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ELECTRONIC WARFARE (EW) INTEGRATED REPROGRAMMING

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This Air Force instruction (AFI) provides guidance and procedures for the Electronic Warfare Integrated Reprogramming (EWIR) Program and implements Air Force Policy Directive (AFPD) 10-7, *Information Operations*. This instruction reflects updated information based on portions of Air Force Doctrine Annex 3-51, *Electronic Warfare Operations*; the Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3210.04A, *Joint Electronic Warfare Reprogramming Policy*, (Secret); CJCSI 3320.01D, *Joint Electromagnetic Spectrum Operations (JEMSO)*; the Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3212.02D, *Performing Electronic Attack in the United States and Canada for Tests, Training, and Exercises*; Joint Publication (JP) 3-13.1, *Electronic Warfare*, and Air Force Manual 16-101, *International Affairs and Security Assistance Management*. This publication applies to the US Air Force, to include the Air National Guard (ANG) and to Air Force Reserve Command (AFRC) units. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air

Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command then send to HQ USAF Electronic Warfare Division (AF/A5RE), 1480 Air Force Pentagon, Washington, DC 20330-1480; email to the AF/A5RE Workflow (**usaf.pentagon.af-a5-8.mbx.a5re-workflow@mail.mil**). This publication may be supplemented at any level; supplements are not required to be routed to the OPR of this publication for coordination prior to certification and approval. Requests for waivers must be submitted through the chain of command to the appropriate Tier waiver approval authority IAW AFI 33-360, *Publications and Forms Management*.

(**MINOTAFB**) AFI 10-703, 4 June 2014, is supplemented as follows: This supplement provides units assigned to Minot AFB guidance on Electronic Warfare Integrated Reprogramming (EWIR). These procedures apply to all personnel stationed at Minot AFB. In addition, ensures that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). Contact supporting records managers as required. Copies of the Privacy Act statement will be presented upon request.

SUMMARY OF CHANGES

This interim change revises AFI 10-703 by (1) adding references to the 57th Intelligence Squadron (57 IS), Twenty-Fifth Air Force (25 AF), AMC's new operational reprogramming center and deleting references to AFISRA, (2) updating office symbols throughout the text, acronym listing and EWIR Committee Membership Matrix, and (3) modifying references and terminology to more appropriately reflect EWIR operations.

(**MINOTAFB**) This document has been substantially revised and must be reviewed in its entirety. It establishes new Electronic Warfare Integrated Reprogramming requirements for Minot AFB, which provide detailed execution instructions for various base agencies, timeline implementation requirements and provides base level checklists which will be utilized to conduct EWIR actions.

Chapter 1

PURPOSE, OBJECTIVES AND PROCESS

1.1. Purpose. Electronic Warfare Integrated Reprogramming (EWIR) is a systematic process designed to enable aircrew survivability and mission success while operating in an environment characterized by friendly, neutral and hostile threat systems that use the electromagnetic (EM) spectrum. EWIR provides a capability to characterize the EM emissions of hostile and other systems, analyze and model their impact on operations, and to incorporate these characteristics to enable rapid detection, accurate identification and appropriate response within the EM spectrum. EWIR functions within the scope of electronic warfare (EW).

1.2. Objectives. EWIR's ultimate objective is the production and delivery of software and hardware changes to electronic equipment used to provide an awareness and response capability within the EM spectrum. Providing an appropriate EW awareness and response capability may require EWIR to be used in conjunction with changes in tactics, techniques and procedures (TTP), equipment employment guidance, aircrew training and training devices (e.g., threat simulators and threat emitters) and other support systems. Attaining this ultimate objective in support of Combat Air Forces (CAF), Mobility Air Forces (MAF), Special Operations Forces (SOF), and Foreign Military Sales (FMS) assets requires close coordination with the Spectrum Management and Intelligence Community (IC) to:

1.2.1. Employ an intelligence capability that rapidly collects, identifies compares, analyzes, and distributes all-source intelligence information in support of EW reprogramming during peacetime and all phases of conflict.

1.2.2. Employ Order of Battle (OB) and other databases that provide an "electronic fit" (EW-system-to-weapon-system-platform correlation) of threats to generate regional mission data (MD). The USAF works with the IC to ensure OB and related databases meet EWIR requirements.

1.2.3. Sustain a modernized integrated set of databases to include the EWIR Database (EWIRDB) and others to provide an accurate, timely, and worldwide-accessible observed and assessed parametric data (measured to meet power, pattern, and polarization (P-cubed) requirements), electronic attack data, communications externals data, platform-emitter fit, characteristics and performance data (including engine data), signatures data (antenna pattern data, radar cross section, and electro-optic/infrared signatures), Specific Emitter Identification (SEI) related data, and additional data as requirements evolve for use in the reprogramming of onboard EW/EM sensor systems.

1.2.4. Support joint applications and joint and combined interoperability by disseminating worldwide EW-related data in formats usable by operations and mission planning tools and systems. Develop processes and tools for the evaluation of theater and unit EW operations, and sufficient analytic capability to plan, monitor and assess EW operations and the impact of EW on operations.

1.2.5. Develop, acquire and sustain facilities, equipment, personnel and resources to gather and interpret the required parametric and characteristics & performance (C&P) data for US military and FMS systems in accordance with (IAW) CJCSI 3320.01D, *Joint*

Electromagnetic Spectrum Operations (JEMSO), CJCSI 3210.04A, *Joint Electronic Warfare Reprogramming Policy*, and this instruction.

1.2.6. Develop, acquire and sustain EWIR support structures and processes that include doctrine, TTPs, employment guidance, and EWIR training at all command levels.

1.2.7. Develop, acquire and sustain EWIR reach back procedures and mechanisms.

1.2.8. Develop, acquire and sustain research, development, test, and evaluation (RDT&E) resources to improve EW reprogramming to ensure effectiveness in an evolving EM environment.

1.2.9. Develop, acquire and sustain facilities, equipment, personnel and procedures to create, test, and distribute EW software and hardware changes to provide the capability to detect and identify friendly, neutral, and adversary EM signals to improve warfighter response and survivability against hostile threat systems that use the EM spectrum.

1.2.10. Develop, acquire, and sustain timely, worldwide secure, and survivable means to send and/or receive reprogramming change information.

1.3. EWIR Process. The EWIR process is made up of four different steps (See Figure 1-1 below). These steps are: 1) detect change; 2) determine impact; 3) reprogram; and 4) field change. This process is referred to by the unclassified code name PACER WARE. PACER WARE includes mission data (MD) changes, operational flight program (OFP) changes, or minor hardware changes that comply with the guidance in AFI 63-131, *Modification Management*, concerning modifications. These changes are categorized into 3 priority levels: ROUTINE, URGENT and EMERGENCY. Routine OFP changes are accomplished as part of normal OFP update cycles. Routine MD changes should occur annually, as a minimum. Urgent changes during crisis periods are accomplished during normal duty hours, but take precedence over other activities until complete. Urgent changes should reach the field within 72 hours, after a required change has been validated. However, acceptable timelines for urgent changes are negotiated between the applicable MAJCOM and reprogramming center (RC), depending on the complexity of the change. Emergency changes affecting combat operations, require 24-hour operations, with the goal of releasing necessary changes within 24 hours, after a required change has been validated, depending on the complexity of the change. A number of products are used to implement the EWIR process (see Figure 1-1); procedures for using these products are described in **Chapter 3**.

Figure 1.1. EWIR Process
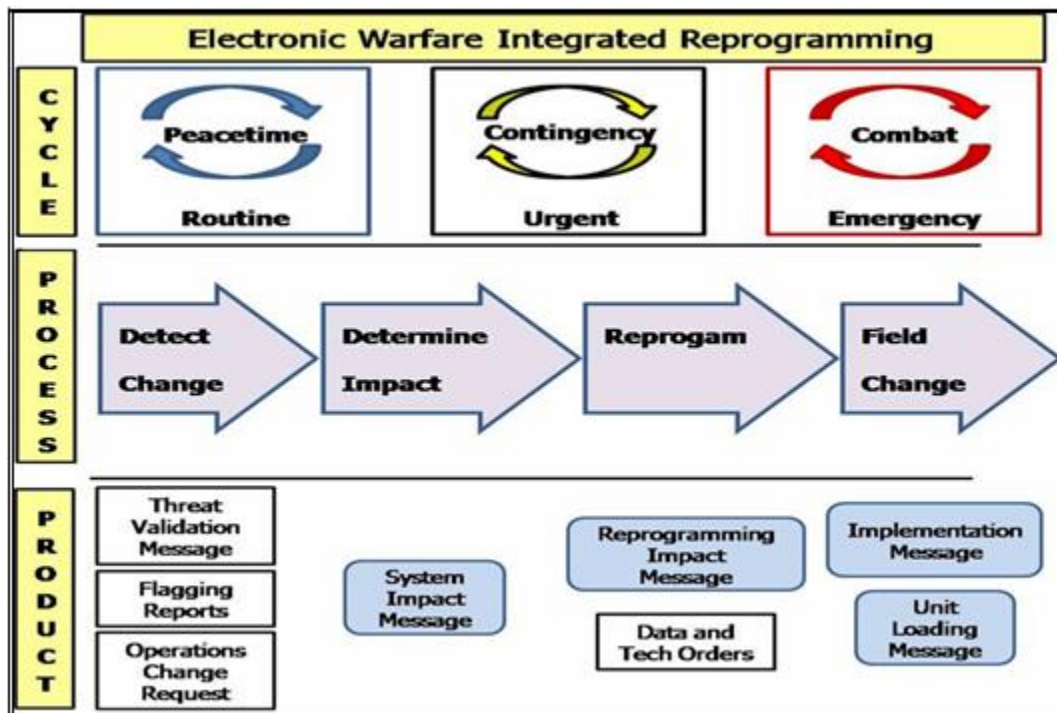
1.3.1. Detect Change:

1.3.1.1. The US Intelligence Community collects and evaluates a wide variety of data on foreign systems using multiple sources and makes these data available in databases accessible by the RCs and other agencies. Of the potential sources for intelligence, Signals Intelligence (SIGINT), Imagery Intelligence, Foreign Materiel Exploitation (FME) and Open Source Intelligence are the most common used to identify EM characteristics of enemy systems. (This data is referred to as RED [adversary] and GRAY [other foreign military] data). Other data sources may include data acquired via testing and evaluation of exported (GRAY) systems.

1.3.1.2. Along with the RED & GRAY data provided by the Intelligence Community, other types of data are essential to programming EW systems to correctly identify and respond to signals they detect. These other types of data include characteristics of US military systems (BLUE data), and commercial systems (WHITE data). All these data types are provided to RCs via EWIRDB and other sources, and are used to program EW systems to correctly identify systems by their EM characteristics. See Attachment 3 for more information on data types.

1.3.1.3. Intelligence data is filtered manually or through computer flagging models to detect what threats/signals have changed. This is one way to begin the process to determine how the change impacts EW systems. Periodic data review IAW CJCSI 3320.01D also identifies required changes. In addition, EW equipment anomalies reported by aircrew in post mission reports (MISREPs) and/or Joint Spectrum Interference Reports (JSIRs) may also start this process (see para 2.4.4.2). All-source validation assessments by Intelligence and/or Service Production Centers (IPCs/SPCs) and observed signals validation assessments by the National Security Agency (NSA) of

signal changes are recommended to assist in the determination that actual EM parameter changes have occurred in a given emitter.

1.3.1.4. The purpose of BLUE and WHITE data is similar to that of RED and GRAY data--to accurately identify collected EM characteristics. BLUE and WHITE data are produced, databased, and used in reprogramming updates. Signal information on USAF platforms, and target/environment information obtained to support USAF platforms, needs to be shared through the USAF EWIR processes. **NOTE**: EM Spectrum data will be shared IAW DoDI 8320.05, *EM Spectrum Data Sharing*.

1.3.1.5. Additionally, EW software reprogramming updates may be consolidated and produced to correct deficiencies and/or make improvements in system performance. Typically, these software changes are handled as routine updates, but in some cases these changes become more pressing if the operational situation dictates. RCs must maintain close coordination with affected MAJCOMs and remain flexible to meet fielding requirements.

1.3.2. Determine Impact:

1.3.2.1. RCs continue the process of assessing the threat change impact on an EW system by performing engineering analysis, as well as laboratory tests.

1.3.2.2. The RC, in coordination with the affected MAJCOMs and/or COMAFFOR (usually JFACC/CFACC's Electronic Warfare Coordination Cell (EWCC) as described in Joint Publication 3-13.1, *Electronic Warfare*), determines how to respond to the threat change. The response may be:

    1.3.2.2.1. Take no action.

    1.3.2.2.2. Change existing tactics.

    1.3.2.2.3. Reprogram MD and/or OFP system software.

    1.3.2.2.4. Change existing hardware.

    1.3.2.2.5. Acquire new hardware.

1.3.2.3. The RC reports the impact of the threat change, the effect on the EW system, an interim course of action, and recommended course of action to the affected units, the MAJCOM and JFACC/CFACC in a System Impact Message (SIM). Critical messages may warrant verbal contact with the units, MAJCOM and/or EWCC to facilitate "pulling" these SIMs (and other reprogramming messages) from the Multi-Service Data Distribution System (MSDDS).

1.3.3. Reprogram. If changing the EW system MD and/or system software is the determined course of action, the RCs:

1.3.3.1. Notify affected MAJCOM(s) of intent to develop the software and/or MD change.

1.3.3.2. Test the change in the laboratory (hardware-in-the-loop, computer simulation, or critical analysis).

1.3.3.3. Determine MD/system software compatibility with applicable field loading equipment [e.g., Program Loader Verifiers (PLV), Memory Loader Verifiers (MLV),

Enhanced Diagnostic Aide (EDNA), Common Aircraft Portable Reprogramming Equipment (CAPRE)] and applicable O-level support equipment [e.g., USM-670, USM-464, PLM-4, APM-427, and Enhanced Automated Special Test Equipment (EASTE)]. Tests to determine MD compatibility will be performed prior to fielding ROUTINE and URGENT changes. EMERGENCY MD changes may be fielded prior to the tests being performed. OFP changes will always be tested against support equipment. If the support equipment indicates a previously undetected failure with the changed MD/OFP installed and the MD/OFP is determined to be the cause of the fault, the following actions should occur:

1.3.3.3.1. Describe the failure in the Maintenance Instruction Message (MIM) / Reprogramming Impact Message (RIM) and the appropriate actions/workarounds that should be taken (e.g., ignore--does not indicate a true failure mode).

1.3.3.3.2. Contact the support RC and request a change to the support equipment software to eliminate the false failure.

1.3.3.4. Flight test the change, if required. EW systems that transmit EM energy for testing, training and exercises in the U.S. and Canada must comply with EM spectrum use policy per AFI 33-580, *Spectrum Management* and CJCSM 3212.02C, *Performing Electronic Attack in the U.S. & Canada for Tests, Training, and Exercises*. The Air Force Spectrum Management Office (AFSMO) is the focal point for frequency management in support of EW within the US and Possessions.

1.3.3.5. The RC making software change will take overall lead to coordinate with Support Reprogramming Centers and platform Program Managers (PMs). This process is critical to facilitate long lead efforts [i.e., PM Time Compliance Technical Order (TCTO) development, PM validation/verification, scheduling, etc.].

1.3.3.6. PMs must take appropriate steps to ensure MAJCOM A3 directed timelines and guidance are adhered to during the implementation process. PMs are responsible to identify and ensure all actions necessary are accomplished for their Mission Design Series (MDS). PMs will also evaluate all software prior to MAJCOM implementation decision and notify the MAJCOM if flight or ground testing is required.

1.3.3.7. Recommend fielding of the software and/or MD change to the MAJCOM and/or EWCC. If software affects multiple aircraft (i.e. different MDS with same EW system installed), the RC will coordinate with the PMs prior to making the fielding recommendation to MAJCOM. Fielding recommendations imply that both the RC developing the software and the PM responsible for aircraft configuration have completed all necessary actions (i.e., ground/flight/system integration lab testing, technical order documentation, etc.), prior to recommending to MAJCOM or EWCC the software is ready to install.

1.3.4. Field Change:

1.3.4.1. After coordinating with the MAJCOM and/or EWCCs, the RCs distribute the software changes to operational units and to platform Program Managers (PM) electronically through classified organizational PACER WARE SIPRnet email accounts as well as posting it on the MSDDS. (The MSDDS is accessible via the SIPRNet at Detachment 1 Headquarters Air Force Special Operations Air Warfare Center (Det 1, HQ

AFSOAWC) homepage **http://ecsf.afsoc.af.smil.mil** or the EW Toolbox--**http://ewtoolbox.eglin.af.smil.mil** and via direct secure communications equipment connection to the MSDDS). Operational unit commanders then implement changes based on the guidance in this instruction.

1.3.4.2. OFP software updates are normally implemented through the Computer Program Identification Number (CPIN) distribution process. CPIN revisions are automatically distributed through Technical Order Distribution Office (TODO) accounts. New CPIN versions may require a TCTO to identify the new CPIN and to inform the TODO to establish the ID. Current CPIN versions should be listed in platform manuals for reference by maintenance personnel. The TCTO process is temporary and should not be used for long term sustainment of configuration items. PMs will staff TCTOs through appropriate MAJCOM A3/A4 offices for approval to release OFP software. MD software is typically implemented by PACER WARE message, upon MAJCOM A3 approval. If both MD and OFP software are changed, they may be implemented together via TCTO. However, when OFPs are changed in time critical circumstances (URGENT & EMERGENCY) the PMs must coordinate with the RCs and release the TCTO in conjunction with approved PACER WARE messages within MAJCOM directed timelines. Upon approval to implement or release software for fielding, the software will be distributed to EW maintenance shops via MSDDS. Installation instructions for MD and MD bundled with an OFP are typically in the form of a Maintenance Instruction Message (MIM) or embedded in a Reprogramming Impact Message (RIM). MD only changes are not considered an aircraft modification as described in AFI 63-131*;* therefore a Form 1067 Modification Request is not required. If technical orders are impacted by MD change (occurs if changes impact test / walk-around procedures), the Air Force Life Cycle Management Center (AFLCMC/WNY) and/or platform PM will update the technical data and release the update in an Interim Operational Supplement (IOS).

