EMP, lightning, ESD, etc.) may be required; contact the LABSMO for guidance.

6.4.3. **Operational.** The Operational component assesses the full complement of RF systems anticipated to be in the operational environment. As data or hardware become available, analyses should be performed and/or updated to determine if the system meets its operational performance requirements as specified in the Joint Urgent Operational Need Statement (JUONS) or Operational Need Statement (ONS), or the acquisition documents (e.g., ICD, CDD, CPD, or ISP). Frequency-Device (F-D) separations and mitigation measures and/or TTPs that may be needed to reduce risks to acceptable levels should also be identified.

6.5. **Preparing the SSRA.** If necessary, RF system developers, POs, and/or acquisition activities will generate and submit an SSRA report before each development decision point using the outline presented below. Consult the LABSMO for guidance.

Table 1. SSRA Report.

Report Outline	
REPORT ITEM	**DESCRIPTION**
COVER PAGE	Include submitter, PO signature blocks
SIGNATURE PAGE	Contains digital signature blocks indicating concurrence from: PM, MAJCOM A6 Representative, AFSMO/SQ, AFSMO/CC, and SAF CIO
EXECUTIVE SUMMARY	Short synopsis of the totality of the SSRA
SYSTEM PURPOSE	Why, who will it support?
SYSTEM DESCRIPTION	Context of system acquisition
PROGRAM BACKGROUND	What is it?
CONCEPT OF OPERATIONS	How will it be used?
AREA OF OPERATIONS	Where will it be used?
SPECTRUM USE	Addresses how the program is working to achieve spectrum efficiency, flexibility, interoperability, and other considerations
SPECTRUM SUPPORTABILITY ASSESSMENT SUMMARY	Main body of the report establishing the basis and rationale for the recommendations
APPENDIX A	
1. Regulatory Component	Details of actions taken to address Spectrum Access/Use Risks
APPENDIX B	
1. Technical Component	Details of actions taken to address EMS performance, characteristic, & parametric data
APPENDIX C	
1. Operational Component	Details of actions taken to address vulnerabilities/limitations, i.e., interference
FIGURES & TABLES	Additional details as appropriate

6.6. System Developers will:

6.6.1. Ensure all required SSRAs are prepared, reviewed, and submitted through the prescribed review process IAW the information contained in this instruction.

6.6.2. Ensure that each completed SSRA is submitted to the review process in sufficient time, minimum 60 business days, for the various review bodies to complete their actions prior to the test objective decision event.

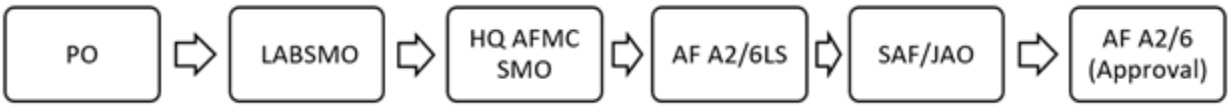
6.6.3. Consider the SSRA development cost in budget justification during the procurement phase of major telecommunication, broadcast, radar, and similar systems.

6.6.4. Not release, obligate, or expend funds for the acquisition, research, development, production, purchase, lease, or use of weapons systems, information management systems, EW systems, electronic countermeasures systems, or other systems that require use of the electromagnetic spectrum until:

6.6.4.1. AF A2/6 has provided a favorable spectrum supportability determination based upon a comprehensive spectrum supportability assessment(s).

6.6.4.2. An equipment certification submission, Application for Equipment Frequency Allocation, has been approved.

Figure 4. SSRA Workflow.



6.7. **Reviewing the SSRA.** The information below summarizes the review process actions after the PM has submitted the SSRA.

6.7.1. The LABSMO will:

6.7.1.1. Review each SSRA submission ensuring each required assessment component has been properly and accurately completed and presented.

6.7.1.2. In the event of any concern which could result in non-concurrence with the SSRA:

6.7.1.2.1. Conduct the necessary collaboration with the PM to resolve the concern.

6.7.1.2.2. In the event the concern cannot be resolved, prepare an attachment to the SSRA describing the issue, the efforts made to resolve the concern, and why the concern was not resolved.

6.7.1.3. Sign the SSRA signature page circling as appropriate concur/non-concur option.

6.7.1.4. Forward the SSRA via email with all attachments to the HQ AFMC SMO.

6.7.2. HQ AFMC SMO will:

6.7.2.1. Review each SSRA ensuring each required assessment component has been accurately completed and presented.

6.7.2.2. In the event the point of concern which could result in a non-concurrence with the SSRA, conduct the necessary collaboration with the AF SMO to resolve the concern ensuring the relevant PO is copied in all information exchanges.

