

CHAPTER 12

ELECTRONIC WARFARE ASSET EMPLOYMENT

Normally, division staffs and higher echelons plan for the use of IEW assets. However, you may be in a situation where you have MI unit assets either attached or in DS of your unit. In either case, you must be able to properly direct those assets in support of your R&S plan, as well as your unit's CR plan. To do that, you should understand--

- o The fundamentals of EW.
- o Who plays what role in EW planning.
- o What IEW assets are needed to help you answer your commander's PIR and IR and support the unit CR plan.

FUNDAMENTALS

IEW assets belonging to MI units do three things: they provide combat information; they provide data which contributes to production of intelligence; and they give your unit an EW capability. EW should be a vital element of your unit's command, control, and communications countermeasures (C³CM) program. EW is one way commanders protect their electronic systems while attacking the enemy's

electronic systems. Your staff should plan for use of EW within three broad mission areas:

- o Defend.
- o Degrade or disrupt.
- o Deceive.

DEFEND

The defend mission includes your use of electronic counter-countermeasures (ECCM) to protect your unit's electronic systems. ECCM includes proper use of signal operation instructions (SOI), terrain masking, and proper radio and television operator procedures. FM 24-33 contains detailed information on ECCM. The defend mission also includes ESM to find and target enemy jammers and ECM to screen friendly communications from the enemy.

DEGRADE OR DISRUPT

You degrade or disrupt enemy electronic systems by targeting electronic emitters or jamming electronic receivers. Normally, the small number of jammers available to you forces you to be highly selective about which targets to disrupt.

The S3 is in charge of the degrade or disrupt mission. You must support this mission through intelligence and ESM which intercept, identify, and locate potential targets.

DECEIVE

Electronic deception is normally controlled by division or corps. Deceiving, or electronic deception, provides false information to the enemy through electronic devices. It is intended to induce the enemy into acting against their best interests. Deception is achieved by feeding false or misleading information to enemy electronic sensors; or by transmitting it directly into operational channels. (Normally, this is part of an overall deception plan.) Make sure that what the enemy collects electronically agrees with, or at least does not refute, the overall deception scheme.

IEW systems collect combat information through ESM. Essentially, consider your IEW assets as one more source you can use to help answer your commander's PIR. However, you do not directly task this source, specify which assets do what, nor emplace these assets. You do specify what you want to know, and coordinate with your IEWSE and

S3 to make sure your IEW assets do not interfere with your unit's scheme of maneuver. We will address this later in this chapter.

More than likely, your IEW assets will spend significant time supporting or executing the EW degrade or disrupt mission. Look at this mission as consisting of two components: passive and active. ESM is the passive part. That is, your IEW assets work to collect information that will support the ECM, or the active part, of the mission.

ECM consists of jamming and deception. Essentially, jamming delivers a high level of power to an enemy receiver, preventing that receiver from receiving its intended transmission. Your IEW assets must radiate energy to do this. Therefore, they are susceptible to enemy countermeasures.

Deception causes the enemy to misinterpret what is received by electronic systems. Once again, your IEW assets (and any other assets you choose to use) must transmit to deceive. Therefore, deception is active as well. More detailed descriptions of EW are in FM 34-1, Chapter 5.

PLANNING

Your S3 is in charge of planning and using EW. The S3 is responsible for integrating EW into your unit's scheme of maneuver. However, it is the FSO who must intergrate EW into the overall fire support plan. This becomes especially important for suppression of enemy air defense operations. You must support your S3's EW plan by carefully selecting ESM priorities. (The S2 should assist the S3 with EW planning.) Figure 12-1 is a breakdown of who does what in EW planning.

Finally, the IEWSE officer is the resident expert on your MI unit IEW assets. The IEWSE officer--

- o Recommends use.
- o Coordinates physical placement.
- o Acts as liaison between you and the assets.
- o Coordinates EW planning.
- o Recommends EW support for fire and maneuver.

Your unit has four electronic options to attack enemy electronic systems:

- o Intercept.
- o Locate.
- o Jam.
- o Deceive.

Intercepting provides combat information and technical data on the enemy's electronic systems as well as raw data for processing into intelligence. Technical data supports jamming and electronic deception.

The locating option provides approximate locations of enemy radio and radar antennas. This aids in the use of directional antennas for jamming, and may be used with other information to provide targeting-quality data.