1.3.4.3. The MAJCOM and/or EWCC use the RIM, along with previous coordination with RCs, to determine whether to install the new software in their units' EW equipment and the priority used to implement the change. If the MAJCOM A3 (or designated authority) and/or EWCC decide to install the software, they authorize the installation using an Implementation Message (IMP). The IMP is authorization, not direction, to load software. After coordination with the Joint EWCC Command Electronic Warfare Officer (EWO), JFACC EWCC and/or Air Mobility Division (AMD) Tactics Section [for Mobility Air Forces (MAF)], the Wing/Group EWO recommends software to load for the commander's decision, as required.

1.3.4.4. Once units have installed the software/MD in their EW systems, they report this to their MAJCOM, EWCC, and the RCs using the Unit Loading Message (ULM) within 72 hours of completion, indicating implementation status and issues affecting 100% aircraft upload. Instructions and/or contact information for ULM reporting will be outlined in applicable documentation (e.g., IMP, SIM, RIM, and MIM).

1.3.4.5. PACER WARE message templates are available in EWIR_OPS_PW_MSG_Templates library on the Multi-Service Data Distribution System (MSDDS).

1.4. Key EWIR Organizations. The following are those organizations with primary EWIR responsibilities within the USAF:

1.4.1. 53d Electronic Warfare Group (53 EWG), 53d Wing, Eglin AFB, FL. The 53 EWG is an operational RC. They develop, modify, and test MD for CAF and Combat Search and Rescue (CSAR) aircraft and selected FMS-supported aircraft. They maintain engineering, operational, and intelligence expertise and provide technical support for OFP updates and testing, fielding of new EW systems, EW-related training, EW system configuration control, and other EW and EWIR issues.

1.4.2. The 453d Electronic Warfare Squadron (453 EWS), Joint Base San Antonio-Lackland, TX is part of the 53 EWG.

1.4.2.1. The 453 EWS develops and operates analytic capabilities necessary for the support of EW mission planning, threat assessments, acquisition, and training. Their expertise includes the fields of intelligence analysis (especially SIGINT), engineering analysis, data production, modeling & simulation and Distributed Mission Operations.

1.4.2.2. The 453 EWS conducts parametric and model-based threat change detection (aka "flagging") of SIGINT data to identify new or modified threat emitters.

1.4.2.3. DELETED

1.4.2.4. DELETED

1.4.3. AFLCMC/WNY, Air Force Materiel Command (AFMC), Robins AFB, GA.

1.4.3.1. WNY is a support RC. It develops, modifies and tests OFP for most CAF, MAF, and SOF aircraft (except those whose OFP development is contracted out). It maintains engineering and intelligence expertise for most US Air Force systems. It supports the operational RCs during the building and testing of MD changes.

1.4.3.2. WNYI acts as an OFP, MD and test support RC for FMS. It conducts reprogramming of certain FMS EW systems and acts as an operational RC in this capacity. Also, it acts as a support RC in support of other FMS systems and processes. This squadron is responsible for some FMS MD development as agreed to with Detachment 1 Headquarters Air Force Special Operations Air Warfare Center (Det 1, HQ AFSOAWC), Robins AFB, GA and the 53 EWG.

1.4.4. Det 1, HQ AFSOAWC is AFSOC's and AMC's operational RC whose primary mission is to develop, modify, test and maintain MD for assigned SOF and MAF aircraft. Det 1, HQ AFSOAWC maintains engineering, operational, and intelligence expertise and provides technical support for OFP updates and testing, acquisition and fielding of new EW systems, EW-related training, EW system modification and configuration control, and other EW and EWIR issues.

1.4.5. National Air and Space Intelligence Center (NASIC) EWIRDB Technical Manager, Wright-Patterson AFB, OH. The EWIRDB office is responsible for hosting and disseminating the EWIRDB. NASIC is also the Air Force Technical Electronic Intelligence (Tech ELINT) Technical Manager and airborne Tech ELINT processing center.

1.4.6. The Missile and Space Intelligence Center (MSIC), as a field production activity under the Defense Intelligence Agency (DIA) Directorate for Analysis, is responsible for

program management of the EWIRDB.   The program management office is DIA/MSIC/MSD-4.

1.4.7. The 57th Intelligence Squadron (57 IS), Joint Base San Antonio-Lackland, TX is part of the Twenty-Fifth Air Force (25 AF), 363d Intelligence, Surveillance and Reconnaissance Wing (363 ISRW) and the 365th Intelligence, Surveillance and Reconnaissance Group (365 ISRG).   The 57 IS researches, analyzes, stores, and distributes intelligence mission data (IMD), consisting of threat data as well as U.S. & friendly parametric and signature data.

1.4.7.1. The 57 IS produces data on BLUE, BLUE+GRAY (i.e. BLUE gone GRAY, specifically US systems sold to other countries through FMS or similar processes) and WHITE systems/emitters assigned by the Joint EW Center (JEWC). As the US Electromagnetic Systems Database (USELMSDB) Technical Manager, the 57 IS stores BLUE data provided by other services. This data is stored and distributed in the USELMS database with portions electronically forwarded for input into the EWIR database.

1.4.7.2. The 57 IS maintains and archives data on aircraft radar cross sections (RCS) and electro-optical/infrared (EO/IR) signatures and antenna patterns in the Blue Airborne Target Signatures (BATS) database.

1.4.7.3. The 57 IS is the Principal Agent and a data producer for the Combat Support Database (CSDB) which combines threat system (RED) parameters and BLUE and GRAY aircraft signatures into an engineered product specifically formulated for use by mission planning systems.

1.4.7.4. The 57 IS uses its designated flagging billets, matching billet rank requirements, to support the 453 EWS with respect to its flagging mission.

1.4.8. AMC OL-A, Robins AFB GA, is the EW reprogramming center for the KC-46 TSAS and the ALR-69A. They provide technical/engineering assessments as requested by AMC and overall software management of the ALR-69A and the KC-46 RF Self Defense System (RFSDS)/Tactical Situation Awareness System (TSAS). They develop, integrate and field MDFs for these systems.   Additionally, they provide reprogramming support during SERENE BYTE exercises and PACER WARE operations.

Chapter 2

FUNCTIONAL RESPONSIBILITIES

2.1. Headquarters Air Force (HAF).

2.1.1. AF/A5R. Director of Operational Capability Requirements. For systems that transmit EM energy, ensure Air Force-sponsored Joint Capabilities Integration & Development System (JCIDS) documents include provisions for delivering and updating system technical data (BLUE data) in the proper format for inclusion into EWIR process databases IAW DODD 5250.01, *Management of Intelligence Mission Data (IMD) in DoD Acquisition,* CJCSI 3320.01D and CJCSI 3210.04A. Ensure documents clearly identify how BLUE data will be provided to the 57 IS for incorporation into USELMS and/or BATS databases, as appropriate. Ensure documents include details on review and update of system data at least once every three years.

2.1.2. AF/A5RE. Chief, Electronic Warfare Division manages all aspects of EWIR for the USAF. In this capacity, AF/A5RE will:

2.1.2.1. Chair the EWIR Oversight Committee and participate in its various subcommittees.

2.1.2.1.1. Use the committee to resolve inter-agency disconnects, exchange information among reprogramming functions, and establish a common vision and goals for USAF reprogramming.

2.1.2.1.2. Convene the committee as necessary to address EWIR issues.

2.1.2.2. Represent and provide advocacy for EWIR requirements in USAF weapon systems acquisitions. Ensure the AF EW reprogramming enterprise requirements are adequately resourced for prioritized systems. This includes manpower, specialized mission data laboratory equipment, threat replicators, EW system components and associated aircraft subsystems required to produce and validate defensive system software designed for use in contested airspace.

2.1.2.3. Represent and provide advocacy for development and sustainment of EWIR capabilities and facilities. When EWIR requires the development of Automatic Test Systems (ATS) those requirements will be coordinated with the AFLCMC/WNA ATS Product Group Manager to ensure compatibility with DOD Family of Tester requirements.

2.1.2.4. Act as liaison with AF/A2 and the various intelligence agencies to advocate for USAF EWIR foreign data collection, production, and EWIRDB requirements.

2.1.2.5. Assist MAJCOMs and COCOMs in documenting and forwarding their operational EWIR data requirements to the appropriate agencies. Also, in conjunction with AF/A2 staff, act as an advocate for their completion (see para. 2.1.2.4). Facilitate availability of emitter data on commercial and FMS systems for inclusion into the USAF EWIR databases and associated databases.

2.1.2.6. Ensure the Air Force regularly trains, practices, and evaluates all phases of the EWIR process. To the maximum extent possible, reprogramming exercises should be

conducted as part of a major joint exercise, allowing joint and service components the opportunity to exercise the reprogramming process together. However, this requirement may be satisfied by a major real-world PACER WARE action involving USAF EW systems.

2.1.2.6.1. Coordinate with the Joint Staff on the inclusion of emergency reprogramming objectives in Joint Task Force level exercises.

2.1.2.6.2. Select and task the participating MAJCOM to function as the USAF lead to plan, implement, and manage the reprogramming process.

2.1.2.7. Serve as the USAF OPR for planning, coordination, and execution of USAF involvement in joint and coalition reprogramming activities.

2.1.2.8. Represent USAF EWIR interests in release of information and/or equipment to foreign nations or international organizations to include those governed by FMS.

2.1.2.8.1. Work with SAF/IARW, on FMS EW policies and procedures for transferring USAF EW capabilities to allied and friendly nations.

2.1.2.8.2. Ensure that the capabilities of all FMS systems/programs are captured for inclusion in EWIR and related databases. Once the FMS system is outside of US control, coordinate transition of system data responsibilities with 57 IS, AF/A2, DIA and NSA.

2.1.2.8.3. Oversee, along with SAF/IARW, FMS EWIR as described in **Chapter 5**.

2.1.2.8.4. Serve as office of corollary responsibility for coordinating emergency reprogramming change releases to support FMS customers.

2.1.2.9. Represent USAF interests in EWIR-related testing and analysis to include establishing priorities and ensuring timely dissemination of exploitation results. Organizations and agencies to coordinate with include the SPCs, AF/TE, SAF/IAPT, 453 EWS, 57 IS, the Joint Staff and NSA.

2.1.2.10. Represent USAF EWIR interests in developing procedures, processes, and systems to ensure rapid reporting and validation of threat changes.

2.1.2.11. Contact AF/A4/7 when a requirement exists to replace legacy support equipment supporting the EWIR program.

2.1.2.12. Ensure applicable JCIDS documents for systems that transmit/receive EM energy include both EM Spectrum and EWIRDB data requirements IAW DoDI 8320.05 and CJCSI 3312.01B, *Joint Military Intelligence Requirements Certification*.

2.1.3. AF/A2. Deputy Chief of Staff, Intelligence, Surveillance and Reconnaissance will:

2.1.3.1. Coordinate the EWIR and Electronic Order of Battle (EOB) support provided by the DIA, COCOM IPCs, and EWIRDB production centers IAW CJCSI 3210.04A.

2.1.3.2. Advocate to NSA for SIGINT capabilities on behalf of USAF EWIR community (ref para. 2.1.2.4 and 2.1.2.5).

2.1.3.3. Act as liaison with AF/A5RE and the various intelligence agencies to advocate for USAF EWIR foreign data collection, production, analysis, and EWIRDB

requirements. Work with AF/A5RE, NSA and DIA to ensure identification of EWIR / database requirements and timely resolution of deficiencies.

2.1.3.4. Act as liaison with USD (I) and ensure applicable JCIDS documents include provisions for delivering and updating electromagnetic (EM) signature data requirements (including BLUE data) IAW DODD 5250.01, CJCSI 3312.01B and AFI 14-111.

2.1.4. AF/A4/7. The Deputy Chief of Staff for Logistics, Installations & Mission Support will:

2.1.4.1. Establish logistical policy to support and sustain USAF EWIR equipment.

2.1.4.2. Assist in the identification, definition, and integration of the users' operational and technical requirements of EWIR ATS support tools for system software and MD.

2.1.4.3. Ensure user needs (reliability, maintainability, reprogrammability, supportability, and deployability) are addressed in the development and acquisition of EWIR-related ATSs.

2.1.4.4. Advocate and ensure users' EWIR supportability and sustainment needs are addressed in the action and processes of the Central ATS Product Group Management Office (AFLCMC/WNA, Robins AFB, GA).

2.1.4.5. Assist in resolution of EWIR-related ATS logistics and sustainability issues.

2.1.4.6. Support AF/A5RE in providing advocacy for EWIR requirements in USAF weapon systems acquisitions, acquisition of data on US emitters and systems for inclusion in the EWIR and related databases, and facilitating availability of emitter data on commercial and FMS systems for inclusion into the EWIRDB and related databases.

2.1.5. SAF CIO/A6. Is responsible for integrating air, space, and cyber information and systems across all AF core functions, as well as provides oversight of Air Force Spectrum Management policy and guidance.

2.1.5.1. A6W, Warfighter Systems Integration will:

2.1.5.1.1. Provide technical assistance on all EWIR communications-computer requirements.

2.1.5.1.2. Assist MAJCOMs, and RCs in developing and maintaining a comprehensive EWIR communications plan outlining current and future connectivity to common-user, base-level, and long-haul communications systems.

2.1.5.1.3. Coordinate with AF/A5RE on communications issues unique to EWIR data.

2.1.5.2. A6P, Policy and Resources, will: Through the Air Force Spectrum Management Office (AFSMO) will provide spectrum management subject matter expertise and advice to EWIR developers and operators and assist MAJCOMs and EWIR developers in meeting compliance with applicable EM and EW policies and procedures.

2.1.6. AF/TE. The Director of Test and Evaluation will:

2.1.6.1. Ensure Air Force test & evaluation (T&E) infrastructure and facilities are adequate to support EWIR T&E activities. This includes industrial laboratory space

sufficient to accommodate rigorous software validation and verification testing of all AF EW systems.

2.1.6.2. Ensure EWIR requirements are appropriately considered in foreign materiel program (FMP) acquisition and exploitation project prioritization deliberations.

2.1.6.3. Facilitate the RCs' participation in foreign materiel exploitation (FME) and foreign materiel revisit testing when required.

2.1.7. SAF/IARW. Deputy Under Secretary for International Affairs, Director of Regional Affairs, Chief Weapons Division will:

2.1.7.1. Act as the focal point for the sale of US EW systems and supporting FMS EWIR database systems and products to allied and friendly nations.

2.1.7.2. Inform the JCS, appropriate HQ Air Force elements, HQ ACC (to include 53 EWG), HQ AFSOC (to include the Det 1, HQ AFSOAWC), AFMC (to include WNY), and unified commanders of proposed and actual sales of systems that transmit or receive EM radiation (to include hardware and software configurations and technical data) to allied and friendly nations.

2.1.7.3. Act as the OPR for transferring military information and releasing USAF technology to partner nations. Manage policies and procedures for transfer of USAF EW capabilities.

2.1.7.4. Provide oversight, with AF/A5RE, to the FMS EWIR process as described in **Chapter 5**.

2.1.7.5. Support FMS national policy in coordination with the other services and formulate/staff USAF policy.

2.1.8. SAF/AQ. Assistant Secretary of the Air Force for Acquisition, will: Execute all Service Acquisition Executive (SAE) (referred to in DoD policy as Component Acquisition Executive) and Senior Procurement Executive responsibilities and authorities outlined in statute and regulation." (reference AFPD 63-1/20-1, Integrated Life Cycle Management and AFI 63-101/20-101, *Integrated Life Cycle Management*)

2.2. MAJCOMs and Subordinate Units. Air Combat Command (ACC), Air Education and Training Command (AETC), Air Force Special Operations Command (AFSOC), Air Mobility Command (AMC), Air Force Materiel Command (AFMC), Air Force Space Command (AFSPC), Air Force Global Strike Command (AFGSC), Twenty-Fifth Air Force (25 AF), US Air Forces Europe (USAFE), Pacific Air Forces (PACAF), Air Force Operational Test and Evaluation Center (AFOTEC), Air Force Reserve Command (AFRC) and the Air National Guard (ANG).

2.2.1. MAJCOMs and subordinate units will:

2.2.1.1. Plan and program for support of peacetime, wartime, contingency, and exercise EWIR requirements as required.

2.2.1.2. Advise AF/A5RE, when EWIR and related database capabilities do not meet USAF system specific requirements.

2.2.1.3. Work with the RCs to identify initial and upgrade requirements and funding for reprogramming facilities, equipment, and manpower support for EW systems currently fielded or under development.

2.2.1.3.1. Work with the RCs to ensure changes to fielded EW systems, support equipment, and new systems are compatible with EWIR requirements and associated communications support systems.

2.2.1.3.2. Ensure reprogramming facilities, equipment, and staffing for these changes are current, adequate, and funded.

2.2.1.3.3. Support force development evaluation required to fully evaluate all EW software or MD changes.

2.2.1.3.4. If the OFP and hardware updates directly impact the form, fit, function and interfaces (F3I): Prior to the start of a program, initiate and submit AF Form 1067 IAW AFI 63-131. If, while executing an OFP update program, it is determined that F3I is directly impacted, initiate and submit AF Form 1067 IAW AFI 63-131.

2.2.1.4. Ensure Operational Plans (OPLANs), Contingency Plans (CONPLANs), and strategic war plans adequately address EWIR in order to achieve effective rapid reprogramming of EW systems and to achieve mutual joint service support IAW Joint Pub 3-13.1, *Electronic Warfare*, CJCSI 3320.01D, and CJCSI 3210.04A.

2.2.1.5. Plan, implement, and manage EWIR reprogramming exercises. This responsibility may be delegated to the combatant Numbered Air Force (NAF) participating as the Air Force component during joint exercises.

2.2.1.5.1. Conduct exercise planning conferences and EWIR conferences, as required.

2.2.1.5.2. Develop the reprogramming goals and objectives for the Air Force components.

2.2.1.5.3. Coordinate with 53 EWG for exercise planning and logistical support.

2.2.1.5.4. Ensure exercise participants identify, collect, and report critical EWIR elements.

2.2.1.5.5. Consolidate major findings and lessons learned. Using the US Air Force Joint Lessons Learned Information System (USAF-JLLIS), report findings and lessons learned as part of the overall Air Force/Joint exercise report.

2.2.1.5.6. Suggest improvements to the EWIR Oversight Committee.

2.2.1.5.7. Identify EW systems and units requiring reprogramming exercises and coordinate this information with 53 EWG and the RCs.

