



ANNEX 3-51 ELECTRONIC WARFARE

PLANNING ELECTRONIC WARFARE OPERATIONS

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The employment of [electronic warfare](#) (EW) capabilities to affect an adversary can provide significant advantages. EW objectives must be clearly established, support overall national and military objectives, and include identifiable indicators of success.

The [Commander, Air Force Forces](#), (COMAFFOR)¹ exploits the capabilities of airpower operations through a cohesive [joint air operations plan](#) (JAOP) and [tasking cycle](#). The COMAFFOR should clearly define EW objectives and ensure that assets supporting these objectives are properly employed and integrated throughout operations.

Air component centralized planning for EW normally occurs at the air operations center (AOC).² The AOC formulates plans and coordinates air component EW activities based on the JFC's guidance. It receives, assembles, analyzes, processes, and disseminates all source intelligence required for EW planning. EW planners are responsible for ensuring freedom of action is gained and maintained within the electromagnetic spectrum (EMS). To accomplish this, EW planners should participate in all phases of JOPPA and the joint air tasking cycle.

Employing [electronic attack](#) (EA), [electronic warfare support](#) (ES), and [electronic protection](#) (EP), EW creates effects throughout the operational environment to include all physical domains and the [information environment](#) (which includes [cyberspace](#)). The cross domain implications of EW operations require centralized planning and decentralized execution. For joint operations, EW planners must coordinate EW efforts at the JFC level in order to minimize unintended effects.

¹ A note on terminology in Air Force doctrine: **The Air Force prefers—and in fact, plans and trains—to employ in the joint fight through a commander, Air Force forces (COMAFFOR) who is normally also dual-hatted as a joint force air component commander (JFACC)**; when involved in multinational operations, the JFACC may become a combined force air component commander (CFACC). However, to simplify nomenclature in doctrine, Air Force doctrine documents simply use the term "COMAFFOR" with the assumption that, unless stated otherwise, the COMAFFOR is dual-hatted as the JFACC and perhaps CFACC. Air Force doctrine recognizes that the two responsibilities are different and should be executed through different staffs. Similarly, Air Force doctrine recognizes that the air operations center (AOC), in joint or combined operations is correctly known as a joint AOC (JAOC) or combined AOC (CAOC). However, doctrine simply uses the term "AOC."

² See [AFTTP 3-3.AOC, Operational Employment, Air Operations Center](#), for additional information on AOC EW planning and organization.

EW planning requires a broad understanding of adversary and friendly capabilities and tactics. Employment of EW assets must be closely integrated into the commander's overall planning effort. This planning requires a multidiscipline approach with expertise from functional mission areas to include but not limited to: air, space, ground, intelligence, logistics, weather, and information/cyberspace.

EW planning responsibilities include:

- ★ Provide EW coordination and planning expertise to the COMAFFOR.
- ★ Integrate EW capabilities into [deliberate](#) and [crisis action planning](#).
- ★ Prepare EW inputs for operation plans and orders.
- ★ Develop and recommend EW task to support the COMAFFOR's [course of action](#).
- ★ Plan, coordinate, and assess EA requirements.
- ★ Identify EW [shortfalls](#) and provide advice on requests for forces and joint urgent operational needs statements.
- ★ Develop an EW strategy and an operations plan that state how the COMAFFOR plans to exploit EW capabilities to support the JFC's objectives.
- ★ Integrate EW capabilities into the joint air tasking cycle.
- ★ Make EW [air apportionment](#) recommendations.
- ★ Prioritize EW effects and targets based on the COMAFFOR's objectives and available assets.
- ★ Identify requirements for [intelligence, surveillance and reconnaissance](#) (ISR) support operations, including assistance to the AOC ISR division in planning the collection and dissemination of ES information.
- ★ Represent EW within the IO cell to formulate and recommend to the joint targeting coordination board targets to support the campaign or operations plan.³
- ★ Coordinate the EW portion of the special instructions (SPINS) and [rules of engagement](#) (ROE).
- ★ Plan, coordinate, integrate, and deconflict EW in current and future operations taking in consideration lethal and nonlethal capabilities (e.g., IO, cyberspace, space, special operations, and special technical operations) within the [joint operational area](#) or [theater](#).