6.7.2.3. In the event a point of concern cannot be resolved, HQ AFMC SMO reviewers will inform the LABSMO and prepare an attachment to the SSRA describing the concern, the efforts made to resolve the concern, and why the concern was not resolved thus resulting in the non-concurrence entry in the signature page.

6.7.2.4. If minor changes are required, the LABSMO or PO should coordinate the required modifications via a signed addendum to the original SSRA package.

6.7.2.5. Sign the SSRA providing a recommendation of concur/non-concur.

6.7.2.6. Send the SSRA package to the AF SMO for further review, signing and forwarding to the AF A2/6 for final approval.

6.7.3. Contact the LABSMO with any questions on the SSRA or the process.

7. Electronic Attack (EA).

7.1. Electronic Attack is a subdivision of electronic warfare (EW), a broader term that also includes the electronic protection (EP) and EW support (ES) subdivisions. EA is defined as a division of EW involving the use of electromagnetic (EM) energy, directed energy, or anti-radiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Unlike other RF systems (e.g., radios, radars, etc.), EA systems undergo a unique spectrum certification process but still require DOD certification.

7.2. Procedures for performing EA within the United States are covered in CJCSM 3212.02E. Testing and training with EA systems requires coordination with several agencies within and outside DOD to avoid harmful interference to authorized spectrum users.

7.3. Contact the LABSMO for specifics on the process and procedures for testing and training with EA systems within AFRL.

8. LINK-16.

8.1. The Joint Tactical Information Distribution System/Multifunctional Information Distribution System (JTIDS/MIDS) Time Division Multiple Access (TDMA) Waveform is the designation for the tactical data link system used by the military services, which is critical to the "Command and Control" infrastructure of the Department of Defense (DOD). This waveform designation applies to the JTIDS family of terminals (Class 1, Class 2, Class 2M and Class 2H); MIDS Low Volume Terminal (LVT) variants (LVT-1, LVT-2, LVT-3/Fighter Data Link); and future approved systems incorporating the JTIDS/MIDS TDMA Waveform implementation. These TDMA systems provide the DOD with totally Integrated Communications, Navigation, and Identification (ICNI) capabilities. The DOD refers to these terminals collectively as "Link 16". JTIDS/MIDS TDMA Waveform operation is authorized in the 960-1215 MHz band and in addition, the DOD and the Department of Transportation (DOT)(FAA), have made agreements to assure spectrum access and to maintain mutual compatibility between Air Traffic Control (ATC) systems and JTIDS/MIDS TDMA Waveform systems within the US&P.

8.2. The use of any Link-16 system by AFRL requires approvals at various levels of DOD and the FAA, including:

8.2.1. Stage 3 or Stage 4 DOD certification of the Link-16 terminal, software approval, and cosite analysis for each antenna/platform

8.2.2. EMC Features certification by the FAA and Navy-Marine Corp Spectrum Center (NMSC)

8.2.3. Entry into the Link-16 Pulse Deconfliction Server (LPDS)

8.2.4. Link-16 Worksheet to accompany the RFA request

8.2.5. An approved RFA (typically referred to as a "TFA" by the FAA). Minimum 65 business days lead time at the national level: 10 business days lead time for LABSMO. (Total of 75 business days prior to requested "turn-on" date)

8.3. Because Link-16 systems operate in an Aeronautical Radio Navigation band controlled primarily by the FAA to protect operations in the National Air Space, they undergo a great deal of scrutiny before any of the above is approved. Expect delays in this approval process that could be 6 months or more.

8.4. Contact the LABSMO for assistance.

9. Electromagnetic Interference (EMI)/Radio Frequency Interference (RFI).

9.1. CJCSI 3320.02F, *Joint Spectrum Interference Resolution (JSIR)* states DOD components will attempt to resolve interference affecting systems under their auspices at the lowest level possible within their chain of command. The Department of the Air Force Spectrum Interference Resolution (AFSIR) program pertains to DAF units experiencing interference at any time except when under the operational control of a Combatant Command and follows the principle of attempting to resolve interference at the lowest possible level. Interference to space systems, including space, ground, and control segments must be reported to your MAJCOM/Field Command, in accordance with USSF supplemental guidance. Submit all reports, initial, follow-on, and closure, through the DOD Area Frequency Coordinator (AFC) and MAJCOM/Field Command to AF A2/6LS (AFSMO).