2.2.1.6. Provide, in cooperation with RCs, guidance and tasking to 53 EWG in formulating flagging tools (ACC, AFGSC & AFSOC only).

2.2.1.7. Train appropriate operations, intelligence, maintenance, and communications personnel on EWIR processes and procedures on a recurring basis consistent with mission readiness.

2.2.1.8. Develop EWIR hardware, software, personnel and infrastructure requirements and coordinate them with other MAJCOMs and AF/A5RE. These requirements include data automation, test capabilities, communication connectivity, support equipment, and data distribution systems.

2.2.1.9. Ensure Urgent or Emergency PACER WARE changes are given the highest possible priority when scheduling range time.

2.2.1.10. Provide operational requirements for and oversight in the development, test, distribution, and loading of MD and system software changes.

2.2.1.11. Work with the RCs to prioritize and address Operational Change Requests (OCRs) generated in their organization (see section 3.1.). Also, they will ensure operational units are aware of and follow the proper content, format, and routing of OCRs to effect changes in EW equipment.

2.2.1.12. Provide oversight of fielded EW systems to ensure that they meet the hardware, software, and MD configuration standards set by the RCs.

2.2.1.13. Develop requirements and advocate for Foreign Material Acquisition (FMA) based on need for information impacting EWIR. Provide EWIR-related requirements to FME projects. Provide requested support to RCs for their participation in FME.

2.2.1.14. Support FMS EWIR, as detailed in **Chapter 5** of this instruction.

2.2.1.15. Monitor EW operational and support equipment to ensure units have adequate EWIR logistics support.

2.2.1.16. Coordinate with platform PMs to ensure technical order changes caused by PACER WARE updates are being accomplished.

2.2.1.17. Identify and coordinate Operational Test and Evaluation (OT&E) requirements with AFOTEC or the appropriate Operational Test Organization for EW system acquisition and modification programs.

2.2.1.18. Ensure data on MAJCOM's emitters and systems are provided for inclusion in USAF EWIR and associated databases, IAW this instruction, DoDI 8320.05, CJCSI 3320.01D and CJCSI 3210.04A.

2.2.2. MAJCOM / Agency Operations Directorate (A3) or equivalent/designate will:

2.2.2.1. Oversee EW reprogramming within the MAJCOM or Agency.

2.2.2.2. Approve software changes for all EW systems fielded in their area of responsibility (AOR). AETC and Air Reserve Component (ARC) units will follow guidance of applicable lead MAJCOM (ACC, AFGSC, AFSOC, AMC).

2.2.2.3. Send IMPs to applicable units, with informational copies to other MAJCOM and EWCC staffs, and the RCs. ANG and AFRC do not have implementation authority. ANG and AFRC units will act on implementation messages sent by their gaining MAJCOM or EWCC. AETC units (and AETC-gained ANG/AFRC units) will follow guidance of applicable major weapon system or EW system lead MAJCOM (ACC, AFSOC, AFGSC, and AMC) or EWCC. Coordination with other MAJCOM directorates prior to sending IMPs will be accomplished to ensure maintenance technical data changes

are available, if applicable. MAJCOMs will send an IMP message to their subordinate units only, unless previously agreed to otherwise by coordination with the other affected MAJCOMs, EWCCs, or agencies [e.g., through Memorandum Of Agreement (MOA) or email coordination].

2.2.2.4. Upgrade EW software flight-testing priorities during wartime and contingency operations.

2.2.2.5. Provide RCs information on employment of assets within anticipated theaters of operations to allow tailoring of support (except AETC).

2.2.2.6. Support the conduct and management of all Mission Data Optimization (MDO) and force development evaluation required to fully evaluate all EW MD and OFP changes.

2.2.2.7. Notify 453 EWS to provide 24-hour emergency flagging analysis operations when required.

2.2.2.8. Ensure facilities, equipment, personnel and resources are programmed to develop the required parametric, characteristics and performance (C&P), signatures and fit data for US military (BLUE) and FMS (GRAY) systems IAW CJCSI 3320.01D and CJCSI 3210.04A.

2.2.3. MAJCOM / Agency Intelligence Directorate (A2) or equivalent will:

2.2.3.1. Ensure resources and personnel are programmed to support MAJCOM EWIR intelligence requirements.

2.2.3.2. Ensure the RCs document their operational EWIR intelligence production requirements and forward them to the appropriate intelligence agency for action. Advocate for meeting these requirements.

2.2.4. MAJCOM / Agency Maintenance and Logistics Directorate (A4) or equivalent will ensure field units receive and maintain adequate EW support equipment.

2.2.5. MAJCOM / Agency Communications Directorate (A6) or equivalent will advise AF/A5RE on MAJCOM/Agency specific EWIR communication requiring appropriate action or attention.

2.2.6. MAJCOM / Agency Requirements and Acquisition Directorate (A5) or equivalent will:

2.2.6.1. Coordinate EW system requirements with applicable RCs.

2.2.6.2. Ensure applicable JCIDS documents on systems that transmit EM energy (with MAJCOM equity) include provisions for delivering and updating system technical data (BLUE data) in the proper format for inclusion into EWIR process databases IAW DODD 5250.01, CJCSI 3320.01D and CJCSI 3210.04A. Provide data to 57 IS for incorporation into USELMS and/or BATS databases, as appropriate. Review and update system data at least once every three years.

2.2.6.3. Ensure EW systems reprogramming training for operations, maintenance and communications personnel is provided for new systems acquisitions.

2.2.7. 53 EWG, 453 EWS will:

2.2.7.1. Conduct the USAF EWIR flagging program based on operational RC requirements for the RCs, MAJCOMs, SPCs and EWCCs, as required, to support peacetime, exercise, contingency, and wartime operations. In doing so, they will:

2.2.7.1.1. Develop flagging tools to perform parametric and model-based flagging based on customer requirements. (T-2)

2.2.7.1.2. Identify emissions whose parameters fall outside of known limits and flag them for further analysis. (T-2)

2.2.7.1.3. Identify previously unknown threat emitters for further analysis. (T-2)

2.2.7.1.4. Design, develop, maintain, and distribute the flagged-signals database to identify locations of changed emitters as well as the new emitter operating parameters. (T-2)

2.2.7.1.5. Provide data for validation of threats for possible inclusion in the EWIRDB. (T-2)

2.2.7.1.6. Develop and maintain plans and manning to operate 24-hour emergency flagging analysis operations in support of contingencies and combat operations or as directed by MAJCOMs or the theater commanders. (T-2)

2.2.7.1.7. Develop and maintain a contingency plan, location, and manning to support 24-hour Emergency or normal Flagging Analysis operations to ensure uninterrupted support. (T-2)

2.2.7.1.8. Coordinate with the SPCs for analysis of aircrew and electronic support inputs on threat parameter changes and new threats if reported parameters are outside EWIRDB assessed limits. (T-2)

2.2.7.1.9. Send flagging reports to the RCs, MAJCOMs, EWCCs, and other agencies when requested via SIPRNet. (T-2)

2.2.7.2. DELETED

2.2.7.3. DELETED

2.2.7.4. Develop and sustain an analysis capability to support EW operations, acquisition and training. (T-2)

2.2.7.4.1. Design, develop and manage or acquire tools, processes, models and simulations as necessary for MAJCOM, EWCC, and unit EW support. (T-2)

2.2.7.4.2. Provide expertise to MAJCOMs for the operational impact of EW technologies, capabilities, and tactics on OPLANS, mission planning, and current operations. (T-2)

2.3. Air Components to Geographic Combatant Commands.

2.3.1. Monitor their AOR to identify and assess changes in the EW environment. In doing so, they will review and forward aircrew and electronic support inputs on parameter changes and new threats in their AOR to notify appropriate MAJCOM, RCs, and 453 EWS for further review and analysis.

2.3.2. Support implementation of:

2.3.2.1. Software changes.

2.3.2.2. Equipment settings.

2.3.2.3. Aircrew tactics changes.

2.3.3. Verify subordinate units receive all applicable EWIR messages.

2.3.4. Ensure appropriate plans, instructions, and responsibilities for EW reprogramming are disseminated at the appropriate levels.

2.3.5. Participate in and support reprogramming exercises as directed by MAJCOM.

2.4. Wings/Groups with reprogrammable EW systems.

2.4.1. The Wing/Group will:

2.4.1.1. Assign a primary and alternate EW point of contact (POC) to coordinate EWIR activities. The EW POC must be the Wing/Group Combat Systems Officer (CSO), Wing/Group Electronic Warfare Officer (EWO) or Wing/Group Electronic Combat Pilot (ECP). An alternate POC may be any other member of the EWIR action team. (T-3)

2.4.1.2. Establish an EWIR action team consisting of operations, maintenance, intelligence, and communications personnel as required. The EWIR action team will:

2.4.1.2.1. Develop plans and instructions to implement reprogramming tasks. (T-3)

2.4.1.2.2. Coordinate procedures with appropriate communications offices for receiving, sending and distributing EWIR messages both at home station and deployed locations. (T-2)

2.4.1.2.2.1. Ensure access to the MSDDS and to the PACER WARE Database (**https://wwwmil.53wg.eglin.af.mil/pacerware**). (T-2)

2.4.1.2.2.2. Ensure a PACER WARE message organizational account (classified and unclassified) is established for the Wing/Group. Organizational mail accounts must be compliant with AFMAN 33-152, *User Responsibilities and Guidance for Information Systems*. Ensure this account is transferred upon change of Wing/Group EW POC. (T-2)

2.4.1.2.2.3. Provide EW POC information to applicable RC, including functional electronic mail (E-mail) message addresses for members of EWIR action team and 24-hour POC information. Immediately advise RCs of changes in POC information due to PCS, reassignment, deployment, or contingency operations. (T-2)

2.4.1.2.2.4. **(Added-MINOTAFB)** EWIR action team will be advised and will advise the project officer to coordinate deployment readiness and Electronic Warfare (EW) equipment requirements.

2.4.1.2.3. Immediately report any errors in reprogramming procedures to the MAJCOM and RC representatives. (T-2)

2.4.1.2.4. Produce and staff OCRs IAW paragraph 3.1 to enhance or correct system operations. (T-3)

2.4.1.2.5. Participate in reprogramming exercises as directed and report reprogramming exercise results IAW paragraph 3.2. (T-3)

2.4.2. Wing/Group EW POC will:

2.4.2.1. Direct the Wing/Group EWIR action team. (T-3)

2.4.2.1.1. **(Added-MINOTAFB)** Coordinates quarterly meetings of the EWIR action team.

2.4.2.1.2. **(Added-MINOTAFB)** (Added) Ensures all organizations that participate in EW reprogramming maintain access to the Multi-Service Electronic Warfare Data Distribution System (MSEWDDS).

2.4.2.1.3. **(Added-MINOTAFB)** (Added) Wing Electronic Warfare Officer (WEWO) shall manage the EWIR action team to include updating the EWIR team appointment letter.

2.4.2.2. Review applicable intelligence and system anomaly reports, recommend actions to the commander and if necessary prepare an OCR when system performance discrepancies are found. (T-3)

2.4.2.3. Ensure aircrews are informed of current EW equipment capabilities by using all available sources, including:

2.4.2.3.1. Test results. (T-3)

2.4.2.3.2. PACER WARE Messages. (T-3)

2.4.2.3.3. System handbooks or mission guides. (T-3)

2.4.2.3.4. Air Force Tactics Techniques and Procedures (AFTTP) 3-1. (T-3)

2.4.2.4. Maintain currency of an organizational E-mail account (classified and unclassified, as required) for the Wing/Group. Ensure this account is transferred to successor when a new EW POC is appointed. Notify parent MAJCOM and RCs of changes in connectivity and EW POC. (T-3)

2.4.2.4.1. For CAF, notify ACC/A3I: **acc.xoz.iwd@langley.af.mil** &53 PW Admin: **53wg.pwadmin@eglin.af.mil**

2.4.2.4.2. For MAF, notify AMC/A3DT: **amc.a3dt@scott.af.mil**

2.4.2.4.3. For AFSOC, notify Det 1, HQ AFSOAWC**: ecsf.pw.admin@robins.af.mil**

2.4.2.4.4. For AFGSC, notify AFGSC/A3B: **afgsc.a3b.workflow@us.af.mil** and/or **afgsca3tworkflow@us.af.mil**

2.4.2.4.5. **(Added-MINOTAFB)** Provides 5 BW/CP with a letter listing 24/7 contact information for EW Point of Contact (POC) and alternates.

2.4.2.5. Develop and maintain a process that will notify the Wing/Group EWIR action team when EWIR messages have been received. (T-3)

2.4.2.6. Work with the Operations Group and Maintenance Group (or equivalents) to implement EW equipment software or hardware changes. (T-3)

2.4.2.7. Send all required EWIR reports and messages to higher headquarters and subordinate organizations, per reporting guidance provided in applicable PACER WARE messages. (T-3)

2.4.2.8. Maintain a current listing of operational and training software for each of the Wing/Group's EW systems. (T-3)

2.4.2.8.1. **(Added-MINOTAFB)** Provides 5 AMXS EW Element with a signed Load Letter authorizing implementation of standard system configurations for each applicable Area of Responsibility (AOR).

2.4.3. Maintenance Group and applicable Maintenance Squadrons with EW systems will:

2.4.3.1. Ensure required EW reprogramming equipment is available and operational (e.g., secure communications equipment, PLV, MLV, CAPRE) to support reprogramming at home station and deployed locations. Notify the Wing/Group EW POC of shortfalls. (T-2)

2.4.3.2. Ensure adequate personnel have access to the MSDDS to conduct actual and exercise reprogramming actions both at home station and deployed locations. (T-2)

2.4.3.3. Implement EWIR changes only after Wing/Group EW POC's approval and keep the Wing/Group EW POC informed of changes, as required. (T-2)

2.4.3.4. Participate in the EWIR action team. (T-3)

2.4.3.5. **(Added-MINOTAFB)** 5 MXG Maintenance Operations Center (MOC) will:

2.4.3.5.1. **(Added-MINOTAFB)** Relays notification of ROUTINE and URGENT EWIR messages to 5 Aircraft Maintenance Squadron (AMXS) Production Superintendent during normal duty hours.

2.4.3.5.2. **(Added-MINOTAFB)** For receipt of EMERGENCY EWIR messages immediately notifies 5 AMXS Production Superintendent. During non-duty hours, recalls the on-call Production Superintendent.

2.4.3.5.3. **(Added-MINOTAFB)** When notified of an EWIR message by a source other than the EW POC, will contact the WEWO or subsequent EW POC to ensure message was received and to query actions to be taken.

2.4.3.6. **(Added-MINOTAFB)** 5 AMXS Production Superintendent will:

2.4.3.6.1. **(Added-MINOTAFB)** Notifies 5 AMXS EW Element of EWIR message receipt.

2.4.3.6.2. **(Added-MINOTAFB)** For EMERGENCY EWIR messages during non-duty hours, recalls standby EW Element personnel.

2.4.3.6.3. **(Added-MINOTAFB)** Coordinates with EW POC and EW Element to establish aircraft reprogramming priority.

2.4.3.6.4. **(Added-MINOTAFB)** Recalls Aircraft Ground Equipment (AGE) and Support personnel as required to support reprogramming.

2.4.3.7. **(Added-MINOTAFB)** 5 AMXS EW Element will:

2.4.3.7.1. **(Added-MINOTAFB)** Perform aircraft EW system reprogramming as directed by the EW POC and maintenance Production Superintendent.

2.4.3.7.2. **(Added-MINOTAFB)** Records aircraft reprogramming start/stop times using locally developed tracking sheet.

2.4.3.7.3. **(Added-MINOTAFB)** Promptly notify Production Superintendent and MOC of start/stop times for each aircraft.

2.4.3.7.4. **(Added-MINOTAFB)** When reprogramming activity is complete, provides start/stop times and any problems encountered to EW POC for inclusion in Unit Load Manager (ULM).

2.4.3.7.5. **(Added-MINOTAFB)** Attend Quarterly EWIR Action Team meetings.

2.4.4. Wing/Group Intelligence will:

2.4.4.1. Notify the Wing/Group EW POC of threat changes that may impact EW systems. Include this information, along with PACER WARE messages, in aircrew mission briefings. (T-2)

2.4.4.2. Review aircrew debriefings and mission reports for EW equipment anomalies. Report these findings to the Wing/Group EW POC for determination of possible threat parameter changes and action, if necessary. Unusual findings will be reported in aircrew MISREPs and/or JSIRs. (T-2)

2.4.4.3. Help the Wing/Group EW POC prepare OCRs. (T-3)

2.4.4.4. Participate in the EWIR action team. (T-3)

2.4.4.5. **(Added-MINOTAFB)** Attend Quarterly EWIR Action Team meetings.

2.4.5. The Base or Wing Communications Squadron will:

2.4.5.1. Ensure base communications centers, and network control centers understand the importance of EWIR and facilitate the flow and proper handling of EW messages and data. (T-3)

2.4.5.2. Participate in the EWIR action team. (T-3)

2.4.5.3. Immediately notify the Wing/Group EW POC of communications deficiencies affecting EWIR capability. (T-2)

2.4.5.4. **(Added-MINOTAFB)** Maintains EWIR organizational mailboxes on SIPRNET and NIPRNET.

2.4.5.5. **(Added-MINOTAFB)** Attend Quarterly EWIR Action Team meetings.

2.4.6. **(Added-MINOTAFB)** The 5 BW Command Post (CP) will:

2.4.6.1. **(Added-MINOTAFB)** Provides 24 hour monitoring of EWIR organizational mailbox for new messages. With coordination through the 53d Wing, messages may be sent directly to the command post organizational mailbox on both SIPR and NIPR. Coordination should be conducted through the WEWO or 5 BW owner of the Pacer Ware account.

2.4.6.2. **(Added-MINOTAFB)** Upon receipt of ROUTINE and URGENT EWIR messages, notifies EW POC and MOC during normal duty hours.

2.4.6.3. **(Added-MINOTAFB)** Upon receipt of EMERGENCY EWIR message, implement checklist in attachment 2 and immediately notifies primary or alternate EW POC IAW 24 hour contact letter and MOC.

2.4.6.4. **(Added-MINOTAFB)** Attend Quarterly EWIR Action Team meetings.