Jamming disrupts the receipt or exchange of orders and battlefield information. It can delay the enemy long enough for the commander to exploit a situation that otherwise would have been corrected. Jamming provides a nonlethal alternative or supplement to attack by fire and maneuver. It is well-suited for targets that cannot be located with targeting accuracy, or that only require temporary disruption.

As a general rule, you will want to destroy or jam enemy electronic systems located near your FLOT. Enemy communications systems located farther back will normally be used by enemy planning elements. Therefore, they may be more valuable as a source of information. Figure 12-2 is a list of electronic options listed by enemy echelon and distance from the FLOT.

S3	<ul style="list-style-type: none"> - Friendly situation--electronic deception - Planned operations--ECCM - ECM target priorities - EW HPT identification
FIRE SUPPORT OFFICER	<ul style="list-style-type: none"> - Fire support integration - EW HPT identification
C-E OFFICER	<ul style="list-style-type: none"> - MIJI feeder report identification - Taboo, protected frequencies - ECM support to ECCM - Effects on friendly ECCM planning - Electronic deception
S2	<ul style="list-style-type: none"> - ESM priorities - Enemy situation - Enemy capabilities - HVT identification - EW HPT identification
IEWSE OR MI UNIT	<ul style="list-style-type: none"> - Electronic OB or EPB - Asset tasking - Asset status - Technical data - Effectiveness assessments

Figure 12-1. EW employment coordination requirements.

COMM NET BY ECHELON	1ST ECHELON							SECOND 2D ECHELON		FRONT
	0 TO 3	3 TO 6	6 TO 9	9 TO 15	15 TO 20	20 TO 30	30 TO 50	50 TO 100	100 AND UP	
DISTANCE FROM FLOT (km)										
COMMAND AND CONTROL	INTCP LOCATE	JAM INTCP LOCATE	JAM INTCP LOCATE	JAM INTCP LOCATE	INTCP LOCATE	INTCP LOCATE	INTCP LOCATE	INTCP	INTCP	INTCP
	JAM LOCATE	JAM LOCATE	JAM LOCATE	JAM LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE
SSM				LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE
AIR DEFENSE	JAM LOCATE	JAM LOCATE	JAM LOCATE	JAM LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE
INTELLIGENCE	JAM LOCATE	JAM	JAM	JAM LOCATE	INTCP	INTCP	INTCP	INTCP	INTCP	INTCP
JAMMERS	LOCATE	LOCATE	LOCATE	LOCATE						
ENGINEERS	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	INTCP	INTCP	INTCP	INTCP	INTCP
CSS	JAM LOCATE	JAM	JAM	JAM	INTCP	INTCP	INTCP	INTCP	INTCP	INTCP
NONCOMM RADAR BY ECHELON	1ST ECHELON							2D ECHELON		FRONT
DISTANCE FROM FLOT (km)	0 TO 3	3 TO 6	6 TO 9	9 TO 15	15 TO 20	20 TO 30	30 TO 100		100 AND UP	
AIR (SAM AND AAA) DEFENSE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE	PRIMARY AF RESPONSIBILITY	PRIMARY AF RESPONSIBILITY	PRIMARY AF RESPONSIBILITY	
WEAPONS LOCATING	LOCATE	LOCATE	LOCATE	LOCATE						
NONCOMM JAMMERS	LOCATE	LOCATE	LOCATE	LOCATE	LOCATE					
NOTE: These options change little during contact in either the attack or the defense.										

Figure 12-2. Electronic options.

EW planning follows the normal staff planning process. It begins with the mission and commander's guidance. During the planning process, your staff determines electronic HPTs. You then divide your electronic HPTs into four categories:

- o Targets located for destruction (targeting).
- o Targets to be jammed.
- o Targets to be intercepted for combat information or intelligence.
- o Targets to be deceived.

WHAT TYPE OF INTELLIGENCE
AND ELECTRONIC WARFARE
ASSETS ARE NEEDED?

Once you have categorized your electronic HPTs, you need to have a way to tell your IEW assets what you want them to do. Do this by providing your IEW assets a list of priorities on a target list worksheet. Remember to include both ESM (passive) and ECM (active) priorities.

STAFF ACTIONS

You and other staff officers determine ESM and ECM priorities by war gaming. Remember that ESM must support ECM. ESM may also help you answer the commander's PIR.

