

A New Player's Guide To: Electronic Warfare

If you're new to the game then you may have heard a lot of talk about electronic warfare, or EW for short. EW is an umbrella term for things like:

- ECM (Electronic Counter Measures)
- Damping (Sensor dampening)
- Tracking Disruption
- And, perhaps to a lesser extent, capacitor or energy warfare – covering nosferatus (or nosses) and neutralizers (aka neuts)

In the style of PVP that we fly, EW is handy for **weakening**, **disabling** or completely **shutting down** enemy ships.

In skirmish warfare when we roam in battlecruisers at most, EW helps us gain an advantage over the enemy despite our smaller numbers and ship size. But remember, EW pilots are always welcome to turn up in battleship fights as they often prove themselves invaluable against enemy battleships, as well as counter EW.

In order to find out the best way we can use our chosen race's electronic warfare specialities, we can split EW into two groups: **long range** and **short range**.

- **Long range EW** is generally ECM and sensor dampening, which is covered in the most detail in this post.
- **Short range EW** can be used to describe tracking disruption and cap warfare.

The only exceptions to this are the Hyena, Rapier and Huginn, where your ship gets a bonus to web range. This lands them in at around 20km to 40km, which is mid/short range at most.

What should I expect?

Inexperienced EW pilots often find themselves in trouble during fleet fights as they either warp in at close range, warp in at the same time as the rest of the fleet, or have tried to tank their EW ship conventionally (shield tanking Blackbirds only prolong the inevitable!)

To maximise your effectiveness, it's important that you keep in the **mindset** of "my electronic warfare modules are my tank." If you ever think otherwise, you're going to be less of an asset to your gang mates. If you ever find yourself in a situation where you need to use a shield booster, then you should have warped out a long time ago.

Expect to be primaried, and expect the unexpected...

Long range EW: keeping yourself alive.

For EW frigates like the **Griffin** and the **Maulus**, your tank is a mixture of **range**, speed, and signature radius. It's good to keep at a nice range and to fit a MWD to make it harder for missiles to hit you and guns to track you. Don't sacrifice mid and low slots to fit big guns, as your **role is not assault** - it's more **support**.

If you're flying a cruiser like the **Blackbird** or **Celestis**, your warp timing and range will keep you from dying. If you can warp in at 100k from a random direction, planet or safespot, about 20 seconds after the main engagement has started, it'll mean the enemy fleet commander won't have noticed you in the initial list of ships appearing on the overview.

When you've warped in, **immediately align** to a planet, moon, station or other celestial object so that you can instawarp out should a tackler try and lock you down, in the event that you start taking damage, or if you see lots of ships have started to lock you (indicated by their icon flashing yellow on your grid and overview). Look on your overview for targets that are within your EW modules' **optimal** ranges, and then start doing your thing.

What should I be using my EW on?

Here's what you should consider targeting:

1. Enemy EW ships like Falcons, Rooks, Arazus, Celestises, Curses and so on.
2. Enemy logistics ships, such as Guardians, Oneiroses, Scimitars and Basilisks.
3. High damage dealers such as Megathrons, Hyperions, Tempests, Abaddons, etc.

The exact priority that you should be taking these targets in will vary. It can also depend on the situation that you're in and the orders you have received from your fleet commander.

Dampening ships should aim to take out enemy support ships that are at range, mostly logistics and ECM birds. For this role, the most effective script you can use is the **targeting range** script, which **reduces** their **lock range** by 50%.

Jamming ships should aim to take out the same as above, but are more effective against enemy damage dealers. **Listen to the FC** for any specific targets, otherwise aim to go for the ships that you think are dealing the most damage.

Advanced EW

If you're a Blackbird working in tandem with a dampening ship, then the both of you can be extremely effective at shutting down enemy battleships if you both focus on a single target. Dampeners should be loaded with the **scan resolution script** in order to slow your enemy's lock time.

What this essentially does is allows you to truly permajam targets. Battleships are very hard to permajam as they have high sensor strengths (unless they're Minmatar..) so you'll be in a scenario where you won't be able to constantly get a jam cycle off on them. So when you do lose a jam cycle

on a battleship, the dampeners will prolong the lock time, hopefully until you get another jam off on it.

Ships to try to avoid..