2.5. Operational Reprogramming Centers [53 EWG, Det 1, HQ AFSOAWC, AMC/OL-A and WNYI (for some FMS)].

2.5.1. Be responsible for all MD development, production, testing, and distribution as well as delegation of these tasks to other agencies, as required. (T-1)   (Exception; MD development for FMS EWIR customers shall be accomplished according to **Chapter 5** of this instruction and the MOA on 53 EWG and WNYI *Foreign Military Sales Mission Data Programming*, dated 13 Jun 1997.)

2.5.2. Provide guidance and technical help with developing intelligence, logistics, and communications systems in support of EWIR. (T-2)

2.5.3. Evaluate EW MD and support documentation to maintain configuration control. (T-1)

2.5.4. Support all operational testing required to fully evaluate all EW software or MD changes. (T-1)

2.5.5. Create training parameters for EW systems, as necessary. (T-2)

2.5.6. Identify formal intelligence requirements and submit to parent MAJCOM intelligence directorate. (T-2)

2.5.7. Maintain a data distribution system as a means of distributing reprogramming data. (T-1) Maintain the EW Tool Box SIPRNet web page **http://ewtoolbox.eglin.af.smil.mil** to ensure required EW reprogramming software configuration, status, and information is available to support reprogramming at home and deployed locations.

2.5.8. Provide field units latest information on EWIR process, MD releases, and platform specific issues with systems experts. (T-2)

2.5.9. Support EW force development evaluations (FDE) to determine EW systems' performance and identify specific EW system deficiencies. (T-2)

2.5.10. Prepare and distribute SIMs when changes in the threat environment might affect EW systems in the theater. (T-1)

2.5.11. Prepare and distribute RIMs to indicate impact of reprogramming actions on EW systems. (T-1)

2.5.12. Evaluate field OCRs and make recommendations to MAJCOM on resolution. (T-1)

2.5.13. Produce or coordinate Maintenance Instruction Message (MIM) distribution when appropriate. (T-1)

2.5.14. Establish and manage facilities and personnel to analyze, develop, and test changes to MD. (T-1)

2.5.15. Develop system handbooks and/or mission guides for each assigned EW system. 53 EWG, Det 1, HQ AFSOAWC and AMC/OL-A will update and distribute the handbooks and/or mission guides when required or concurrently with each MD update. (T-2)

2.5.16. Assist in planning for and participate in reprogramming exercises. (T-3)

2.5.17. Provide engineering support and tactical expertise to FMS EWIR as defined in **Chapter 5**. (T-2)

2.5.18. Submit Threat Change Validation Request (TCVR) messages to the appropriate SPCs or recognized National SIGINT authority for threat validation and NSA for collection verification. (T-2) It is recommended these TCVRs be submitted on the MSIC-sponsored EWIR Portal on the SIPRNet at **http://www.msic.dia.smil.mil/tcmp**. Threat validation must be considered during reprogramming actions. Coordination with the appropriate SPC or SIGINT authority/NSA will occur to ensure reprogramming priority timelines are met. However, timeliness of reprogramming actions will be based upon reprogramming priority (ROUTINE, URGENT or EMERGENCY) and will not be delayed for threat validation.

2.5.19. Conduct the EW portion of foreign materiel revisit testing and FME when required, and reprogram EW systems, as needed, based on the results. (T-2)

2.5.20. Develop and maintain plans and manning to operate 24-hour Emergency RCs in support of contingencies and combat operations or as directed by MAJCOMs or the theater commanders. (T-1)

2.5.21. Inform MAJCOM A3 and A4, or their equivalents, of technical data change requirements caused by upcoming PACER WARE updates as soon as practical. (T-2)

2.5.22. Provide to 453 EWS:

2.5.22.1. List of prioritized threats for flagging. (T-2)

2.5.22.2. The most current MD files to ensure that the flagging tools are kept current, as appropriate. (T-2)

2.5.22.3. Listing of prioritized requirements for BLUE, GRAY and WHITE data to meet mission needs. (T-2)

2.5.23. Submit EWIRDB problem reports using the EWIRDB Problem Reports link on NASIC's EWIRDB website: **http://www.naic.wrightpatterson.af.smil.mil/ewirdb**. (T-2)

2.5.24. Provide assistance to parent MAJCOM in developing guidance and tasking to 453 EWS for formulating flagging tools. (T-2)

2.6. Support Reprogramming Centers (AFLCMC/WNY).

2.6.1. Develop, produce, conduct developmental testing for, and distribute all OFP for all fielded EW systems or delegate these tasks to other agencies, as required. Also ensure:

2.6.1.1. Users receive fully developed and tested EW systems and EWIR improvements with the operational capabilities they have specified.

2.6.1.2. Operational RCs are equipped with MD generators to rapidly reprogram all EW systems. Address and correct any RC-identified MD generator deficiencies that prevent the user from accomplishing rapid MD reprogramming.

2.6.1.3. Each EW system engineering plan should be a derivative from each system's appropriate acquisition documentation (for legacy systems refer to the Single Acquisition Management Plan). Each EW system engineering plan includes provisions for these fully tested items, both at the RC and in the field as required, at delivery of the first asset:

2.6.1.3.1. Reprogramming support tools [including MD generators, hot bench mock-ups, emulators, support computers, and coordinate necessary line replaceable units (LRUs) with AFSC].

2.6.1.3.2. Data transfer equipment such as MLVs, CAPRE, and EDNA.

2.6.1.3.3. Support equipment (field and depot-level).

2.6.1.3.4. All aspects of software reprogramming and support facilities.

2.6.1.4. Prior to the start of an OFP update program, assess to determine if form, fit, function, and interfaces (F3I), per AFI 63-131, will be directly impacted. Coordinate as required with platform PMs when the OFP or hardware change impacts F3I, follow AFI 63-131 Form 1067 procedures prior to the start of the program. If, while executing an OFP update program, it is determined that F3I is impacted, the program will be suspended until the requirements of AFI 63-131 can be satisfied. Support Reprogramming Centers will insure timely completion of USAF Form 1067s related to OFP software updates. If F3I is not impacted, the OFP change is distributed through the CPIN revision process. Additionally, when the software is fielded, a description of the operational impact of the software change on the EW system is sent to the MAJCOM and/or COMAFFOR/JFACC's EWCC and field units in a RIM.

2.6.1.5. Adequate coordination with using command, PMs, and other agencies as required, to facilitate funding for and to ensure timely completion & fielding of technical data associated with OFP software updates.

2.6.2. Support planning, integration, and acquisition of new EWIR systems.

2.6.3. Identify opportunities for acquiring joint systems.

2.6.4. Use the EWIRDB as the primary source for reprogramming actions for the EW systems for which the WNY is responsible. (This includes all EW systems supported via International Agreements). If there are information gaps in EWIRDB, other RC-approved information sources will be used to support reprogramming actions, as required.

2.6.5. Provide logistics and engineering support for the hardware and software elements of EW systems and their associated support, training, and range simulator equipment.

2.6.6. Establish and manage facilities and personnel to analyze, develop, and test changes to:

2.6.6.1. OFP.

2.6.6.2. EW system support tools.

2.6.6.3. Support equipment software.

2.6.7. Maintain facilities for complete EW system laboratory testing.

2.6.8. Maintain equipment to use the MSDDS to transmit EW software changes to units worldwide.

2.6.9. Provide MD support when requested by the operational RCs.

2.6.10. Identify, obtain, develop, and maintain EW systems software reprogramming tools.

2.6.11. Provide data necessary (including parametric, C&P data, and signatures data) for 57 IS to maintain accurate databases and for the 453 EWS to develop flagging tools on systems AFMC manages.

2.6.12. Provide assistance to parent MAJCOM in developing guidance and tasking to 453 EWS for formulating flagging tools.

2.6.13. Provide EW engineering and logistics support to allied and friendly nations through FMS EWIR, as detailed in **Chapter 5**.

2.6.14. Notify AF/A5RE and the appropriate MAJCOM, JFACC/CFACC, and NASIC of FMS sales of EW equipment (including software updates) that AFMC manages or develops.

2.6.15. Coordinate the foreign release of capabilities/data (including software) with all affected MAJCOMs and agencies.

2.7. Air Force Operational Test and Evaluation Center (AFOTEC). AFOTEC works closely with MAJCOMs, Program Offices, intelligence support organizations and reprogramming support organizations when conducting OT&E on EW systems and associated reprogramming support equipment. AFOTEC will:

2.7.1. Coordinate OT&E reprogramming requirements with MAJCOMs and the Program Offices. (T-2)

2.7.2. Participate in the EWIR oversight process. (T-2)

2.8. Air Force Intelligence Mission Data (IMD) Producers.

2.8.1. 25 AF will:

2.8.1.1. Ensure EWIR function owners understand the contribution of intelligence collection assets to the EWIR process.

2.8.1.2. Work with AF/A5RE, NSA, and DIA to ensure supporting IPCs and SPCs:

2.8.1.2.1. Review National SIGINT Requirements Process (NSRP) Intelligence Need (IN) statements and DIA COLISEUM Production Requirements / Requests for Information (PRs/RFIs) for compilation of requirements regarding USAF EWIR and EWIR-related database efforts.

2.8.1.2.2. Assess technical and operational SIGINT for validation and reporting (using available intelligence products) to the RCs, Agencies, and MAJCOM/A2.

2.8.1.2.3. Advocate to NSA and DIA to ensure collection and production methods exist to provide timely assessments of technical and operational SIGINT.

2.8.1.2.4. Ensure theater and tactical collection assets provide SIGINT intercept and other intelligence data to the RCs and to the appropriate EWIRDB production centers for timely engineering assessment of threat system capabilities.

2.8.2. 57 IS will:

2.8.2.1. Produce data on USAF-owned BLUE, BLUE+GRAY (i.e. BLUE gone GRAY, specifically US systems sold to other countries through FMS or similar processes) and domestic commercial (WHITE) systems/emitters assigned by the Joint EW Center (JEWC), to include radio frequency (RF) parametric data, platform data with-emitter fit, characteristics and performance (including engine, radar cross section and electro-optical/infrared signature), antenna pattern, and additional data as requirements dictate. (T-2)

2.8.2.2. Store BLUE data provided by other services as the US Electromagnetic Systems Database (USELMSDB) Technical Manager. This data is stored and distributed in the USELMSDB with portions electronically forwarded for input into the EWIR database. (T-2)

2.8.2.3. Maintain and archive data on aircraft radar cross sections (RCS) and electro-optical/infrared (EO/IR) signatures and antenna patterns in the Blue Airborne Target Signatures (BATS) database. (T-2)

2.8.2.4. Act as the Principal Agent and a data producer for the Combat Support Database (CSDB) which combines threat system (RED) parameters and BLUE and GRAY aircraft signatures into an engineered product specifically formulated for use by mission planning systems. (T-2)

2.8.2.5. Maintain the data storage capability of these databases, as necessary. (T-2)

2.8.2.6. Provide access to the 53 EWG and coordinate with the 53 EWG regarding updates to database formatting or any other changes that may affect the 53 WG. (T-3)

2.8.2.7. Use its designated flagging billets, matching billet rank requirements, to support the 453 EWS with respect to its flagging mission. (T-3)

2.8.3. National Air and Space Intelligence Center (NASIC) will:

2.8.3.1. Serve as DOD Technical Manager for the EWIRDB, as required by DIA. As such, serve as the focal point for all EWIRDB Problem Reports. (T-2)

2.8.3.2. Produce the EWIRDB product by merging data from NASIC analysis with data from other SPCs, NSA (for observed SIGINT data), and 57 IS (for US and friendly-foreign data). NASIC is the Air Force Technical Manager for Tech ELINT and all processing of Air Force airborne Tech ELINT processing in support of EW. Additionally, they will coordinate with all SPCs and ensure the EWIRDB is updated online with validated threat changes. (T-1)

2.8.3.3. Distribute and provide web access to the EWIRDB. (T-2)

2.8.3.4. Perform administrative checks on the EWIRDB inputs to confirm the data is correctly formatted. (T-2)

2.8.3.5. Produce and update parametric and signatures data information to include EM parametric data, platform-emitter fit, characteristics and performance, antenna pattern, signature related data and additional data as requirements dictate on foreign (RED) and friendly foreign (GRAY) assigned foreign aerospace threat systems, ground-based early warning/acquisition/target tracking radar threats, and hostile command and control (C2)

or IO systems for the EWIRDB. Additionally, perform threat change validation assessments, consistent with the SPC roles and responsibilities, as required by the RCs. Timeliness of threat change validation assessments will be based upon reprogramming priority (ROUTINE, URGENT or EMERGENCY). Coordination with the appropriate RC will occur to ensure reprogramming priority timelines are met. Following threat change validation, EWIRDB should be updated online in accordance with reprogramming priority timelines (ROUTINE, URGENT or EMERGENCY). (T-1)

2.8.3.6. Provide consumers with EWIRDB data for reprogramming during exercises, contingencies, and wartime operations. (T-1)

2.8.3.7. Coordinate with AF/TE, SAF/AQ, and AFMC, among others, to provide equipment and support for ground and airborne testing against foreign assets. (T-2)

2.8.3.8. Assist the RCs' participation in FME. (T-2)

2.8.3.9. Produce tailored EWIRDB products to support FMS data requirements at the direction of SAF/IARW. (T-2)

2.8.3.10. Participate in the USAF EWIR oversight process. (T-2)

2.8.3.11. Ensure USAF Intelligence Surveillance and Reconnaissance (ISR) asset collected data is made available to the RCs and 453 EWS. (T-2)

2.8.3.12. Produce and maintain the official DOD "electronic fit list" of threat airborne platforms. (T-2)

2.9. Air Operations Center's Electronic Warfare Coordination Cell (EWCC). These procedures apply to the US Air Force component of the JFACC and CFACC. The AOC is the operations center of the CAF/MAF Commander. Within the AOC, threat evaluation and identification of changing target/mission requirements are continuous and time-critical functions. The EWCC and/or AMD Tactics Section for MAF aircraft within the AOC will be the POCs within the AOC for all EW coordination. The AOC's EWCC and/or AMD Tactics will:

2.9.1. Monitor the EW environment in the AOR. (T-2)

2.9.2. Perform preliminary operational deficiency analysis, generate, and send field OCRs to the MAJCOMs and RCs.

2.9.3. Advise action to minimize the impact of threat changes to increase aircraft survivability. (T-2) These actions include, but are not limited to:

2.9.3.1. Notifying aircrews of loss or degradation of EW capability.

2.9.3.2. Notifying aircrews on use of new EW tactics.

2.9.3.3. Recommending threat area avoidance tactics.

2.9.3.4. Advising diversion of attack forces to other targets based on threat assessments.

2.9.3.5. Advising use of Suppression of Enemy Air Defenses (SEAD) assets.

2.9.3.6. Review of SIM recommendations.

2.9.4. Distribute reprogramming change information to joint and combined organizations to ensure interoperability and avoid EW frequency conflicts. (T-2)

2.9.5. Report friendly force anomalies leading to false identifications or inappropriate responses and requests supporting IPCs, RCs, SPCs and National SIGINT authorities to perform validation assessments of these anomalies. (T-2)

2.9.6. Review Operational Reports (OPREP), MISREPs, EWIR messages and flight reports (FLTREPs). Ensure applicable theater MISREPs and JSIRs are sent to supporting RCs and 453 EWS. Analyze these reports and messages to find:

2.9.6.1. Unusual EW equipment operation.

2.9.6.2. Changes in engagement tactics.

2.9.6.3. Changes in successful engagement rates. (T-2)

2.9.7. Request 53 EWG/453 EWS provide 24-hour emergency flagging analysis and reprogramming as required. (T-2)

2.9.8. Ensure units deployed to their theater have the capability to quickly receive and upload reprogramming data. (T-1)

2.9.9. Ensure deployed units have all required equipment to perform rapid reprogramming, to include EW support equipment including PLVs, MLVs, CAPRE, EDNA, secure communications devices, mission support facilities, etc. (T-1)

2.9.10. As delegated by the JFACC/CFACC, assess the need for and, if deemed necessary, coordinate and implement software changes from the RCs for its combat units. (T-1) Factors to consider in determining whether to implement a change include:

2.9.10.1. Nature and lethality of the threat change within the JFACC/CFACC AOR.

2.9.10.2. Planned force movement.

2.9.10.3. Critical timing.

2.10. EWIR Committee and Subcommittees.

2.10.1. Oversight Committee. This committee provides a forum for the key functions and organizations within the EWIR community to exchange information and take action to improve EWIR. The committee reviews subcommittee actions and mediates solutions to unresolved problems. It advocates EWIR requirements within the DOD and works with other services to seek areas of commonality, ensure interoperability, share best practices, and minimize duplication. The following are mandates for the committee:

2.10.1.1. Meetings will convene as necessary and may be conducted in person or through virtual collaboration.

2.10.1.2. Committee membership is detailed in the EWIR Membership Matrix in Attachment 2. Other USAF, Joint, DOD, and service organizations may be invited to attend.

2.10.2. EWIR Subcommittees. EWIR subcommittees focus on an aspect of EWIR needing greater attention than the Oversight Committee can provide. Action items, including recommendations, will be reviewed by the Oversight Committee as required, and approved/disapproved for implementation and/or closure.

2.11. Program Managers of EW systems or systems conducting EW.

2.11.1. Develop, conduct developmental testing for, produce, and distribute initial operational OFPs for all EW systems under development or modification or delegate these tasks to the Support Reprogramming Centers (WNY), as required. Also ensure:

2.11.1.1. Users receive fully developed and tested EW systems including system software and mission data meeting the operational capabilities that have been specified based on operational need.

2.11.1.2. Systems in development or under contract that have not been transferred to an RC like the WNY and 53 EWG for OFP and MD support must follow the same RC procedures described in this instruction unless a waiver is obtained through the listed Tier waiver authority or AF/A5RE.

2.11.1.3. Appropriate Reprogramming Center (RC) is equipped with MD generators to rapidly reprogram the new or modified system prior to DT&E and OT&E. Tools which are common across the EW system portfolio will be given precedence in the selection process.

2.11.1.4. Acquisition planning documents include provisions for these fully tested items, both at the RC and in the field as required, prior to IOC:

2.11.1.4.1. Reprogramming support tools [including Mission Data generators, hot bench mock-ups, emulators, support computers, and necessary line replaceable units (LRUs) and shop replaceable units (SRUs)]. Tools which are common across the EW system portfolio will be given precedence in the selection process.