Your S3 ultimately determines ECM priorities (based on staff input). The S2 determines--

- o ESM priorities based on your commander's PIR and IR.

- o The S3's ECM priorities.

- o When and where on the battlefield the PIR, IR, and ECM become most important.

The IEWSE officer relays your unit's ESM and ECM priorities to your attached or supporting IEW assets. Figure 12-3 is an example of a completed EW target list work sheet. It shows how you can synchronize those priorities to support the DST. In this example, identifying and locating enemy reconnaissance units of the 141st MRR is the number one ESM priority because the commander's top PIR initially is to locate enemy reconnaissance units.

The second and third ESM priorities are to identify and locate divisional and regimental air defense assets. Note that the first ECM priority is to jam divisional air defense nets. In this case, the third ESM priority supports the first ECM priority. Your EW assets cannot jam those nets without first finding them.

Obviously, the first ECM priority reflects that CAS is important to the success of the mission; and jamming enemy divisional air defense nets supports the planned CAS mission. If you compare the target list work sheet to the DST, you will see the relationship between ESM and

EW TARGET LIST WORKSHEET							
PRIORITY		TIME WINDOW	TARGET UNIT	TARGET LOCATION	TARGET ACTIVITY	CONTROL MECHANISM	FEEDBACK AND COORDINATION
ESM	ECM						
1		310600Z to 311200Z.	Regimental recon company, 141st MRR.	Probable screening NB865343 to NB741372.	Reporting movement from OP to OP. Reporting spot rept.		Report by location.
2		310600Z to 311300Z.	Regimental air Defense battery, 141st and 142d MRRs.	From NB842340 to NB627385 to NB625522 to NB868418.	Report occupying positions.		Identify and location.
3	1	ESM 311200Z to 311400Z. ESM start: Approx 311345 for 10 min.	Divisional air defense regiment, 39th GMRD.	From NB625372 to NB868478.	Report occupying positions, and operational status of acquiring aircraft.	Positive control, spot, and jam.	Identify and locate ECM effectiveness.

H - 1
H
H + 1
H + 2
H + 3

DECISION SUPPORT TEMPLATE					
INTEL	PIR 1-RECON 141. PIR 2-REGT ADA.	PIR 1 - REGT ADA. 2 - DIV ADA.	PIR 1 - DIV ADA. 2 - MAIN DEF.	- JAM DIV. ADA NET.	PIR 1-MAIN DEF. 2 - ITB.
MANEUVER	SCOUTS OUT	SP TF-141 TF-39			
FIRE SUPPORT	PREP GROUP FIRE 1 X 2, TAI #1	- STRIP ALERTARTYTAI 2 3 x A7	- SEAD TAI # 3 PREP FIRE - CAS TAI #3 GP 3 x 4		
ADA	YELLOW TIGHT	RED FIRE	YELLOW HOLD CORRIDOR "BABBAL00"		
MOBILITY AND COUNTERMOBILITY	ENGINEER FORWARD RECON PRIORITY	1. MOBILITY 2. COUNTERMOBILITY 3. SURVIVABILITY			1 - C/MOB 2 - SURVL
C ²	TAC FORWARD	TAC ASSUMES CONTROL MAIN DISPLACE RETRANS OUT			
CSS	TOP OFF AMMO DISTR	DISPLACE TRAINS			

Figure 12-3. EW target list worksheet.

ECM priorities and how the unit intends to fight the battle in time.

ELECTRONIC WARFARE TARGET LIST WORKSHEET

Specifics of the EW target list worksheet follow:

- o Time window is the time you want your assets to spend looking for the target; or the start/stop times you want your assets to jam the target.
- o Target unit is the specific unit or target you are looking for. The more specific you are, the easier it is for your IEW assets to find it.
- o Target location is where you expect the target to be. Location can be based on actual information or on situation templates.
- o Target activity is the specific type of communications you want collected or jammed.
- o Control mechanism is how you want the target unit to be jammed (such as spot jamming, barrage jamming). Your IEWSE can tell you more about the advantages and disadvantages of each type of jamming; and can recommend which kind will best support your mission.
- o Feedback and coordination is exactly what you are looking for; for example, location and identification of the target and effectiveness of jamming. Check with your S3 to see what kind of feedback is required.

Again, your IEWSE can help in this area.