- Jamming a **drone ship** can sometimes be in vain, as drones lock enemies separately. Though 100km is usually outside a ship like a Dominix's drone control range, it still doesn't take much drone DPS off a target. With this said, Dominix pilots do use neuts, nosferatus and guns on their ship, so they're not ships to be totally ignored.
- **Sentry drones** such as the Garde, Curator, Bouncer and Warden. If you see these deployed, it might be a good idea to warp out as they have the damage of heavies and the range of 250mm railguns!
- **Nano ships**, like interceptors, Vagabonds, Rapiers, Huginns, Curses, and so on.
- Without the use of dedicated sensor dampeners, avoid **long range battleships**. These can be anything, but if you see a squad of Rokhs, Tempests, Maelstroms, Apocs or similar warp in at extreme range, it's probably a good idea to get out as you will be called primary.

Short range EW

As all races suffer a lack of a ship with a energy warfare bonus that requires little in the way of skills to pilot, with the exception of the Sentinel perhaps (Amarr Electronic Attack Frigate), there is no dedicated ship that newbies can fly.

However, it should be said that neutralisers are extremely **effective anti-nano, anti-tackler** and **anti-small ship** platforms. Neuts are also useful in weakening enemy active tanks and shutting down cap dependent weapons systems down, like hybrid turrets and to a greater extent, lasers.

They can shut down small ships' MWDs in one cycle, which makes them much more vulnerable. Needless to say, a medium or heavy neut cycle followed by a volley of well aimed shots will end any interceptor right in their tracks, forcing them to either warp out or run away, or perhaps more favourably, to explode! :)

Vampiring is a similar technique, only that it drains the enemy's cap and adds it to your own, helping your capacitor out so that you can run your setup a little longer.

With this in mind, it's a good idea to train **Energy Emission Systems** (under Engineering) to **level 3**, so that you can use heavy neuts/nosses on a battleship, should you fly one.

Tracking disruption is a form of EW favoured on **Amarr** ships - one of which being the **Arbitrator**. Again, it requires the use of **scripts** here, so carry both so you can adapt to any situation, and even save some of your smaller shipped comrades from fast tracking weapons by making them slow tracking weapons.

Tracking Disruptors aren't really ranged weapons, so if you ever find yourself with a **spare mid slot**, it could be a good idea to fit one. If you use one on any ship that uses guns then you're doing it right, as **missiles don't rely on tracking**. A good tracking disruptor target ship would be a **Megathron, Armageddon** or a **Vagabond**. A bad example would be a Drake or a Raven, as they both use missiles.

The ins and outs of EW, and a few handy tips:

ECM stands for **Electronic Counter Measures**. There are 3 types of modules you should know about to utilize ECM effectively, and these are:

- **racial** jammers,
- **multispectral** jammers,
- signal distortion **amplifiers**.

Your jammers are the modules that will do the actual work for you, whilst signal distortion amplifiers increase the **strength** of the jammers. These are **similar to weapon upgrades** like ballistic control systems, heat sinks or gyrostabilizers which increase the power of specific weapons.

As described above, there are two types of jammer: **racial** and **multispectral**. Here are a few **advantages** and **disadvantages** of each:

Racial Jammers

Advantages: superior range, superior jam strength for a certain race's ship, more capacitor efficient and less fitting requirements.

Disadvantages: Weak jam strength when used on the wrong kind of ship, if you bring the wrong racials then you're going to have problems jamming those ships and you need to remember which jammer goes for which ship.

Multispectral Jammers

Advantages: A full set of multispectral jammers can offer a reasonable chance of jamming any ship, regardless of its race, and you don't need to remember which jammer is used on each ship.

Disadvantages: less range, less jam strength, uses more capacitor and uses up more CPU.

With these facts in mind, it's a good idea to keep a mixture of racials and multispectrals fitted to your **Blackbird** or **Griffin**. You can keep yourself **prepared** for any scenario if you **carry backup jammers** in your cargo hold so that you can quickly switch out should you need to.

To help you remember which jammer is for which race, here's the scoop:

LADAR = RED = MINMATAR

RADAR = YELLOW = AMARR

MAGNETOMETRIC = TURQUOISE = GALLENTÉ

GRAVIMETRIC = BLUE = CALDARI

If you carry one of each on your ship and another in your hold, you will be able to refit if need be and "primary" a few races if you know what you're going up against beforehand.

A sensible way to fit out your Blackbird would be to have **one of each racial** jammer on board, and then fill any available mid slots with multispectrals. Don't forget to include a sensor booster with a **lock range script** if your ship's lock range is less than the optimal range of your jammers.

Countering ECM

If you're engaging a force with their own ECM, then you can take advantage of a module called **ECCM**, which stands for **Electronic Counter-Counter Measures**. This **doubles** your sensor strength,

and **decreases the chance of being permajammed**, though it is common to have a few jam cycles get through.