9.2. EMI can be caused by enemy, neutral, friendly, or natural sources, and is resolved on a case-by-case basis. DAFI 17-221 explains the process for AF units to address and report instances of RFI.

9.3. Contact the LABSMO for further assistance.

HEATHER L. PRINGLE,
Major General, USAF
Air Force Research Laboratory (AFRL)

Attachment 1

GLOSSARY OF REFERENCES, FORMS, AND SUPPORTING INFORMATION

References

Office of Management and Budget Circular (OMBC) No. A-11, Part 2, Section 31.12, *Radio Spectrum-Dependent Communications-Electronics Systems*

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

NTIA *Manual of Regulations and Procedures for Federal Radio Frequency Management* (The Redbook)**,** January 2021 Edition

CJCSI 3320.01, *Joint Electromagnetic Spectrum Operations in the Electromagnetic Operational Environment* (Series)*,* 14 December 2012

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Prescribed Forms

None

Adopted Forms

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Abbreviations and Acronyms

AFC—Area Frequency Coordinator

AFI—Air Force Instruction

AFRL—Air Force Research Laboratory

AFSIR—Air Force Spectrum Interference Reporting

AFSMO—Air Force Spectrum Management Office

ATC—Air Traffic Control

CDD—Configuration Control Document

CI—Commercial Items

CJCSI—Chairman, Joint Chiefs of Staff Instruction

COCOM—Combatant Command

COTS—Commercial-off-the-shelf

CPD—Capabilities Production Document

DAF—Department of the Air Force

DOD—Department of Defense

DODI—Department of Defense Instruction

DOT—Department of Transportation

E2ESS—End-to-End Spectrum Supportability

E3—Electromagnetic Environmental Effects

EA—Electronic Attack

EL-CID—Equipment Location-Certification Information Database

EM—Electromagnetic

EMC—Electromagnetic Compatibility

EME—Electromagnetic Environment

EMI—Electromagnetic Interference

EMP—Electromagnetic Pulse

EMS—Electromagnetic Spectrum

EP—Electromagnetic Pulse

ESC—Equipment System Certification

ESD—Electrostatic Discharge

ESG—Electronic Systems Group

EW—Electronic Warfare

FAA—Federal Aviation Administration

FCC—Federal Communications Commission

FD—Foreign Disclosure

F-D—Frequency - Device

FDO—Foreign Disclosure Office

FRRS—Frequency Resource Records System

GMF—Government Master File

HERF—Hazards of Electromagnetic Radiation to Fuel

HERO—Hazards of Electromagnetic Radiation to Ordnance

HERP—Hazards of Electromagnetic Radiation to Personnel

HNA—Host Nation Approval

HNC—Host Nation Coordination

HNSWDO—Host Nation Spectrum Worldwide Database Online

IAW—In Accordance With

ICD—Initial Capabilities Document

ICNI—Integrated Communications, Navigation, and Identification

ISP—Integrated Support Plan

ITAR—International Traffic in Arms Regulation

ITU—International Telecommunications Union

JTIDS/MIDS—Joint Tactical Information Distribution System/Multifunctional Information Distribution System

JUONS—Joint Urgent Operational Need Statement

LPDS—Link-16 Pulse Deconfliction System

LVT—Low Volume Terminal

MAJCOM—Major Command

MC4EB—Military Command, Control, Communications & Computers (C4) Executive Board

MHz—Megahertz

NDD - NASA/DOD/DOC Pre—Coordination Working Group

NDI—Non-Developmental Items

NMSC—Navy Marine Corps Spectrum Center

NTIA—National Telecommunications & Information Administration

ONS—Operational Needs Statement

PEO—Program Executive Officer

PM—Program Manager

PMO—Program Management Office

PO—Project Office

RF—Radio Frequency

RFA—Radio Frequency Assignment (Authorization)

RFI—Radio Frequency Interference

SBE—Society of Broadcast Engineers

SD—Spectrum Dependent

SFAF—Standard Frequency Action Format

SMO—Spectrum Management Office

SPS—Spectrum Planning Subcommittee

SRB—Systems Review Board

SSRA—Spectrum Supportability Risk Assessment

SXXI—Spectrum XXI

TDMA—Time Division Multiplexing Access

TFA—Temporary Frequency Assignment

TOA—Table of Allocations

TTP—Tactics, Techniques and Procedures

US&P—United States & Possessions

USSF—United States Space Force