2.11.1.4.2. Data transfer/loading equipment and any necessary aircraft adapter group (AAG) components. [As of this writing, Common Aircraft Portable Reprogramming Equipment (CAPRE) is the USAF standard support equipment for this function]. Host platform single point reprogramming of installed EW systems should be used when possible.

2.11.1.4.3. Support equipment (field and depot-level) and all aspects of software reprogramming and support facilities. End-to-end testing of installed and integrated systems including all sensors, receivers, data buses, transmitters, dispensers and displays should be used whenever possible to test the system's capability to detect and react to the threat.

2.11.1.4.4. Software reprogrammable blanking systems to deconflict EW systems and other onboard receiver/transmitter systems must be included in the platform integration and in the support centers. Blanking directly impacts system performance and blanking strategies must balance safety and performance impacts on all affected aircraft systems. Any software or hardware changes to aircraft systems that impact transmitted outputs from EW or other platform avionics must be evaluated for blanking impacts and any required blanking setting changes must be tested and fielded concurrently with the system changes.

2.11.2. Plan, integrate, and acquire new EWIR systems to support the new or modified EW system.

2.11.3. Identify opportunities for acquiring joint systems to perform the operational need.

2.11.4. Use the EWIRDB as the primary source for the development of mission data for the EW system. (This includes if the EW system is supported via International Agreements). If there are information gaps in EWIRDB, coordinate with appropriate RC to identify approved information sources to be used to support the development of mission data for the new or modified EW system.

2.11.5. Provide logistics and engineering support for hardware and software elements of new or modified EW system and its associated support, training, and range simulator equipment.

2.11.6. Work with the Support Reprogramming Centers (WNY) and appropriate Operational RC to establish facilities and personnel to analyze, develop, and test changes to:

2.11.6.1. OFP.

2.11.6.2. EW system support tools.

2.11.6.3. Support equipment software.

2.11.7. Maintain facilities for complete EW system laboratory testing.

2.11.8. Maintain equipment used to transmit EW software changes to units worldwide (e.g., MSDDS).

2.11.9. Provide MD support when requested by the RC which is developing the mission data for test and evaluation of the new or modified EW system.

2.11.10. Identify, obtain and/or develop EW systems software reprogramming tools and blanker reprogramming tools in coordination with the Support Reprogramming Centers (WNY). Tools which are common across the EW system portfolio will be given precedence in the selection process.

2.11.11. Provide data necessary (including parametric and C&P data) for 57 IS to maintain accurate databases and for 453 EWS to develop flagging tools.

2.11.12. Provide assistance to parent MAJCOM in developing guidance and tasking to 453 EWS for formulating flagging tools.

2.11.13. Derive plans from a new or modified system's appropriate acquisition documentation.

2.11.14. If applicable, provide EW engineering and logistics support to allied and friendly nations through FMS EWIR, as detailed in **Chapter 5**.

2.11.15. Notify AF/A5RE and the appropriate MAJCOM, JFACC/CFACC, and NASIC of FMS sales of new or modified EW equipment (including software updates).

2.11.16. Coordinate the foreign release of capabilities/data (including software) with all affected MAJCOMs and agencies.

2.11.17. For systems that transmit EM energy, ensure program planning documents, budgets and schedules include provisions for development of BLUE / GRAY / WHITE data, as applicable IAW DODD 5250.01, CJCSI 3320.01D and CJCSI 3210.04A. Provide data to 57 IS for incorporation into USELMS and/or BATS databases, as appropriate. Review and update system data at least once every three years.

2.11.18. For systems that transmit and/or receive EM energy, document EWIR data requirements (including RED/GRAY/BLUE/WHITE data) through development of a Life-Cycle Mission Data Plan (LMDP) IAW DoDD 5250.01.

2.11.19. For systems that involve modeling and simulation (M&S) of the transmission and/ or reception of adversary EM energy, coordinate with the Intelligence Community to assess the need and determine the most appropriate method to obtain EWIR data for M&S.

Chapter 3

OPERATIONAL PROCEDURES

3.1. EWIR Deficiency Reporting. Organizations and individuals performing EWIR must identify EW deficiencies via the OCR (see PACER WARE Database Users Guide **https://wwwmil.53wg.eglin.af.mil/pacerware**). OCR message templates are located in EWIR_OPS_PW_MSG_Templates library on the MSDDS.

    3.1.1. EW deficiencies may come from:

        3.1.1.1. New threats.

        3.1.1.2. Changed parameters of existing threats.

        3.1.1.3. Aircrew or maintenance personnel interested in improving system operation including support equipment or requests for specific mission data updates.

        3.1.1.4. Changes in operational environment.

        3.1.1.5. Changes in the intended use of the EW equipment.

    3.1.2. OCR Process:

        3.1.2.1. OCRs are typically issued by Wing/Group CSO/EWO/ECPs to their MAJCOM and/or EWCC with an informational copy to the appropriate operational RC. The operational RCs can send an OCR to their MAJCOM with an informational copy to the appropriate Wing/Group CSO/EWO/ECP. When requesting specific MD updates, units should send the OCR to the operational RC with a copy to the MAJCOM.

        3.1.2.2. The MAJCOM or EWCC validates the request and tasks the appropriate RC with developing corrective action.

        3.1.2.3. The MAJCOM/EWCC and RC prioritize and evaluate the OCR and suggest methods for implementation.

        3.1.2.4. The operational RC may send a software change message (SCM) to the supporting RC when the OCR affects the OFP, EW system hardware, etc.

    3.1.3. Prioritizing OCRs. Originators submit OCRs with either an EMERGENCY, URGENT, or ROUTINE priority. The priority of the OCR will be included in the text of the message.

    3.1.4. Validating OCRs. ACC, as the CAF lead, will validate all CAF OCRs and task out to the appropriate RC. ACC will also reprioritize all CAF OCRs as necessary. AMC, as the MAF lead, will validate all MAF OCRs and task out to the appropriate RC. AFSOC, as the Air Force SOF lead, will validate all Air Force SOF OCRs and task out to the appropriate RC. AFGSC will validate all AFGSC OCRs and task out to the appropriate RC.

        3.1.4.1. Emergency changes are worked, to the exclusion of all other activities, by the RCs on a 24-hour basis until complete. (T-1)

        3.1.4.2. An Urgent OCR should be submitted with a "need" date, and actual timelines and level of effort will be determined by negotiation between the submitting MAJCOM

and the RC. These changes normally take precedence over any other activity except emergency changes.

3.1.4.3. Routine OCRs are normally scheduled and included in block cycle updates for the affected EW equipment.

3.1.5. Originators submit Emergency OCR messages:

3.1.5.1. To change operational characteristics that might seriously threaten national security.

3.1.5.2. When a condition exists preventing an adequate response to a threat, and the situation warrants immediate action.

3.1.5.3. To change operational characteristics that might result in fatal or serious injury or extensive equipment damage or destruction.

3.1.6. Originators submit Urgent OCR messages:

3.1.6.1. To change operational characteristics that might seriously threaten mission effectiveness.

3.1.6.2. When a condition exists preventing an adequate response to a threat-associated system, and the situation is normal but warrants immediate action.

3.1.6.3. To change operational characteristics that might result in injury or equipment change.

3.1.7. Originators submit Routine OCR messages when:

3.1.7.1. The system has a high probability of correctly responding to a threat or can compensate for threat and friendly emitter changes but minor deficiencies exist that may show an error.

3.1.7.2. The situation is normal and does not warrant immediate action.

3.1.7.3. The deficiencies or errors are not a hazard to personnel or equipment.

3.1.7.4. Changes in training MD are desired.

3.2. Implementing Changes. When directed by appropriate authority, units load software reprogramming changes to CC (combat) coded aircraft. With Wing/CC (or designated representative) approval, units will schedule and upload software changes on TF (training) and CB (test) coded aircraft as soon as possible, on a non-interference basis with programmed training and testing. (T-1) A MAJCOM implementation message is authorization, not necessarily direction, to load new software. The MAJCOM, Wing or Group EWO advises the commander who makes the final decision on which software to load.

3.2.1. Messages. EWIR messages and data are normally sent in the order listed below. However, many factors can affect when an agency/unit receives these messages and in what order they are received. These factors include, but are not limited to, priority of the change(s), location of the originator, common-user messaging system traffic congestion, unit distribution policies, and whether or not the unit has MSDDS capability.

3.2.1.1. SIM. Usually the first time a unit knows a threat change has occurred. Unit may receive one SIM followed shortly by the RIM, MIM or TCTO, and IMP for a particular EW system. Or, it may receive a number of SIMs affecting a particular EW system, over a period of time, before the RIM, MIM or TCTO, and IMP for that system is received.

3.2.1.2. RIM, MIM or TCTO. During emergency or high priority software changes, these messages are usually coordinated to be sent at approximately the same time. Due to the factors described above, the actual order the unit receives them may vary. For routine changes, the order and time elapsed between messages may vary widely.

3.2.1.3. IMP. During emergency or high priority software changes, the unit can expect to receive the IMP at nearly the same time as, or shortly after, the above messages. For routine changes, the timing of IMP release may vary widely. MAJCOMs may choose to issue a standing IMP that authorizes loading based on RIM, MIM or TCTO messages.

3.2.2. EWIR message descriptions.

3.2.2.1. SIM. The appropriate RC sends the SIM to the units and MAJCOM or EWCC. This message:

3.2.2.1.1. Describes the impact of threat changes on an EW system.

3.2.2.1.2. Discusses system deficiencies.

3.2.2.1.3. Recommends interim corrections (e.g., interim tactics, recommended employment options).

3.2.2.2. RIM. The appropriate RC sends the RIM to units and MAJCOM or EWCC. This message:

3.2.2.2.1. Describes in detail how an EWIR change affects an EW system.

3.2.2.2.2. States the impact of implementing or not implementing the change.

3.2.2.2.3. Helps aircrews and commanders decide when or whether to implement a change.

3.2.2.3. MIM. The appropriate RC sends the MIM, which provides maintenance uploading instructions, to units along with the changes for an EW system.

3.2.2.4. TCTO. The appropriate Air Logistics Complex (ALC) (in most cases, WNY) sends the TCTO to units. This message includes information on:

3.2.2.4.1. New Block Cycle or OFP.

3.2.2.4.2. Changes to system Handbooks or Mission Guides.

3.2.2.4.3. Changes to mission data.

3.2.2.4.4. Implementation instructions.

3.2.2.5. Implementation Message. The MAJCOM or EWCC prepares the IMP, which notifies units to upload a specific EW software change (see PACER WARE Database Users Guide **https://wwwmil.53wg.eglin.af.mil/pacerware**). This message may also include timing criteria and notification instructions. The IMP is also sent to the RCs to notify them of the status of the change.

3.2.2.6. Unit Loading Message.

3.2.2.6.1. Units send the ULM to the MAJCOM or EWCC and appropriate RCs after the units have finished uploading EW software change to all available aircraft (actual); or when the number of systems has been uploaded as instructed by the implementing authority (exercise). (T-2)

3.2.2.6.2. Send the ULM within 3 duty days after completion of any reprogramming activity. Units report the following information to the MAJCOM or EWCC, RCs, and other appropriate addressees. (T-2) (*NOTES:* Actual addressees are normally identified by the MAJCOM in their IMP for each software change; classification of ULMs is IAW individual system or aircraft classification guide; addressees for ULMs are normally provided by the implementation authority in the IMP message(s). Templates are located in EWIR_OPS_PW_MSG_Templates library on the MSDDS.)

3.2.2.6.2.1. A synopsis of reprogramming changes, including start and stop times for each reprogramming action.

3.2.2.6.2.2. Any problems a unit encountered.

3.2.2.6.2.3. Any MAJCOM specific instructions.

3.2.2.6.2.4. DELETED

3.2.2.7. Status Message (STM). The STM is sent by the RCs to the units, MAJCOMs, the EWCC, and any other interested parties, during periods of heightened activity or exercises. This message provides updates of current reprogramming actions, to include estimated time of completion. Send the STM every 72 hours, or as requested by the lead MAJCOM, throughout the period of activity or exercise. (T-2)

3.2.2.8. Threat Change Validation Request (TCVR). The TCVR is a request to the Intelligence Community to provide validation assessments to the RCs. The assessments contribute to the knowledge base from which reprogramming decisions are made. RCs have the capability to send a TCVR using the Threat Change Messaging Portal (TCMP) to the appropriate SPC and the recognized National SIGINT authority regarding collected parameters that indicate a change to the reprogramming information for a threat system. This message contains information concerning the system and parameters in question and a statement of what validation assessments are needed.

3.2.2.9. Threat Change Validation Message (TCVM). The analysts at the SPC or National SIGINT authority will make a technical assessment whether the parameters in question are a true capability and/or mode of the threat system, and send a TCVM with a determination of the threat change as valid or invalid. (T-1) TCVMs are sent using the TCMP. Timeliness of the threat change validation assessment will be based upon the timeliness of the required reprogramming action (ROUTINE, URGENT or EMERGENCY) and coordinated with the appropriate RC. RC reprogramming actions will not be delayed awaiting a validation assessment and TCVM.

3.3. Timeliness of Reprogramming Actions. All reprogramming messages (e.g., TCVM, SIM, OCR, RIM, MIM, TCTO, IMP) will include either a ROUTINE, URGENT or EMERGENCY precedence in the subject line. Recipients (SPCs, RCs, MAJCOMs and flying units) of reprogramming messages will perform reprogramming actions, if required, based upon the precedence of the message. (T-1) *NOTE:* Precedence may change if a crisis occurs, or ends, in the middle of specific reprogramming action. Use the following criteria when performing reprogramming actions (see paragraph 3.2 for exceptions):

3.3.1. ROUTINE. Considered normal day-to-day operations. Flying units may schedule around the daily training/maintenance schedule. *NOTE:* A not-later-than date (NLT) for completion may be given by the implementation authority.

3.3.2. URGENT. Urgent changes, typically accomplished during crisis periods, will be accomplished during normal duty hours, but will take precedence over other activities until complete. Urgent changes should reach the field within 72 hours, after a required change has been validated. However, acceptable timelines for urgent changes are negotiated between the applicable MAJCOM and reprogramming center (RC), depending on the complexity of the change.

3.3.3. EMERGENCY. Immediately perform reprogramming actions as required by the reprogramming message. Emergency changes, initiated during combat operations, will necessitate 24-hour operations, with the goal of having the RC release the required change within 24 hours after a required change has been validated, depending on the complexity of the change. Flying unit commanders may determine if training or operational missions can or cannot be flown without reprogramming actions being performed. *NOTE:* During all exercises, MAJCOM/IG timelines are used to determine the flying unit's success in meeting EMERGENCY timeliness.

3.4. (Added-MINOTAFB) EWIR process at home station.

3.4.1. **(Added-MINOTAFB)** EWIR Action Team agencies (EW POC, AMXS) will have one representative check the organizational e-mailbox on NIPRNET and SIPRNET weekly. During exercise or contingency operations, check the box every 24 hours. 5 BW/CP will check organizational email boxes daily regardless. 5 BW/CP will check for messages on an hourly basis during exercise or contingency operations.

3.4.2. **(Added-MINOTAFB)** CP and MOC will implement PACERWARE/SERENEBYTE checklists **(See attachment 2 and 3)** upon notification or receipt of EWIR message.

3.4.3. **(Added-MINOTAFB)** The first agency to receive an EWIR message will notify the applicable EW POC, MOC, and CP of the receipt of an EWIR message and the EW POC will direct implementation actions if required.

3.4.3.1. **(Added-MINOTAFB)** The EW POC will work with the 5 AMXS Production Superintendent to set aircraft reprogramming priorities.

3.4.4. **(Added-MINOTAFB)** 5 AMXS EW Element, upon direction from EW POC and 5 AMXS Production Superintendent will reprogram aircraft systems according to priorities established by 5 AMXS Production Superintendent.

3.4.4.1. **(Added-MINOTAFB)** The EW Element will record the start/stop times for each aircraft loading.

3.4.5. **(Added-MINOTAFB)** The 5 AMXS EW Element will pass all start/stop data, along with any amplifying information, to the 5 AMXS Production Superintendent and MOC. MOC will then report completed times and actions to the EW POC.

3.4.6. **(Added-MINOTAFB)** The EW POC will up channel all required reprogramming reports IAW AFI10-703 and the EWIR message.

3.5. (Added-MINOTAFB) EWIR Process at Deployed Locations.

3.5.1. **(Added-MINOTAFB)** A deployed member of operations personnel, preferably the Wing or Squadron Electronic Warfare Officer (EWO), will be identified and act as the deployed EW POC. Both the deployed EW POC and EW maintenance element should establish connectivity to the Multi-Service Data Distribution System (MSDDS). At a minimum, the EW maintenance element will have MSDDS access. Local procedures for weekly or daily monitoring for EWIR messages will be established based on the need as determined by the political climate in the AOR. Reprogramming will be directed by the EW POC or designated representative, as required.

3.5.2. **(Added-MINOTAFB)** The home station WEWO or appropriate EW POC representative will ensure any EWIR message traffic that affects the deployed unit is forwarded on to the EW POC in the deployed location.

3.5.3. **(Added-MINOTAFB)** The deployed EW maintenance element shall download and have on file the current software for all B-52 systems and AORs.

Chapter 4

EXERCISES AND EVALUATION PROGRAMS

4.1. General.

4.1.1. The USAF must conduct exercises periodically to validate the production and delivery of software and hardware changes to electronic equipment used to provide an awareness and response capability within the electromagnetic spectrum. These exercises are referred to by the name SERENE BYTE. SERENE BYTE exercises may be incorporated into large force exercises and be conducted in conjunction with the Electronic Warfare Analysis Program (EWAP) IAW AFI 10-706, *Electronic Warfare Operations*. SERENE BYTE exercises are intended to:

4.1.1.1. Identify problem areas.

4.1.1.2. Gain confidence in the process.

4.1.1.3. Ensure a smooth flow of information during a crisis.

4.1.1.4. Ensure readiness in response to threat parameter changes.

4.1.1.5. Train operations, intelligence, communications, and maintenance personnel.

4.1.2. Reprogramming Exercises. Exercises should be conducted as joint events to the maximum extent possible. Joint exercises expose all levels of the EWIR process to communications limitations inherent in large scale exercises and test joint coordination and cooperation between the services. Joint exercises may include FMS participation.