TARGET LIST WORKSHEET: RECONNAISSANCE AND SURVEILLANCE PLAN

An EW target list worksheet is the equivalent of an R&S plan for your IEW assets. It tells your assets what they should look for, when they should look for it, and what and when to jam. The EW target list worksheet should be a total staff effort among you, the S3, the FSO, and the IEWSE.

Remember, you should not be concerned with the details of how to collect the information, such as which specific asset should do what, and where each asset should go. Those details are left to the attached or supporting MI unit and your IEWSE. Simply tell them what you want, and let them figure out how best to do it.

You must, however, make certain that the emplacement of your IEW assets does not interfere with your unit's mission. Therefore, make sure your IEWSE coordinates all IEW positions with your S3. Also, remember to continually monitor those IEW positions so that they do not get overrun or outdistanced by maneuver units.

Keep your IEWSE updated on the enemy frontline trace; and insist on frequent status reports on your IEW assets. Figure 12-4 is a list of organic or supporting MI units by echelon. Figure 12-5 is

ELECTRONIC WARFARE UNITS			
ECHELON	MI ORGANIZATION	MAJOR EW UNIT	EW SUBUNIT
CORPS	BRIGADE	MI BN (TE) MI BN (TE) (RC) MI BN (AE)	EW CO EW CO (COLL) AND EW CO (ECM) AVN CO (EW)
HEAVY DIVISION	BATTALION	C&J CO EW CO	C&J PLATOON SIGINT PROCESSING PLT QUICKFIX FLT PLT (OPCON)
LIGHT DIVISION	BATTALION	COLL CO	VOICE COLL PLT QUICKFIX FLT PLT (OPCON)
AIR ASSAULT DIVISION	BATTALION	HHOC C&J CO	QUICKFIX FLT PLT C&J PLT AND NONCOMM PLT
AIRBORNE DIVISION	BATTALION	C&J CO	C&J PLT AND NONCOMM PLT QUICKFIX FLT PLT (OPCON)
ACR	COMPANY		C&J PLT QUICKFIX FLT PLT (OPCON)
SEPARATE BRIGADE	COMPANY		COLL PLT (VOICE) VHF ECM PLT

Figure 12-4. Supporting IEW units by echelon.

LOCATION NAI AND TAI	ENEMY				ELECTRONIC ATTACK				FRIENDLY EW SYSTEM	SYSTEM SITE LOCATION	C3 SITE LOCATION	REMARKS
	INDICATOR ACTIVITY	PROB TIME	TYPE NET	TYPE EMITTER	FREQUENCY	DF OR LOCATE	JAM	MONITOR ID	DECEIVE			
PIR	Movers Shooters Sitters Emitters		Recon C2 Manuever Arty/AD Engineer REC/EW Reserves	Pre- planned On call Target of oppor- tunity								1. PIR (number below) 2. Coordination 3. Deconfliction 4. Reports 5. Communication channels and means) 6. (Interoperability) 7. (Enemy code words, net struc- tures, crypto systems, and radars, associated with deployments and units) 8. Jamming effec- tiveness
PIR: Precise tasking, directed toward specific emitters with carefully prescribed reporting procedures (FM 34-10A, p B-24).												

Figure 12-5. Electronic attack options.

an electronic attack options chart. Figure 12-6 shows IEWSE officer responsibilities.

FM 34-40 provides a detailed discussion of EW operations.

1. Integrates IEW missions with brigade operations.

a. Ensures collection and jamming missions support the commander's intent, concept of operations, scheme of maneuver, and fire support plan.

(1) LOS analysis for initial deployment locations, specifically:

(a) High ground for C&J.

(b) LOS from jammers and collectors to target (NAI).

(c) LOS between collectors for netting.

(d) LOS from jammers and collectors to C3 sites for reporting.

(2) LOS analysis for subsequent redeployment locations in accordance with overall tactical scheme of maneuver. Same as above.

b. IEWSE officer studies brigade OPORD with special attention to items above, especially unit boundaries and phase lines.

c. Coordinates with brigade S2s to identify specific PIR, IR, and NAI to confirm or deny enemy COAs, with special attention to--

(1) How the S2 estimates enemy COAs to develop.

(2) Templated enemy forces and IPB.

(3) Probable indicators and enemy forces expected to deploy at each NAI.

(4) Associated enemy emitters and electronic clusters at each NAI.

(5) Probable time line(s).