There are two types of ECCM: **active** and **passive**. The active ECCM module sits in your **mid** slots and needs to be activated when you're in combat only. You need to use the correct race's ECCM to match with your ship. Again, it's similar to racial jammers:

LADAR = MINMATAR

RADAR = AMARR

MAGNETOMETRIC = GALLENTIC

GRAVIMETRIC = CALDARI

Here's a mnemonic that I've just sleazily made up to help you remember:

Ladar -> Minmatar thinks that slavery is LAME.

Radar -> Amarr lasers make you go YARR/Amarr navy ships use older forms of sensors

Magnetometric -> The Gallenteans pimp themselves up so they are babe magnets

Gravimetric -> Caldari missiles defy gravity!

The **passive** type of ECCM is **less effective**, but still requires that you match the module to your ship's race. These are under "Backup Arrays" and are placed in your **low** slots.

Also, please note that:

HAVING A HIGHER SENSOR STRENGTH MEANS IT'S EASIER TO BE PROBED OUT IN A SAFE SPOT. WHEN IN A SAFE SPOT, TURN ALL ACTIVE ECCM OFF AS A PRECAUTION!

The equation (for geeks and nerds alike):

To calculate the chance of you getting a jam cycle off on a ship, take your **target's** sensor strength and divide it by **your** jammer strength.

$$\left[\frac{[\text{Jammer Strength}] / [\text{Target sensor strength}] * 100\%}{\left[\left[\frac{[\text{Falloff}^2]}{[\text{Range to target}] - [\text{Optimal}]} \right]} \right]} \right]$$

On a final note for ECM users, always fit as many **Signal Distortion Amplifiers** (3 is usually the most you should fit) in your lows to **increase your ECM strength**, as it's **your tank!**

Timing of ECM and game mechanics

ECM is incredibly useful when you want to **lower the DPS** of your enemy. However, sometimes it clashes with other game mechanics that we use to our advantage.

The most common scenario is when we're trying to engage someone on a station. If you start fighting outside station, an aggro timer starts that lasts between **30 seconds** and **2 minutes**, and during this time it means that you are **unable to dock**. Every time you fire another shot, the timer **restarts**. The same principle applies for jumping through **stargates**.

In many cases, we want to get shot at so that the enemy can't dock. Especially with heavily buffer tanked ships like plated battleships, battlecruisers and HICs, we need more time to kill the buggers. So take this into consideration, and don't be offended if you're told not to jam certain ships!

In practise, it's best to be **aware of who is taking damage** through use of the fleet **watch list** and **listening carefully** on Ventrilo: if you see people getting dropped quickly, or if you hear people say "I'm going down", it's usually time to jam the enemy ships. If you're sure that the enemy is **webbed**, unable to get into station/stargate dock/jump range, feel free to jam them.

Sensor Dampening Tips

- When working with an ECM ship, make sure you have **good communication** with that pilot and switch your dampeners to **scan resolution** scripts to supplement the ECM.
- To bring enemy **long range** logistics and ECM ships out of the equation, use the **targeting range scripts**, forcing them to get **closer** or to **leave** the fight.
- Remember that whilst you're in optimal range, you will get a **permanent** cycle on your target unless it moves outside and into **falloff** range.
- **Always carry replacement** scripts in your cargo hold.
- To fend off enemy interceptors, fit a web and switch your damps to **range**. This will force them to come into web range: when they do so, web them and take them out with drones.

Neutralizing Tips

- Use **best named** neuts, as they have less fitting requirements and have the same range and power.
- For long range battleships like the **Scorpion**, a heavy neut is essential to deal with enemy interceptors.
- Neuts are most effective against ships of a **smaller** class, as they have a **smaller capacitor** and thus are easier to deplete.
- Remember that **neuts drain your cap as well**, so be sure to regulate use of them, either by keeping an eye on your cap or **turning auto repeat off** for these modules. You can reduce the activation cost by training up **Energy Emission Systems**.

Nosferatu Tips

- Best named (or meta 4) nosferatus have the same stats as T2, only their fitting requirements are less.
- Nosferatus are **only transfer energy to you when your capacitor (as a percentage) is lower than the target ship's**.
- Use nosferatus to counter enemy neutralizing cycles.
- Nosferatus are most effective at close range where you have a wide range of potential targets, and where you're most likely to be neutted by the enemy.

Suggested Setups – Blackbird

This setup is best used for your average skirmish. You can swap out the sensor booster for ECCM if you know they're bringing their own cake to the party... Assault missile launchers have been used **defensively** as they're more effective against tacklers. If you can use T2 assaults, aim to use

precision ammo to be more effective. A medium neut has been included to deal with tacklers that get into its range, as a last ditch resort...

Best named jammers have been used as they're more capacitor efficient. Switch out the racials if you know what you're going up against.