4.1.3. Exercise Categories. Exercises fall into three categories:

4.1.3.1. HAF directed.

4.1.3.2. MAJCOM directed.

4.1.3.3. Wing/Group directed.

4.2. HAF Directed Exercises.

4.2.1. These exercises:

4.2.1.1. Will be directed by AF/A5/8.

4.2.1.2. Normally cover the entire EWIR process.

4.2.1.3. Duplicate, to the largest extent possible, real world operations. Reduce artificiality of the exercise to the absolute minimum.

4.2.1.4. May include FMS participants.

4.2.2. Document the capabilities and limitations of all major components of reprogramming, including:

4.2.2.1. Collecting, validating, and distributing intelligence information.

4.2.2.2. Evaluating signals.

4.2.2.3. Creating and testing changes.

4.2.2.4. Distributing changes.

4.2.2.5. Implementing changes.

4.2.2.6. Validating equipment changes in combat units.

4.3. MAJCOM Directed Exercises.

4.3.1. These exercises:

4.3.1.1. Focus on MAJCOM-selected aspects of reprogramming.

4.3.1.2. Usually validate the procedures for distributing emergency reprogramming data to units.

4.3.1.3. Identify shortcomings in communications and support equipment.

4.3.2. Unit Participation.   Periodic exercise participation is at the unit Commander's discretion.   If the unit Commander chooses not to participate, report reason for non-participation. Reasons may include: unit deployment, IG visit, unit stand-down, etc.

4.4. Wing/Group Directed Exercises.

4.4.1. These exercises:

4.4.1.1. Provide personnel an opportunity to practice reprogramming. **NOTE**: Higher headquarters may also set up such exercises.

4.4.1.2. Provide an opportunity to correct/improve reprogramming capabilities based on results previous exercise results.

4.4.2. Wing/Groups should coordinate with their MAJCOM and appropriate RCs for availability of exercise data and messages. SERENE BYTE request forms are available on the PACER WARE Database and the MSDDS.

4.4.3. EWIR messages and data may be sent to the unit via an appropriately classified email or be made available on the MSDDS, as time and taskings permit.

Chapter 5

INTERNATIONAL EWIR PROGRAM

5.1. Purpose. The International EWIR program supports building EW capacity for partner air forces. Its purpose is to foster interoperability for future coalitions and to strengthen partner countries' defensive posture. This program provides acquisition, logistics, technical engineering, and system familiarization services to ensure the effectiveness of EW systems sold to partner nations. This support program is designed to provide for the standardization and reliability required to field effective EW systems.

5.2. Scope. There are three basic areas of the International EWIR program: 1) International agreements, 2) FMS cases, and 3) US government support for Direct Commercial Sales (DCS).

5.2.1. International Agreements. Agreements such as cooperative research or data exchange, joint development programs and/or joint exercises may require FMS EWIR support to enhance or maintain their effectiveness between partners. In accordance with AFI 51-701, *Negotiating, Concluding, Reporting, and Maintaining International Agreements*, Air Force personnel must obtain written approval from a competent authority before initiating, negotiating, or concluding an international agreement

5.2.2. FMS cases. The majority of International EWIR programs are accomplished using US Government (USG) contracts (FMS cases).

5.2.3. USG support to DCS programs may encompass EW management and/or oversight of EW sales by US industry. EWIR database support for DCS programs must be provided under an FMS case.

5.3. Approach. The International EWIR program follows the USAF EWIR process except for additional foreign disclosure reviews. Procedures and organizational responsibilities outlined in **chapters 2**, 3, and 4 and modified in this chapter form the basis for the International EWIR program. Hardware and software support should mirror the USAF support processes where feasible. International EWIR program support is developed IAW USAF policies for security cooperation, foreign disclosure and technology transfer as well as specific foreign partner requirements set for in the terms of each FMS case. The key administering agencies are AF/A5RE, SAF/IAPT, ACC/IAS, the Air Force Security Assistance and Cooperation (AFSAC) Directorate, and the Air Force Security Assistance Training (AFSAT) Squadron. The FMS EWIR implementing agencies are, NASIC, WNYI, and the 53 EWG.

5.4. Special Factors. Transferring capabilities through the international EWIR programs involves several factors. Program changes requiring supporting documentation (i.e., Memorandums of Understanding, FMS cases, bilateral or multilateral agreements, etc.) may require the purchaser's agreement before the program can move forward. The purchaser must fund the International EWIR program while EWIR activities, such as range testing, may be funded jointly through international agreements. FMS EWIR database support requirements for Mission Data File (MDF) development must be approved in principle as described in paragraph 5.9.5 before appropriate hardware/software sales are completed through FMS or DCS programs.

5.5. International EWIR Program Disclosure. Transfer of US EW capabilities to international customers will take place in accordance with applicable USAF, DOD and National policies and procedures. EW military capabilities can include: deliverable hardware/software, technical orders, operating manuals, employment considerations, training, and databases for MDF development, deliverable Mission Data (MD), and applicable documentation (handbooks/annexes).

5.6. EW Systems Support

5.6.1. US Systems:

5.6.1.1. Responsibility for MDF development resides with 53 EWG, AMC/OL-A, Det 1, HQ AFSOAWC, and AFLCMC/WNYI. The 53 EWG is responsible for MDF development for fighters, bombers, and AWACS platforms. Det 1, HQ AFSOAWC is responsible for MDF development for SOF and common EW systems on MAF platforms. AMC/OL-A is responsible for overall software management of the ALR-69A and the KC-46 RF Self Defense System (RFSDS)/Tactical Situation Awareness System (TSAS). WNYI also accomplishes MDF development IAW MOAs with the 53 EWG or Det 1, HQ AFSOAWC. Organizations responsible for developing MDF shall coordinate with appropriate agencies for technical order development. Under EMERGENCY or URGENT reprogramming conditions, the responsible organization coordinates a concurrent delivery with other applicable organizations. Combat Commanders and the EWCC will be notified of all EMERGENCY reprogramming activities accomplished for nations in their respective AOR.

5.6.1.2. US EW systems installed on non-US platforms or integrated with other non-US systems are supported on a case-by-case basis.

5.6.1.3. The International EWIR program will support EW systems retired from the USAF inventory to the maximum extent feasible based on available hardware, software and engineering expertise.

5.6.1.4. MDF development under DCS programs requires proper manpower, reprogramming tools, test support equipment, and database support.

5.6.2. Non-US Systems. EW systems of foreign origin are generally not supported.

5.7. Functional Responsibilities. These specific responsibilities are in addition to those found in **Chapter 2** and cover the International EWIR program.

5.7.1. Air Force Secretariat:

5.7.1.1. The Assistant Secretary of the Air Force for Acquisition (SAF/AQ) is responsible for acquisition policy, program management, and execution of all USAF FMS acquisition cases and will work with SAF/IA and HQ AFMC to accomplish necessary tasks (AFI 63-101/20-101). Within SAF/AQ, the Capabilities Division (SAF/AQPC) oversees EW system acquisitions.

5.7.1.2. The Deputy Under Secretary of the Air Force for International Affairs (SAF/IA) manages security assistance policies and FMS program execution.

5.7.1.2.1. The Armaments Cooperation Division (SAF/IAPC) negotiates non-FMS agreements (i.e., cooperative development, data exchange, etc).

5.7.1.2.2. The Weapons & Disclosure Division (SAF/IAPT) provides oversight management for the International EWIR Program and manages requests for the FMS Electronic Warfare Integrated Reprogramming (EWIR) databases and participates in appropriate International EWIR meetings. The division provides weapons systems expertise and authors the USAF EW Export Baseline and obtains release authority for the FMS EWIRDB and directs its development and distribution by NASIC. It establishes and implements the USAF disclosure of classified military information (CMI) and controlled unclassified military information (CUMI) to foreign nations. This implementation takes place in accordance with national, DOD and USAF disclosure guidance.

5.7.1.2.3. DELETED

5.7.2. Air Force Air Staff:

5.7.2.1. The Deputy Chief of Staff, Strategic Plans & Requirements (AF/A5/8) oversees EW. The Electronic Warfare Division (AF/A5RE) in coordination with SAF/IAPT manages the International EWIR program. AF/A5RE responsibilities include coordinating on the release of EW systems, reviewing the operational impact and sensitivity of EW programs, and transfer of information and technology. AF/A5RE provides recommendations on FMS program implementation addressing protection of US operational capabilities, vulnerabilities, limitations, and ensuring interoperability. They are also responsible for resolving FMS/DCS MOA issues in conjunction with SAF/IAPT. AF/A5RE functions as the OPR for the release of PACER WARE and SERENE BYTE (Refer to Chap 4) MD. They extend invitations and approve foreign participation in SERENE BYTE.

5.7.2.2. AF/A2 reviews intelligence impacts on FMS EW programs, participates in related meetings, and advocates FMS programs to other organizations of the US Intelligence Community. AF/A2 also acts as signatory for selected international intelligence arrangements involving the EWIRDB.

5.7.3. Air Combat Command:

5.7.3.1. The Air Combat Command, Director of Air and Space Operations (ACC/A3) manages joint operations and security assistance programs.

5.7.3.1.1. ACC Security Assistance Branch (ACC/IAS) monitors FMS EW programs, performs ACC foreign disclosure duties, monitors international participation in SERENE BYTE exercises, acts as the ACC focal point for international programs, and tasks ACC subordinate units to support FMS cases.

5.7.3.1.2. The 53 EWG is the Air Force FMS Reprogramming Center (RC) responsible for operational MD for fighter, bomber, and AWACS platforms to the extent specified in MOAs. 53 EWG coordinates with the appropriate agencies to ensure prompt MD support, resolve MD problems, conduct force development evaluations, and provides EW system expertise. (T-1)

5.7.3.1.3. The 57 IS provides US systems data to NASIC for FMS EWIRDB production and provides support to AF/A5RE for developing operational assessments in support of EW capability disclosure. (T-1)

5.7.3.2. The National Air and Space Intelligence Center (NASIC) provides foreign capabilities information to SAF/IA in support of disclosure decisions. NASIC acts as technical manager for production and distribution of FMS EWIRDB, and establishes initial and follow-on Price & Availability (P&A) data for database support. (T-1)

5.7.4. Air Force Materiel Command:

5.7.4.1. Provides USAF EW capability planning and weapons system expertise and develops, transitions and acquires EW systems.

5.7.4.2. Develops, acquires, and sustains aerial targets and range instrumentation and their related electronic warfare (EW) payload systems to test and evaluate weapon systems and conduct realistic operational training. It operates the Multi-Spectral Test and Training Environment range at Eglin AFB and provides development testing to allied and foreign nations. It is responsible for acquisition of Air Combat Training Systems and associated threat simulator interoperability.

5.7.4.3. The Air Force Security Assistance Center manages a broad array of FMS cases that include EW system acquisition and logistics support. AFSAC is also responsible for funding oversight and case closure. AFSAC/XPJ is AFMC's disclosure authority for the release of military information to foreign nations.

5.7.4.4. AFLCMC/WNY supports EW planning, development, acquisition, production, and integration of EW systems. It provides system management and logistics support for most US Air Force EW systems, and is the AFMC single manager providing system management and logistics support, including software and hardware for assigned EW systems. The EWAISF manages assigned EW FMS programs. The AFLCMC/WNYI is an USAF FMS RC with the following development and sustainment responsibilities: OFP, MD as defined by MOA, reprogramming tools, test software, hardware and software configuration control for systems managed by EWAISF, setting up communication links, block cycle/software changes coordination, EW products distribution for supported systems, initial P&A from all applicable organizations, reprogramming exercise participation, and country specific system security classification guides.

5.7.4.5. Programs aircrew training and range simulators for US Air Force and FMS customers. Unit Training Devices (UTDs) are reprogrammed by the responsible ALC.

5.7.4.6. Programs the E-3's Electronic Support Measures (ESM) system using 53 EWG-developed E-3 Electronic Database (EEDB) mission data.

5.8. FMS Policy. AF/A5RE and SAF/IAPT develop positions on new policy, recommend policy changes and develop guidance/procedures for Air Staff/Secretariat approval and incorporation into USAF Instructions for the purpose of advocating and overseeing the export of US EW systems and system support.

5.9. FMS Database Support for EW Reprogramming. The FMS EWIR database support program is designed for EW systems sold through DOD Security Cooperation (SC). This program provides appropriate data for all EW-related systems requiring intelligence-based information for MD programming. DCS programs may obtain this support, if required and approved, through a related FMS case. Foreign EW systems are not supported under this program.

5.9.1. FMS vs. DCS Support. EW database support is only provided through an FMS case. SAF/IAPT can assist countries to determine their data requirements, once an FMS case is signed. Database products are developed to meet specific FMS case requirements. FMS case funding is directed by SAF/IAPT, in coordination with SAF/IAR country desk offices. DCS licenses specify that US contractor companies cannot distribute intelligence-related products to support the EW system sales. Since intelligence-related products and FMS EWIRDB support is synonymous, contractors cannot provide FMS EWIRDB support. DCS licenses should stipulate that if a country requires intelligence-related products for its EW system, the country should work with the SAF/IAR desk officer for guidance in possibly obtaining the required support through an FMS case. Upon approval and funding, the required product can be distributed to the appropriate contractor facility or In-Country Reprogramming (ICR) center.

5.9.2. FMS EWIRDB. The FMS EWIRDB is a subset of the US EWIRDB. There are two types of FMS EWIRDB products. Depending on a country's requirements and US disclosure guidance, the FMS EWIRDB will either be direct or indirect. SAF/IAPT manages, develops, orders production, and requests dissemination of an FMS EWIRDB for USAF FMS and DCS programs.

5.9.2.1. FMS Direct EWIRDB. The direct FMS EWIRDB is a SECRET (REL XXX) product delivered "directly" to an international customer. This product is developed to meet requirements of an international customer that maintains an ICR capability. It is only disseminated to countries approved by the US Government to accomplish ICR on EW systems sold through FMS or DCS. A DCS program that requires support for ICR activities must have an associated FMS case to obtain the direct FMS EWIRDB.

5.9.2.2. FMS Indirect EWIRDB. The indirect FMS EWIRDB is a SECRET NOFORN product distributed only to US EW programming facilities (USG and/or US contractor). Other releases will be staffed through appropriate government agencies.

5.9.3. Database Release Authority. The US Intelligence Community and the Military Services maintain the contents of the FMS EWIRDB and are the release authorities. SAF/IAPT coordinates FMS EWIRDB specific customer requirements and obtains required IC community/Military Service approval for FMS EWIRDB products.

5.9.4. Justification for FMS Database Dissemination to International Customers. Justification is required for release of FMS EWIRDB products. Prior to developing a country-specific FMS EWIRDB, SAF/IAPT must clearly understand the purpose for the release of data to develop the required justification. Advance notice of pending EW systems sales to SAF/IAPT is the most effective way to ensure required FMS data products are developed, produced, and distributed to the appropriate EW RCs.

5.9.4.1. DCS Program Justification. US Government intelligence-based data products may be used only under an FMS case to support EW system sales. SAF/IAPT begins the development of a database support program for a specific country after a SAF/IA country desk officer develops the appropriate justification for such support and an FMS case is established or an existing one is adjusted. To ensure support is available on a regular basis, SAF/IAPT must be alerted to DCS licenses that offer EW-type systems.

5.9.4.2. Special Justification Requirements. In some cases, SAF/IAPT may require additional information from a theater command staff and/or country team to justify establishing a country-specific database support program. This special justification could apply to either a FMS case or DCS license. Failure to gain the required justification from a theater command staff and country team may result in selective denial of database support for the FMS or DCS program. This could result in a loss of EW system reprogramming data.

5.9.5. Database Support Development/Release Process for FMS/DCS Programs.   A development/release process is maintained to ensure that correct database products are developed, produced and disseminated to meet FMS/DCS requirements.   The process is divided into three phases: Phase I - Release in Principle (RIP), Phase II - Development of Database Requirements; and Phase III – Release in Specific (RIS). The phases are aligned with standard Letter of Request/Letter of Acceptance (LOR/LOA) development for FMS cases, but the phases can also be used to support Technical Assistance Agreement (TAA)/DSP-5 for DCS programs.

5.9.5.1. Phase I – Release In Principle**.** The RIP is the first phase in development, production and dissemination of FMS EW database products to meet stated EW system requirements. An approved RIP stipulates that some degree of support for the country's requirements will be available if and when an FMS case is signed.

5.9.5.2. Phase II – Development of Database Requirements. With FMS case signature, the second phase begins by accomplishing an analysis of the appropriate area of interest (AOI) and developing a concise list of radar emitters for that AOI. This list will be SAF/IAPT's recommendation to country representatives during a technical coordination meeting (TCM). If an adequate list is not developed during or shortly after the TCM, there may be a delay in delivery of the FMS database product to the EW RC. After TCM completion, the final radar emitter list will be validated against US Government disclosure guidelines prior to phase III initiation.

5.9.5.3. Phase III – Release in Specific. The RIS begins immediately after the final radar emitter list is validated. This phase establishes a specific release authority from appropriate DOD organizations for parametric data on selected radar emitters. SAF/IAPT directs production of the country-specific database once RIS approval is received from appropriate DOD organization.

5.9.5.4. Follow-on Data Support. A follow-on database support program is available for international customers. This support complements initial FMS database support and ensures regular updates of data for changing AOI and/or requirements. In all cases, the process used, the funding required and the FMS database provided will be the same, as long as guidance and funding is provided in a FMS case. This follow-on support is recommended since radar emitters change on a regular basis, radar systems in a specific AOI can change as countries update defensive systems, or combat/training mission requirements change. The preferred FMS database support program would be defined as initial plus two follow-on databases with 12 to 18 month intervals between the deliveries of the three products. This type of program ensures the required data is available for the EW reprogramming center. A TCM is not mandatory for all follow-on development of FMS database products.

5.10. Communications.

5.10.1. FMS EWIR RCs maintain a secure communications capability with USG personnel in country or direct to customer points of contact. These links can provide the necessary connectivity for transmitting text and binary data between the RC and international customers. (T-2)

5.10.2. Security of International Transmissions. DOD ensures the establishment of secure transmission channels for the physical transfer of documents, software and data. Electronic transmission is the desired method of transfer. USG personnel supporting international partners may receive and transmit reprogramming software and messages via the SIPRNet or secure communications equipment.