(6) Type nets and frequencies (technical control and analysis element).

(7) Location of specific collection assets to cover specific NAI above.

(8) Impact of weather on operations.

d. Coordinates with S2 to ensure collection operations reflect commander's specific PIR and IR; and are synchronized with the overall R&S plan, with special attention to--

(1) Unit scouts, patrols, OPs/LPs.

(2) GSRs.

(3) REMBASS.

(4) Division long-range surveillance units.

(5) Cavalry operations.

(6) USAF reconnaissance.

(7) Interrogation of prisoners of war and CI.

(8) Fire support.

e. Coordinates with brigade S2 and brigade communications-electronics staff officer (CESO) to ensure current brigade challenge and password is passed to MI battalion S3.

f. Coordinates with brigade S3 to ensure IEW operations are synchronized with brigade scheme of maneuver, with special attention to--

(1) Locating jamming assets to serve as an effective combat multiplier as part of overall scheme of maneuver and fire support plan.

(2) Coordinating operational sites and fallback positions with maneuver elements.

(3) Coordinating times and routes for deployment or redeployment.

Figure 12-6. Brigade IEWSE officer responsibilities (continued).

(4) Planning redeployment of MI ground C&J assets by bounding as part of overall scheme of maneuver.

(5) Planning integration of airborne QUICKFIX to cover times and locations not covered by ground assets.

g. Coordinates with brigade S4 for logistic support, with special attention to--

(1) Attachment of MI assets, as appropriate.

(2) Roll up of all MI battalion assets operating in brigade ACR, from MI battalion S3 and S4.

h. Coordinates with brigade CESO for--

(1) Proper CRYPTO fill and frequency for brigade operations and intelligence (O&I) net.

(2) Protected frequencies to prevent electronic fratricide.

(3) Deconfliction of IEW operational and C3 sites with signal units.

(4) Location of jammers.

(5) Relays.

i. Coordinates with brigade FSO for--

(1) Deconfliction of IEW operational and C3 sites with fire support units.

(2) Fire support planning to avoid engagement areas.

(3) Family of scatterable mines (FASCAM) targets.

(4) Use of tactical fire direction computer system (TACFIRE) net to pass sanitized reports quickly.

(5) Fire support radar locations.

(6) Protective fires to cover withdrawal of IEW assets, as required.

Figure 12-6. Brigade IEWSE officer responsibilities (continued).

- j. Coordinates with brigade engineer for--
 - (1) Location of current or planned mine fields and obstacles.
 - (2) Brigade classifications.
 - (3) Route reconnaissance.
 - (4) River crossing sites and classification.
- k. Coordinates with brigade ADA officer for--
 - (1) Deconfliction of IEW operational and C3 sites with ADA units.
 - (2) FAAR locations.
 - (3) QUICKFIX air corridors, loiter times, and locations.
 - (4) Identification, friend or foe (IFF) (radar).
 - (5) Current ADA weapons control status and location.
- l. Coordinates with brigade NBC officer for--
 - (1) Current contaminated areas.
 - (2) Planned NBC targets.
 - (3) Smoke and obscurant employment.
- m. Coordinates with brigade MP officer for current condition and status of routes, traffic control measures, and support to the reconnaissance, intelligence, surveillance, and target acquisition (RISTA) effort.
- n. Coordinates with brigade ALO for--
 - (1) Timely in-flight reports.
 - (2) Latest weather updates.
 - (3) Current and planned air and ground engagement areas.

Figure 12-6. Brigade IEWSE officer responsibilities (continued).

2. Assists the brigade S2 in formulating the EW annex of the brigade OPLAN and OPORD.

3. Serves as a critical liaison officer between MI battalion and the maneuver brigade.

a. Keeps the MI battalion S3 informed of above data from brigade staff.

b. Serves as functioning member of brigade orders group.

c. Provides copies of maps and overlays from brigade orders group.

d. Monitors brigade O&I net and brigade command net for latest developments.

e. Notifies MI battalion S3 in a timely manner of all brigade developments and redeployments.

4. Keeps brigade commander and staff informed of latest intelligence depicting the enemy situation:

a. Monitors tasking and reporting net for tactical reports.

b. Sanitizes tactical reports and passes combat information to brigade commander and staff in 15 minutes or less from time of receipt.

Figure 12-6. Brigade IEWSE officer responsibilities (continued).