24. ELECTRONIC WARFARE

Briefing

1. Electronic warfare devices emit phased pulses of intense electromagnetic energy that disrupt the internal electronics of sophisticated electronic instruments and equipment. The pulses cycle through many frequencies in a rapid sequence to ensure their impact on enemy equipment. Electronic warfare devices are frequently referred to as electronic countermeasures (ECM) and "jammers."

2. Electromagnetic pulse technology is used to disable unshielded enemy electronic equipment and remote surveillance devices. This technology can be particularly effective against small remote reconnaissance vehicles because their size often does not allow them to be shielded.

a. Directed electromagnetic pulse (DEMP) devices are aimed to emit their pulse across a particular area, such as a 45-degree arc into enemy-held territory.

b. Limited spectrum electromagnetic pulse (LSEMP) devices emit their pulse at a specific bandwidth, usually one that all friendly devices are shielded against.

3. Electronic warfare devices are configured to spare key friendly transmission frequencies, or to transmit interrupter sequences linked to friendly equipment to prevent their interference with it.

4. Electronic warfare is a delicate and complex process involving electromagnetic radiation, "black boxes," frequency-switching and probability curves. The players are warned that electronic warfare can be extremely frustrating, requiring time and resources, but producing little result. All too often, a system will fail or be blocked by enemy measures when it is most needed.

5. Electronic warfare systems have four characteristics: type, class, size and power.

ECM system types

1. **Counter-Guidance**

a. Effect: disrupts the guidance systems of enemy smart weapons.

b. If the ECM player performs a successful attack on an enemy smart weapon moving in the ECM effect area, the smart weapon will miss the target.

c. Depending on the warhead type, the impact area of the enemy smart weapon should be determined using the hit location of misses procedure. (See Rule 15. Hit Locations of Misses.)

2. **Counter-Targeting**

a. Effect: disrupts enemy enhanced targeting systems.

b. If the ECM player performs a successful attack on an enemy targeting attempt, the enhanced targeting system will not lock on to a target. The opposing player cannot add the bonus factor for an enhanced targeting system in his hit/miss determination.

3. **Counter-Scanning**

a. Effect: disrupts enemy scanners.

b. If the ECM player performs a successful attack on an enemy scanning attempt, the scanning attempt will automatically fail.

4. **Counter-Communications**

a. Effect: disrupts enemy communications.

b. If the ECM player performs a successful attack on an enemy communication attempt, the communication attempt will automatically fail.

5. **Counter-ECM**

a. Effect: disrupts enemy electronic counter-

measures.

b. If the ECM player wins an opposed die roll for a counter-ECM attempt, the counter-ECM attempt will succeed. The opposing player's ECM is cancelled within the counter-ECM system's effect area.

c. The ECM player can make one counter-ECM attempt per turn against each type of ECM that the opposing player has in operation. For example, if the enemy has a Counter-Targeting system and a Counter-Scanning system in operation, the ECM player can attempt to counter each of those systems.

d. Since counter-ECM systems are configured to block all other types of electronic warfare devices, they can be very expensive.

ECM system classes

1. Electronic warfare systems include Basic systems, which are relatively simple, to Enhanced and Advanced systems, which are more powerful and difficult to avoid or override.

2. The table below gives the number range that a player needs to roll to for a successful ECM attack.

System class	Die roll needed for success
Basic	1 to 5
Enhanced	1 to 6
Advanced	1 to 7

ECM system sizes

1. Vehicle-mounted systems tend to be smaller and lighter, with smaller effect areas than systems mounted in static positions such as buildings or fortifications. Large, heavier systems have a more substantial effect area.

2. The table below gives the effect areas for the different systems.

System size	Effect area	Mount
Small	60 inches	vehicle or static
Medium	120 inches	static
Large	240 inches	static

3. The effect area is given in terms of its diameter. For example, an ECM system with an effect area of 60 inches has a range of 30 inches and a circular effect area 60 inches in diameter.

ECM system power

1. The power level indicates the factor added to a ten-sided die roll when both players have ECM systems and are making an opposed roll.

2. The player that rolls the lowest number wins an opposed die roll.

System class	Power level factor
Basic	0
Enhanced	-1
Advanced	-2

3. A larger negative factor indicates a system that is less susceptible to jamming or other interference.

System capabilities

1. For ease of play, the players should assume that one type of system can disrupt all variations of a targeted activity. For example, the players should assume that a Counter-Communications system can block both radio and microwave transmissions of the enemy. As another example, the players should assume that a Counter-Guidance system can block infrared, radar and video guidance systems.

2. This course of action will save the players the effort of having to define every possible sub-variant of a system when they create their forces. It will also make the electronic warfare devices more useful in a game. For example, a player can avoid deploying a Counter-Guidance system targeted specifically at radar guidance

only to find out during the game that the opponent is using infrared guidance.

Activating ECM systems

1. A player who is employing an electronic warfare system should specify at the beginning of each turn whether the system is on or not. This can be in writing if the players prefer to keep this information secret until it is revealed, or it can be announced.

2. An ECM system provides blanket protection over its entire effect area. It is not targeted at specific enemy actions, but has an opportunity to counter every relevant enemy electronic activity within its effect area during the turn.

For example, a player with a Counter-Communications system that extends over half of the tabletop gets an opportunity to make an ECM attack every time the opposing forces attempt to utilize electronic communications within that area.

ECM attacks

1. ECM systems are not flawless and the stellar nations use a lot of sophisticated active and passive technology to evade their effects, including electronic spoofing, frequency-hopping, intermittent transmissions and advanced shielding. As a result, ECM attacks often fail.

2. To perform an ECM attack a player rolls a ten-sided die. The die roll needed for success is based on the system class of the attacking ECM weapon. For example, a basic system needs a die roll of 1 to 5 to succeed.

Counter-ECM attacks

1. When both players have ECM systems and one player is attempting to counter the other's system the players will make an opposed die roll.

2. Each player will roll a die and add the power level factor for his system.

3. The player that has the lowest total wins and his system prevails.

4. In case of a draw, the player attempting to counter the other player's system wins and his counter-ECM attack succeeds.

ECM system costs

1. Add the cost factors for the system class, size and type to determine the overall cost.

System class	Cost factor
Basic	10
Enhanced	20
Advanced	30

System size	Cost factor
Small	10
Medium	15
Large	20

System type	Cost factor
Counter-guidance	10
Counter-targeting	15
Counter-scanning	10
Counter-communications	15
Counter-ECM	25

2. The cost for a small, enhanced, counter-targeting ECM system would be 45 points.