5.11. FMS EWIR Training and Exercise Support.

5.11.1. FMS EWIR operational and technical training and logistics support is provided from the following organizations:

5.11.1.1. SAF/IAPT provides familiarization on the overall FMS EWIR process and its components. (T-3)

5.11.1.2. 53 EWG provides MD familiarization and operational considerations for international customer use of USAF EW equipment. (T-3)

5.11.1.3. Det 1, HQ AFSOAWC provides MD and operations considerations for systems similar to SOF and MAF-configured EW equipment. (T-3)

5.11.1.4. AFLCMC/WNY provides hardware and software familiarization support for assigned systems.

5.11.1.5. ACC Mobile Training Teams (MTTs) are available on request of the foreign government (non-interference basis) for in-country instruction on EW subjects, EW systems' operations, and operational considerations.

5.11.1.6. SAF/IAPT, in conjunction with NASIC, provides FMS EWIRDB training support.

5.11.1.7. AFSAT develops and provides FMS training plans.

5.11.2. Air Force directed EW reprogramming exercises may include allied and friendly nations to demonstrate USAF support and provide training.

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DCS, Operations, Plans, and Requirements

(MINOTAFB)

MATTHEW R. BROOKS, Colonel, USAF
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Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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Prescribed Forms

(**Added**-**MINOTAFB**) None

Adopted Forms

AF Form 847, *Recommendation for Change of Publication,* 22 Sep 09

(**Added**-**MINOTAFB**) AF Form 847, *Recommendation for Change of Publication*

(**Added**-**MINOTAFB**) AF IMT 2519, *All Purpose* Checklist

Abbreviations and Acronyms

ACC—Air Combat Command

AETC—Air Education and Training Command

(Added-MINOTAFB) AF—Air Force

(Added-MINOTAFB) AFB—Air Force Base

AFGSC—Air Force Global Strike Command

AFI—Air Force Instruction

AFLCMC—Air Force Life Cycle Management Center

(Added-MINOTAFB) AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFOTEC—Air Force Operational Test and Evaluation Center

AFPD—Air Force Policy Directive

AFPEO—Air Force Program Executive Office

AFRC—Air Force Reserve Command

(Added-MINOTAFB) AFRIMS—Air Force Records Information Management System

AFSAC—Air Force Security Assistance and Cooperation

AFSAT—Air Force Security Assistance Training

AFSMO—Air Force Spectrum Management Office

AFSOC—Air Force Special Operations Command

AFTTP—Air Force Tactics, Techniques and Procedures

ALC—Air Logistics Complex

AMC—Air Mobility Command

AMC/OL—**A** – Air Mobility Command EW Reprogramming Center

AMD—Air Mobility Division

(Added-MINOTAFB) AMXS—5th Aircraft Maintenance Squadron

(Added-MINOTAFB) AMXS—Aircraft Maintenance Squadron

ANG—Air National Guard

AOC—Air Operations Center

AOR—Area of Responsibility

ARC—Air Reserve Component (USAFR and ANG)

ATS—Automatic Test System

BATS—Blue Airborne Target Signatures (Database)

(Added-MINOTAFB) BW—5th Bomb Wing

(Added-MINOTAFB) BW—Bomb Wing

(Added-MINOTAFB) BW/CP—5th Bomb Wing Command Post

C&P—Characteristics and Performance

C2—Command and Control

CAE—Component Acquisition Executive

CAF—Combat Air Forces

CAPRE—Common Aircraft Portable Reprogramming Equipment*

CASAS—Centralized Aircraft Survivability Assessment System

CFACC—Combined Force Air Component Command

CJCSI—Chairman Joint Chiefs of Staff Instruction

CJCSM—Chairman Joint Chiefs of Staff Manual

COLISEUM—Community On-Line Intelligence System for End-Users and Managers

COMSEC—Communications Security

CONPLAN—Contingency Plan

(Added-MINOTAFB) CP—Command Post

CPIN—Computer Program Identification Number

CSAR—Combat Search And Rescue

CSDB—Combat Support Database

CSO—Combat Systems Officer

CTF—Combined Test Force

DCS—Direct Commercial Sales

DIA—Defense Intelligence Agency

DMS—Defense Message System

DOD—Department of Defense

DODD—Department of Defense Directive

DRU—Direct Reporting Unit

EA—Electronic Attack

EASTE—Enhanced Automated Special Test Equipment

EC—Electronic Combat

ECP—Electronic Combat Pilot

ECSF—Electronic Combat Support Flight

EDNA—Enhanced Diagnostic Aid

EEDB—E-3 Electronic Database

EID—Emitter Identification Data

ELINT—Electronic Intelligence

EM—Electromagnetic

EOB—Electronic Order of Battle

ES—Electronic Support

ESM—Electronic Support Measures

EW—Electronic Warfare

EWAP—Electronic Warfare Analysis Program

EWAISF—Electronic Warfare Avionics Integration Support Facility

EWCC—Electronic Warfare Coordination Cell

EWIR—Electronic Warfare Integrated Reprogramming

EWIRDB—Electronic Warfare Integrated Reprogramming Database

EWO—Electronic Warfare Officer

F3I—Form, Fit, Function, and Interfaces

FATS—Foreign Aerospace Threat Signatures

FDE—Force Development Evaluation

FLTREP—Flight Report

FME—Foreign Materiel Exploitation

FMS—Foreign Military Sales

FOA—Field Operating Agency

HAF—Headquarters Air Force

HQ—Headquarters

IAW—In Accordance With

IC—Intelligence Community

ICR—In-Country Reprogramming

IMP—Implementation Message

IN—Intelligence Need (Statement)

IO—Information Operations

IPC—Intelligence Production Center

JCIDS—Joint Capabilities Integration and Development System

JCS—Joint Chiefs of Staff

JFACC—Joint Forces Air Component Command

JS—Joint Staff

JSIR—Joint Spectrum Interference Report

JTF—Joint Task Force

LOA—Letter of Acceptance

LOR—Letter of Request

LRU—Line Replaceable Unit

LSSP—Life-cycle Signature Support Plan

MAF—Mobility Air Forces

MAJCOM—Major Command

MD—Mission Data

MDO—Mission Data Optimization

MDS—Mission Design Series

MIM—Maintenance Instruction Message

MISREP—Mission Report

MLV—Memory Loader Verifier

MOA—Memorandum of Agreement

(Added-MINOTAFB) MOC—Maintenance Operations Center

MSDDS—Multi-Service Data Distribution System

(Added-MINOTAFB) MSEWDDS—Multi-Service Electronic Warfare Data Distribution System

MSG—Message

MSIC—Missile and Space Intelligence Center

MTT—Mobile Training Team

(Added-MINOTAFB) MXG—5th Maintenance Group

(Added-MINOTAFB) MXG/CC—5th Maintenance Group Commander

NAF—Numbered Air Force

NASIC—National Air and Space Intelligence Center

NGES—Next Generation EWIRDB System

NGIC—National Ground Intelligence Center

(Added-MINOTAFB) NIPRNET—Non-Classified Internet Protocol Router Network

NLT—Not Later Than

NSA—National Security Agency

NSRP—National SIGINT Requirements Process

OB—Order of Battle

OC ALC—Oklahoma City Air Logistics Complex

OCR—Operational Change Request

OFP—Operational Flight Program

(Added-MINOTAFB) OG/CC—5th Operations Group Commander

OI—Operating Instruction

ONI—Office of Naval Intelligence

OO ALC—Ogden Air Logistics Complex

OPLAN—Operational Plan

OPR—Office of Primary Responsibility

OPREP—Operational Report

(Added-MINOTAFB) OSS/CC—5th Operations Support Squadron Commander

(Added-MINOTAFB) OSS/OSK—5th Operations Support Squadron Conventional Plans

OT&E—Operational Test and Evaluation

P&A—Price and Availability

PACAF—Pacific Air Force

PLV—Program Loader Verifier

PO—Program Office

POC—Point of Contact

PR—Production Requirement

PM—Program Manager

PW—PACER WARE

PWDB—PACER WARE Database

RC—Reprogramming Center [53 WG (ACC), (53 EWG), Det 1, HQ AFSOAWC (AFSOC), AMC/OL-A (AMC) and WNYI (for some FMS supported systems)]

RDS—Records Disposition Schedule

RDT&E—Research, Development, Test and Evaluation

RF—Radio Frequency

RFI—Request for Information

RIM—Reprogramming Impact Message

RIP—Release In Principle

RIS—Release In Specific

SAE—Service Acquisition Executive

SAF—Secretary of the Air Force

SC—Security Cooperation

SCM—Software Change Message

SEAD—Suppression of Enemy Air Defenses

SEI—Specific Emitter Identification

SIGINT—Signals Intelligence

SIM—System Impact Message

SIPRNet—Secret Internet Protocol Router Network

SOF—Special Operations Forces

SPC—Service Production Center

STM—Status Message

TA—Technical Advisor

TAA—Technical Assistance Agreement

TCM—Technical Coordination Meeting

TCMP—Threat Change Messaging Portal

TCTO—Time Compliance Technical Order

TCVM—Threat Change Validation Message

TCVR—Threat Change Validation Request

TO—Technical Order

TODO—Technical Order Distribution Process

TTP—Tactics, Techniques and Procedures

ULM—Unit Loading Message

USAF-JLLIS—Air Force Joint Lessons Learned Information System

USAFE—US Air Force Europe

USELMSDB—US Electromagnetic Systems Database

USG—US Government

(Added-MINOTAFB) WEWO—Wing Electronic Warfare Officer

WR-ALC—Warner Robins Air Logistics Complex

Note –"*"—Will replace digital computer systems and MLVs/PLVs when fielding is complete

Terms

Block Cycle—In this process the RC receives software change requests from the user, and other change requests from organizations, which are associated with the software process.   The RC evaluates these requests and identifies potential solutions.   When the user determines that sufficient changes have been identified to justify the expense of an update, the RC implements the software changes. Changes are scheduled based on the criticality of the requirement, with routine updates generally occurring approximately every 18 months for Operational Flight Programs (OFP) and Mission Data (MD).

AMC/OL—A- Airlift and tanker systems

53EWG, Eglin AFB FL-—Bomber, fighter, reconnaissance and FMS systems

BLUE—Associated with US military users.

BRAVE BYTE—The nomenclature for Army exercise electronic warfare system changes.

Characteristics and Performance (C&P) Data—Developed from parametric data and detailed analysis of all-source intelligence, C&P data provide descriptive characteristics used to define the system, its capabilities, and its behaviors. Examples of C&P data include antenna patterns, RF/EO/IR signatures, EP capabilities, and maximum detection range.

All-source derived assessments of foreign military system capabilities and physical attributes. (DoDD 5250.01)

Community On-Line Intelligence System for End—Users and Managers (COLISEUM) - The Defense Intelligence Agency (DIA) on-line production/requirements management system. It provides the mechanism for registering and validating requirements, deconflicting requirements, and assigning / scheduling production within production centers under the purview of DIA. It provides the ability to track and manage production activities across operational/national planners and consumers. Production Requirements / Requests for Information (PRs/RFIs) are used in COLISEUM to register the intelligence product / service requirement and to assign the requirement to the appropriate production center(s).

Communications Externals—Technical and geolocation intelligence derived from the parametrics of intercepted emissions from foreign communications systems.

Det 1, HQ AFSOAWC—Special Operations, airlift, and helicopter systems

Electronic Order of Battle (EOB)—A country-specific listing which provides the locations and operational status of land-based electronic facilities and their associated radar equipment. These facilities normally perform the mission of air defense, space tracking, air & coastal surveillance, navigation, civil & military aviation, meteorology, and scientific testing. The DIA EOB is a strategic baseline listing which provides only the garrison locations for mobile radar equipment. Tracking and force disposition of tactical force equipment is maintained by the responsible COCOMs.

Electronic Warfare (EW)—Any military action involving the use of electromagnetic (EM) and directed energy (DE) to control the EM spectrum or to attack the enemy. The three major subdivisions within EW are: electronic attack (EA), electronic protection (EP), and electronic warfare support (ES).

Electronic Warfare Analysis Program (EWAP)—Also known as the COMBAT SHIELD program, the EWAP evaluates the EW defensive system readiness of CAF aircraft by deploying test and evaluation teams with specialized equipment to provide senior leadership an independent assessment of the health of CAF systems and to provide local commanders with on-site analysis and feedback on the readiness of unit EW jammer and radar warning receiver (RWR) systems.

Electronic Warfare Integrated Reprogramming (EWIR)—The process that fully integrates operations, intelligence, communications, logistics, and other support functions to provide changes to reprogrammable electronic warfare equipment hardware and software, tactics, and equipment settings. EWIR gives the Air Force a clear and comprehensive picture of tasks, data,

staffing, and the interrelationships between the agencies that reprogram EW equipment. This process forms the basis for developing Air Force procedures, organizations, facilities, and expertise to ensure responsive EW reprogramming during peacetime, wartime, and contingencies.

EWIR Data—All-source derived data describing observed and assessed radio frequency parametric data.

Electronic Warfare Integrated Reprogramming Data Base (EWIRDB)—The EWIRDB is a database that contains parametric and select C&P data describing EW systems. It is the primary source for mission and reprogramming data. It is the primary DOD approved source for technical parametric and performance data on non-communications electronic emitters and associated systems. Scientific and technical intelligence and other centers (including NASIC, NGIC, NMIC, MSIC, 453 EWS, and NSA) provide the data to NASIC for inclusion in the database. The EWIR database includes threat, neutral military, and friendly and commercial system mission data.

Firmware—Software that is permanently stored in a hardware device that allows reading but not writing or modifying the software. The most common device used for firmware is read-only memory.

Fit Data—Information about the internal and external equipment associated with a particular platform. For the example of an aircraft, having knowledge of a specific grouping of avionics hardware & software, and how the components work together, provides the ―avionics fit‖ for that platform. Knowing the grouping (configuration) of the hardware & software helps to make the fit. Similarly, having knowledge of the different possible weapon / launcher / fuel tank load combinations on an aircraft contributes to the ―weapons fit‖ for that platform.

Flagging—The process of identifying emissions whose parameters are outside of prescribed limits. There are two methods: parametric-based flagging or model-based flagging. Parametric-based flagging consists of comparing observed parametric data to the database of known emitter parameters. Model-based flagging consists of using software-based models to analyze an EW system's response to observed parametric data. 453 EWS maintains automated flagging tools for both methods.

GRAY—Associated with non-US, non-hostile military users. Examples:

Countries/coalitions traditionally identified as US allies (UK, CAN, AUS, NATO, etc.).
Countries/coalitions identified as ―neutral‖ or ‒unknown‖ in their alliance with US.
US systems sold to other countries through FMS or similar processes.
Different organizations may be assigned different parts of GRAY to comply with existing laws and DOD / Joint / Service policies.

Implementation Message (IMP)—Major command or Joint Forces Air Component Command, Combined Forces Air Component Command, or Air Operations Center approval to load a change that the reprogramming centers have made to electronic warfare systems and sent to the units.

International Agreement—As used in this instruction, the term International Agreement has the same meaning as defined in Attachment 4 to AFI 51-701.

Intelligence Community (IC)—A federation of executive branch agencies and organizations that work separately and together to conduct intelligence activities necessary for the conduct of foreign relations and the protection of the national security of the United States. An IC member organization, or a component within that organization, plays a role in the national intelligence function.

The member organizations of the IC are:
Director of National Intelligence
Undersecretary of Defense for Intelligence
Air Force Intelligence
Army Intelligence
Central Intelligence Agency
Coast Guard Intelligence
Defense Intelligence Agency
Department of Energy
Department of Homeland Security
Department of State
Department of the Treasury
Drug Enforcement Administration
Federal Bureau of Investigation
Marine Corps Intelligence
National Geospatial-Intelligence Agency
National Reconnaissance Office
National Security Agency
Navy Intelligence

Intelligence Production Center (IPC)—A general term used to describe a subset of the Intelligence Community which produces and disseminates original intelligence products in support of (DOD) missions and objectives. IPCs include the COCOM and Service intelligence centers, and DOD / national production centers.

Mission Data (MD)—Elements or files a processor employs to perform signal discrimination, threat warning, target a threat, or elicit countermeasure (i.e. jamming, expendables) responses, which are selectable, adaptable, or changeable by the using command with the exception being FMS customers. MD is also called Emitter Identification Data (EID), Mission Data File (MDF), Pre-Flight Message (PFM), Code Form Message (CFM), or other related names that vary in function according to the system using them.

Multi-Service Data Distribution System (MSDDS)—The MSDDS is a means of transmitting digital data and EWIR message traffic to operational locations. Normally, data and messages are available on the MSDDS almost simultaneously with their transmission over SIPRNet. The MSDDS uses secure communications equipment to transmit digital data, via commercial or Defense Switch Network (DSN) voice lines, or SIPRNet, from reprogramming centers directly to operational locations which possess like equipment and appropriate communications software. Since the MSDDS is a "pull" system, units must be notified by message or telephone that new MD software has been loaded on the MSDDS. The MSDDS provides a backup for the transmission of reprogramming data and EWIR message traffic.

National SIGINT Requirements Process (NSRP)—An integrated system of policies, priorities, procedures and technology used by the Intelligence Community to manage requests for national level SIGINT products and services. SIGINT collectors satisfy tactical through national level consumer information needs based on NSRP guidance. Information Need (IN) statements are used in the NSRP to relay collection requirements to SIGINT collectors

Operational Change Request (OCR)—A formal request to the appropriate major command and support command facilities that identifies the inability of an electronic warfare system to meet operational requirements. In emergencies, an OCR identifies the inability to discriminate or respond to a threat and then requests mission data or operational flight program (OFP) changes to correct the problem.

Operational Flight Program (OFP)—The executable program resident in computer- controlled electronic warfare systems that contains the algorithms that receive, identify, process, and do jamming tasks. This program does not contain any threat-specific data, and operational commands cannot change the program. The reprogramming centers send a software change message (SCM) to Air Force Materiel Command to get an OFP modified.

Operational RCs-—EW Systems

PACER WARE—The term for actual electronic warfare system changes issued during peacetime, contingencies, or wartime operations. PACER WARE actions can be at the routine, urgent, or emergency level as required.