Rigs have been left alone, as it's simply just a throwaway T1 cruiser. If you're feeling rich, slap on some **Particle Dispersion Augmentor** rigs, which increase your jam strength, or you can fit **Particle Dispersion Projector** rigs, which will increase your jam range (not recommended due to your low base lock range)

[Blackbird, ECM]

Signal Distortion Amplifier II

Signal Distortion Amplifier II

BZ-5 Neutralizing Spatial Destabilizer ECM

Enfeebling Phase Inversion ECM I

'Hypnos' Ion Field ECM I

'Umbra' I White Noise ECM

'Hypnos' Multispectral ECM I

Sensor Booster II, Targeting Range

SV-2000 Assault Missile Bay, Sabretooth Light Missile

SV-2000 Assault Missile Bay, Sabretooth Light Missile

SV-2000 Assault Missile Bay, Sabretooth Light Missile

Medium Unstable Power Fluctuator I

[empty rig slot]

[empty rig slot]

[empty rig slot]

Suggested Setups – Celestis

The Celestis is a more resilient ECM cruiser but still **doesn't have the tank** to take on a role of a tackler.

Use the MWD to move in and out of range. You've also got a **limited buffer** tank that will be able to deal with tackling frigates and interceptors. Again, dampen tacklers so they go away or move into web range. Once they're webbed, your **railguns, drones and missiles** will take them out. Use T2 if possible, and if you can use T2 standard missiles, go for precisions for a better anti tackle ability.

Feel free to fill whatever space you have left in your drone bay with drones of your choice, either replacement Warriors for anti tackler work, or 3 utility drones that neut, damp or tracking disrupt.

[Celestis, Dampening]

800mm Reinforced Rolled Tungsten Plates I

Energized Adaptive Nano Membrane II

Damage Control II

Phased Muon Sensor Disruptor I, Targeting Range Dampening

Phased Muon Sensor Disruptor I, Targeting Range Dampening

Phased Muon Sensor Disruptor I, Scan Resolution Dampening

Fleeting Propulsion Inhibitor I

Y-T8 Overcharged Hydrocarbon I Microwarpdrive

SV-2000 Assault Missile Bay, Sabretooth Light Missile

SV-2000 Assault Missile Bay, Sabretooth Light Missile

Dual 150mm 'Scout' I Accelerator Cannon, Antimatter Charge M

Dual 150mm 'Scout' I Accelerator Cannon, Antimatter Charge M

[empty rig slot]

[empty rig slot]

[empty rig slot]

Warrior II x5

Suggested Setups – Griffin

The Griffin is a **great disposable frigate** for fleet fights. The weapons are used defensively to take out drones or targets of opportunity, and since you can't fit a full compliment of racial jammers, **multispecs** have been used instead. Use your MWD to get away from big things, fly around, jam stuff, and hope for the best. A T2 fit is kind of pushing it with this ship, but if you feel like upgrading, by all means feel free...

[Griffin, ECM]

Capacitor Power Relay I

Phased Monopropellant I Hydrazine Boosters

'Hypnos' Multispectral ECM I

'Hypnos' Multispectral ECM I

'Hypnos' Multispectral ECM I

OE-5200 Rocket Launcher, Gremlin Rocket

OE-5200 Rocket Launcher, Gremlin Rocket

Light Electron Blaster I, Antimatter Charge S

[empty rig slot]

[empty rig slot]

[empty rig slot]

Warrior II x1

Suggested Setups – Maulus

The Maulus is the Gallente's answer to the Griffin. Again, they both **work well together**. Use this setup the same as you would with a Griffin, MWD around dampening targets of opportunity, **stay away from missile boats and drones** and use your guns and drones **defensively**.

[Maulus, Dampening]

Capacitor Power Relay I

Capacitor Power Relay I

Phased Muon Sensor Disruptor I

Phased Muon Sensor Disruptor I

Phased Monopropellant I Hydrazine Boosters

125mm Carbide Railgun I, Antimatter Charge S

125mm Carbide Railgun I, Antimatter Charge S

[empty high slot]

[empty rig slot]

[empty rig slot]

[empty rig slot]

Warrior II x2

Final words...

- Remember as an EW pilot, your job is support, not assault.
- Any guns that you do have on your ship should be used in defence to take out tacklers and drones.
- Timing is EVERYTHING!
- If you find yourself in a position where you need to use a repper, you need to get out and should probably have warped off long ago.
- Your electronic warfare is your tank.
- Listen to your fleet commander and stay nice and calm; believe it or not, flying EW is actually quite stress free as you're not always putting 300 million ISK's worth of ship on the front line!

Cool. Well I hope this helped!

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