³ See [AFTTP 3-3.AOC, Operational Employment, Air Operations Center](#), for additional information on AOC EW planning and organization.

- ★ Coordinate EW support requests from other [Service/functional components](#) according to the JFC's priorities.
- ★ Monitor and adapt execution of EW plans in current operations.
- ★ Provide oversight and coordination of EW [measures of effectiveness](#).
- ★ Respond to subordinate unit requests for enemy EW sites' operational status, availability of friendly EW support as required and tasked by the [air tasking order](#) (ATO).
- ★ Develop a joint EW strategy.
- ★ Task, plan, coordinate, and allocate the joint EW capabilities/forces made available to the JFACC by direction of the JFC.
- ★ Perform [assessment](#) of joint EW operations at the [operational](#) and [tactical](#) levels.
- ★ Provide integrated EA, ES, and EP for the JFC.
 - ★ ★ Identify JFACC requirements.
 - ★ ★ Integrate and synchronize use of air assets.
 - ★ ★ Task theater ES assets to satisfy JFC requirements.
- ★ Function as the [electronic warfare control authority](#) (EWCA), as directed by the JFC.

EW Mission Integration

Since EW activity may create effects throughout the entire EMS, EW planning must include comprehensive [EMS management](#) to safely integrate with other EMS aspects of joint and multinational operations. EW can cause effects beyond the intended primary effect and, therefore, should be integrated with other military and IO core elements in accordance with the Law of Armed Conflict (LOAC) and applicable rules of engagement (ROE) to achieve the overall objectives and negate or mitigate undesired indirect effects.

Since information systems are increasingly networked and as EW power capacity increases, potentially disrupting or damaging even closed electronic systems, the requirement to integrate, synchronize and deconflict EW with other elements of friendly operations has become even more critical than in the past. EW personnel should be aware of direct effects and plan for indirect effects when accomplishing "traditional" EW activity, as well as planning and implementing EW activity to integrate with other IO and cyberspace elements to directly achieve the commander's objectives.

EW jammers vary in effective range, power, and modulation. EM radiations can be aimed and focused, but do not stop at definitive geographic boundaries or discrete altitudes. Therefore, theater EMS (frequency) interface deconfliction procedures, like employment of the [joint restricted frequency list](#) (JRFL) are necessary to minimize interference and degradation of friendly efforts.

Intelligence Surveillance and Reconnaissance Support

Accurate and timely Intelligence Surveillance and Reconnaissance (ISR) is the foundation for effective EW planning and employment. ISR supports EW through several functions. First, constant analysis by various scientific and technical centers guards against hostile technical surprise. Second, [indications and warning](#) (I&W) centers provide tactical and strategic warning to friendly forces. Third, ISR continually monitors threat systems to support reprogramming of all systems. Fourth, intelligence supports mission planning.

Specifically, ISR supports EW by providing technical threat descriptions and tailored threat environment descriptions. EW planning requires parametric and employment data, modeling and simulation tools, and mission planning tools to prioritize targets and defense tasks. ISR assets are required to support both offensive and defensive EW planning. To be of value, these assets must provide timely intelligence and be responsive to the commander's needs. Intelligence support includes establishing and maintaining comprehensive support databases as well as looking at scientific and technical intelligence and general military intelligence capabilities. Clearly defined intelligence requirements are necessary to ensure resulting intelligence information meets the needs of EW planners and decision makers are not overloaded with excessive or meaningless data.

Logistics Support

Readiness and sustainability of electronic assets are directly related to the quality of logistics planning. EW logistics programs should be developed in balance with modernization efforts and the operating capability each category of resources provides. Emphasis must be on total effectiveness to maximize EW capabilities.