PACER WARE (PW) Database—53 EWG, working with Det 1, HQ AFSOAWC Reprogramming Center (RC), developed a secure unclassified website to manage and distribute USAF PW information. This CAC-enabled database acts as a focal point for all USAF EWIR unit account information and message release data. Accessible 24/7 by users worldwide, the PACER WARE Database (PWDB) provides a backup to other EWIR communication channels. This system ensures units receive critical updates when SIPRNet channels are unavailable. The database may be accessed at: **https://wwwmil.53wg.eglin.af.mil/pacerware.**

PACER WARE Messages—PACER WARE messages templates and procedures (OCR, SIM,

RIM, MIM, TCTO, IMP, SCM and ULM) are located on the classified MSDDS (EWIR_OPS_PW_MSG_Templates library) and unclassified PWDB (**https://wwwmil.53wg.eglin.af.mil/pacerware**).

Parametric Data—Directly measureable factors (such as frequency, pulse width, polarization,

etc.) that help to define a system / waveform and determine its behavior. They are data elements that describe specific properties and timing. Some parametric data are expressed as a mean value, or range of values.

Power, Pattern & Polarization (P-Cubed)—A type of analysis and data which concentrate on three aspects of a radar (or other emitter type): effective radiated power (ERP), antenna radiation patterns, and RF wave polarization of the emitted signal. These features directly affect the characteristics, performance, and potential vulnerabilities of the emitter system.

PROFORMA—Machine-generated data communications found in military C4ISR, civil, industrial, commercial and personal applications, conveying information derived from sensors and control systems.

PROUD BYTE—The nomenclature for Joint reprogramming exercises.

Rapid Reprogramming—The term used to describe the method to reprogram EW systems in a time sensitive manner.

RED—Associated with hostile (non-US) users.

Reprogramming Center (RC)—A term used to refer to centers which plan, design, test, and field updates to MD and OFPs. Operational RCs are responsible for MD while Support RCs are responsible for OFPs.

Operational RCs:	EW Systems
53EWG, Eglin AFB FL	Bomber, fighter, reconnaissance and FMS systems
Det 1, HQ AFSOAWC	Special Operations, airlift, and helicopter systems

Support RCs	EW Systems:
WNY	All US systems
WNYI	FMS systems

Security Assistance Program—A program designed to provide assistance (e.g., training, weapons, hardware) to a foreign government for furthering the US national security strategy.

SERENE BYTE—The nomenclature for exercising Air Force electronic warfare system changes.

Software Validation—Integration, testing, & evaluation performed at the system or subsystem level to ensure the final program satisfies system specifications & user or supporting command requirements.

Service Production Center (SPC)—Organizations responsible for updating and maintaining assigned emitters in EWIRDB/NGES. Emitter assignments are based primarily on areas of expertise. SPCs provide system-specific technical information to theater intelligence centers and RCs.

The National Ground Intelligence Center
The Office of Naval Intelligence
The Marine Corps Intelligence Activity
The National Air & Space Intelligence Center
453rd EWS

Signature—A distinctive characteristic or set of characteristics that consistently recurs and identifies a piece of equipment, material, activity, individual, or event such as a radio frequency or acoustic characteristics.

Specific Emitter Identification (SEI)—A method to unambiguously identify a particular emitter or class of emitters by exploiting unintentional / unique features of the emitter signal.

Threat Change Messaging Portal—A SIPRNet-based software portal used for the purpose of facilitating the Threat Change Validation process. This portal permits TCVR submittal from Reprogramming Centers of all Services and TCVM replies from participating Service Production Centers, Scientific and Technical Intelligence Centers, Information Warfare Centers, Service components, and observed signal centers. When operational, the portal is the preferred messaging system for TCVR/TCVM traffic. When non- operational, legacy TCVR/TCVM traffic system and methods apply. The EWIRDB Program Management Office at DIA/MSIC maintains this portal. The TCMP is located at

http://www.msic.dia.smil.mil/tcmp—.

Threat Change Validation—An EWIR Intelligence Community process for providing validation assessments on suspected EW threat changes to the Reprogramming Centers so that a valid reprogramming decision can be made.

Verification—Process of comparing two levels of an information system specification for proper correspondence (e.g., security policy model with top-secret specification, top-level specification with source code, or source code with object code)**.**

WHITE—Associated with non-military, non-hostile users.

Attachment 2

EWIR COMMITTEE MEMBERSHIP MATRIX

Figure A2.1. EWIR Oversight Committee and Subcommittee Membership Matrix.

Organization	Oversight	Communication Requirements Subcommittee
AF/A5RE	C	I
AF/A2CS	X	
AF/A2DP	X	
NASIC/ADE	X	
EWIRDB Technical Manager	X	
SAF/A6WS	I	X
SAF/IAPT	X	X
ACC		
ACC/A3TW	X	X
25 AF	I	
57 IS	X	X
53 EWG	X	X
68 EWS	X	C
36 EWS	X	X
53 CSS	X	X
453 EWS	X	X
513 EWS	X	X
AFGSC		
AFGSC/A3T	X	X
AFMC		
A2/5	X	
AFLCMC/WNY (EWAISF)	X	X
AFLCMC/WNYI (Int'l Programs Branch)	X	X
AFSOC		
Det 1, HQ AFSOAWC	X	X
A3T	X	
AFSOAWC A9	I	
A4M	I	
A6T		X
AMC		
A3D	X	
A4M	X	
DIA/MSIC (EWIRDB PMO)	I	
NSA ADD/TSE	I	

NOTE 2: In accordance with the Charter for the EWIR Communications Requirements Subcommittee, its purpose is to ensure new and existing reprogramming support equipment will support EWIR. It ensures communications capabilities will adequately support current and future connectivity to common users, base-level, and long-haul systems. It focuses on requirements to drive recommended technical solutions for communications connectivity between Reprogramming Centers, 453 EWS, 57 IS, intelligence support agencies, MAJCOMs, JFACC/CFACC/AOC/ EWCCs, and the Wings/Groups.

Attachment 3

EWIR DATA TYPES

A3.1. Data Types. An effective EWIR process requires accurate signal/system information, not all of which can be actively collected or processed by a single organization. Over many years US laws, policies, and DOD / Joint / Service guidance have created divisions of authority and responsibility, leading to the development of several data types, or colors (RED, GRAY, BLUE, WHITE), with different communities (Operations, Acquisition, Intelligence) responsible for different colors. To ensure that the USAF EWIR process obtains and disseminates all required information, this Attachment defines the different data colors. Note that the type/color terms are for planning, development and resource allocation purposes only--what is WHITE today may become RED if hostile forces employ a commercially available system. Systems may have more than one color. For example, if a currently fielded BLUE military system is sold to a GRAY country but then political circumstances change and that country employs that system in a hostile manner, that system is now both BLUE and RED. Differences in configuration will likely still exist between the BLUE and RED version even though they are the same basic system. Also, the US military may use the same commercial (WHITE) system a hostile user (RED) employs. If the US military is a user, those systems are BLUE, the hostile used systems are RED and if there are commercial users those systems are WHITE.

Table A3.1. EWIR Data Types and Terms.

TERM	DEFINITION
Color Code User Code	Indicates the general user category of a related set of entities or objects. Can apply to a set of platoons, a set of platforms, or a set of sensor systems. The current codes are RED, BLUE, GRAY, and WHITE.
RED	Associated with hostile (non-US) users.
BLUE	Associated with US military users.
GRAY	Associated with non-US, non-hostile military users. Examples: Countries/coalitions traditionally identified as US allies (UK, CAN, AUS, NATO, etc). Countries/coalitions identified as "neutral" or "unknown" in their alliance with US. US systems sold to other countries through FMS or similar processes. Literally, a "gray" area, where rules, responsibilities, and collection authorities require significant attention to law and policy detail. Different organizations may be assigned different parts of GRAY to comply with existing laws and DOD / Joint / Service policies.
WHITE	Associated with non-military, non-hostile users. **Note**: US Government systems that do not fall under the US Military (DEA, Border Patrol, etc.) are considered as WHITE. **Note**: Can be divided into US-WHITE and NON-US-WHITE if needed.

TERM	DEFINITION
US Military	US Army, US Navy, US Air Force, US Marine Corps, and US Coast Guard.
Non-US Military	Any military service that is not organized under the US Government.
Hostile Users	Non-US users treated as threatening to US sovereignty or US people. **Note**: No US users are treated as hostile.
Non-hostile Users	US or Non-US users treated as non-threatening to US sovereignty or people.

Table A3.2. EWIR Data Types and Terms.

TERM	DEFINITION
Color Code User Code	Indicates the general user category of a related set of entities or objects. Can apply to a set of platoons, a set of platforms, or a set of sensor systems. The current codes are RED, BLUE, GRAY, and WHITE.
RED	Associated with hostile (non-US) users.
BLUE	Associated with US military users.
GRAY	Associated with non-US, non-hostile military users. Examples: Countries/coalitions traditionally identified as US allies (UK, CAN, AUS, NATO, etc). Countries/coalitions identified as "neutral" or "unknown" in their alliance with US. US systems sold to other countries through FMS or similar processes. Literally, a "gray" area, where rules, responsibilities, and collection authorities require significant attention to law and policy detail. Different organizations may be assigned different parts of GRAY to comply with existing laws and DOD / Joint / Service policies.
WHITE	Associated with non-military, non-hostile users. **Note**: US Government systems that do not fall under the US Military (DEA, Border Patrol, etc.) are considered as WHITE. **Note**: Can be divided into US-WHITE and NON-US-WHITE if needed.
US Military	US Army, US Navy, US Air Force, US Marine Corps, and US Coast Guard.
Non-US Military	Any military service that is not organized under the US Government.
Hostile Users	Non-US users treated as threatening to US sovereignty or US people. **Note**: No US users are treated as hostile.
Non-hostile Users	US or Non-US users treated as non-threatening to US sovereignty or people.

A3.2. Data Color Example: Assume the XYZ system is used by US and Country X military forces. Country X is non-US + non-hostile. Overall, the XYZ system can be described as BLUE+GRAY. That is, there are BLUE XYZ systems and GRAY XYZ systems, which may not be identical. The EWIR organization(s) responsible for BLUE data would be responsible for the BLUE version of XYZ; the EWIR organization(s) responsible for GRAY data would be responsible for the GRAY version of XYZ. To the maximum extent possible, the BLUE and GRAY organizations would collaborate to share/compare data across the versions of the XYZ system. Each organization would ensure that each data set is updated over time as the system(s) are changed / upgraded.

A3.3. Data Color Designation and Assignment. Much of the information required for the USAF EWIR process is based on the work of the IC, which has established lanes in the road for assigning (primarily RED) systems to various IPCs/SPCs. For other systems not explicitly assigned within the IC (primarily BLUE/GRAY/WHITE), AF/A5RE will coordinate with AF/A2, NSA, DIA, 53 EWG (453 EWS), NASIC, and other organizations to ensure all required systems are assigned a data OPR consistent with current guidance and organization missions. In general:

A3.3.1. RED systems are assigned to appropriate IPCs/SPCs for collection and analysis, with refinement and/or validation of data made by other supporting EWIR organizations.

A3.3.2. BLUE system, aircraft signature and antenna pattern data are generated and updated by Operations, Program Offices (in association with the system vendors), and the 57 IS for addition to USELMS and BATS databases, as applicable. BLUE data can then be merged into EWIRDB.

A3.3.3. GRAY systems and data issues must be handled on a case-by-case basis. Options include:

A3.3.3.1. Countries/coalitions traditionally identified as US allies may voluntarily provide information to support the EWIR process. Information can then be added directly into EWIRDB, or merged from other EWIR-related databases.

A3.3.3.2. Countries/coalitions identified as "neutral" or "unknown" in their alliance with the US may be assigned to appropriate IPCs/SPCs for collection and analysis, with refinement and/or validation of data made by other supporting EWIR organizations.

A3.3.3.3. GRAY data for US systems being sold to other countries (through FMS or similar processes) are generated by the Program Office (in association with the system vendor) and provided to 57 IS before the system leaves US control. Once the FMS system is outside of US control, system data and update responsibilities may be transferred to an IPC/SPC, as applicable.

A3.3.4. WHITE data must also be evaluated on a case-by-case basis. Information may be provided by or purchased from the commercial vendor(s), or system may be assigned to appropriate IPCs/SPCs for collection and analysis, with refinement and/or validation of data made by other supporting EWIR organizations IAW intelligence oversight guidance. Information can then be added directly into EWIRDB, or merged from other EWIR-related databases.

Attachment 4 (Added-MINOTAFB)

5 BW/CP SERENE BYTE / PACERWARE CHECKLIST

Table A4.1. (MINOTAFB) 5 BW/CP SERENE BYTE / PACERWARE CHECKLIST.

CLASSIFICATION: **UNCLASSIFIED**	CONTROLLER CHECKLIST CURRENT AS OF: 10 Jul 15	717
CHECKLIST TITLE: **SERENE BYTE / PACERWARE**		Page 1 of 2

_____ 1. Confirm Correct Checklist. Time Initiated _____Z.

_____ 2. When in receipt of an Electronic Warfare Integrated Reprogramming (EWIR) message from 53d WG at Eglin AFB, complete the following:

_____ a. Refer to the SERENE BYTE/PACERWARE letter in the standby roster binder (#43).

_____1. For **ROUTINE /URGENT/EMERGENCY** messages **during normal duty hours**, notify:

_____ a. Operations personnel (see Notification Procedures for EWIR Message Traffic Memo for

individual contact information)

_____ b. AMXS personnel (see Notification Procedures for EWIR Message Traffic Memo for

individual contact information)

_____ 2.   For **EMERGENCY** messages **during non-duty hours**:

_____1. Contact the POCs provided in the EWIR Notification Letter (Standby roster #43):

_____ Wing Electronic Warfare Officer (WEWO)_____MOC

"We have received an <u>EMERGENCY</u> EWIR message requiring immediate attention."

_____3. If the WEWO and alternate operations POCs are unavailable, notify the 5 OSS/DO or 5 OSS/CC.

NOTE: Direct OG/CC and MXG/CC involvement should only be necessary in extreme cases involving real world emergency messages or during certain exercise situations involving embedded SERENE BYTE message traffic where all ops EWIR POCs are directly involved in portions of the exercise that prevent access to a phone.

_____ 3. Continue contact attempts until either notified of message receipt and relieved by operations personnel or

contact has been made with both operations and AMXS personnel. If no contact can be made for any of the

operations POCs and it is a time critical message, as a last resort, notify the 5 OG/CC.

_____ 4. If there are B-52 aircraft off-station (not including aircraft at depot maintenance), contact the deployed MOC or Deployed CC to ensure message receipt. If unable to contact either of the above, contact local MOC and request assistance.

_____ 5. Evaluate event for OPREP-3 reporting criteria. Refer to AFI 10-206 and applicable supplements.

_____ 6. Log actions. Checklist complete.

REFERENCE:		CLASSIFICATION:
AFI 10-703; OG/CC Involvement in EWIR Message Traffic Notification Procedures; Notification Procedures for EWIR Message Traffic		**UNCLASSIFIED**
CLASSIFICATION: **UNCLASSIFIED**	CONTROLLER CHECKLIST CURRENT AS OF: 10 Jul 15	717
CHECKLIST TITLE: **SERENE BYTE / PACERWARE**		Page 2 of 2

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REFERENCE:	CLASSIFICATION:
AFI 10-703; OG/CC Involvement in EWIR Message Traffic Notification Procedures; Notification Procedures for EWIR Message Traffic	**UNCLASSIFIED**

Attachment 5 (Added-MINOTAFB)

5 MXG SERENE BYTE / PACERWARE CHECKLIST

Figure A5.1. (MINOTAFB) 5 MXG SERENE BYTE / PACERWARE CHECKLIST.

ALL PURPOSE CHECKLIST			PAGE 1	OF 2	PAGES

TITLE/SUBJECT/ACTIVITY/FUNCTIONAL AREA	OPR 5 MXG/	DATE
MXG0190 SERENE BYTE / PACER WARE CHECKLIST	MXOC	

NO.	ITEM (Assign a paragraph number to each item. Draw a horizontal line between each major paragraph.)			
1.	Defined as: electronic warfare programming efforts to support exercises and real-world SOF activities.	☐	☐	☐
	(SWC) Upon notification of a Serene Byte or Pacer Ware message, immediately notify the following:			
	_____ Radio: B-1, H-1, B-7 and H-7 (If flightline is closed, call in the B-1, H-1, B-7, H-7 (ECM) standby personnel)			
	_____ 5 MXG/CC (833-2300)			
	_____ 5 MXG/CD (340-4625)			
	_____ 5 MXG/CCC (509-1956)			
	_____ 5 AMXS/CC (340-7447)			
	_____ 5 AMXS/MXA (340-8406)			
2.	(SWC) If the message traffic requires a reprogram of the aircraft, B-1 will provide the MOC with a prioritized list of the aircraft once it is coordinated with the 5 BW/EWO. Annotate all actions on the tracking sheet below. Notify 5 BW/EWO once all actions are complete.			
	Tail Number Reprogam Start Reprogram Stop			
1	_____ _____ _____			
2	_____ _____ _____			
3	_____ _____ _____			
4	_____ _____ _____			
5	_____ _____ _____			
6	_____ _____ _____			
7	_____ _____ _____			
8	_____ _____ _____			
9	_____ _____ _____			
10	_____ _____ _____			
11	_____ _____ _____			
12	_____ _____ _____			
13	_____ _____ _____			
	References: AFI 10-703 Chapter 2.2 (19 OCTOBER 2010)			

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Figure A5.2. (MINOTAFB) 5 MXG SERENE BYTE / PACERWARE CHECKLIST (Cont'd).

AF IMT 2519 (Continued).					
	ALL PURPOSE CHECKLIST				
			PAGE 2	OF 2	PAGES
NO.	**ITEM** (Assign a paragraph number to each item. Draw a horizontal line between each major paragraph.)				
	Tail Number	Reprogram Start	Reprogram Stop	☐	☐ ☐
14	_____	_____	_____		
15	_____	_____	_____		
16	_____	_____	_____		
17	_____	_____	_____		
18	_____	_____	_____		
19	_____	_____	_____		
20	_____	_____	_____		
21	_____	_____	_____		
22	_____	_____	_____		
23	_____	_____	_____		
24	_____	_____	_____		
25	_____	_____	_____		
26	_____	_____	_____		
27	_____	_____	_____		
28	_____	_____	_____		
29	_____	_____	_____		
30	_____	_____	_____		
31	_____	_____	_____		
32	_____	_____	_____		
33	_____	_____	_____		
34	_____	_____	_____		
35	_____	_____	_____		
36	_____	_____	_____		

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