

Starlight Cells

"The galaxy blesses us with virtually infinite energy in the form of stars, vast electromagnetic generators whose fruits are ripe for the harvest. If life gives you lemons, you brew lemon cider. If life gives you starlight, building antimatter reactors or plasma drives seems kind of redundant, doesn't it? How odd the ways of these aliens. Or, perhaps it is we who are odd; perhaps lightriding comes so naturally to us that we won't even begin to consider anything else." - Spacecase Hex Five Nine 59-1372-5684 The Art of Never Again, Chapter 770: On Sails of Crystal Light

Concept

In their eternal quest for simplistic starship design, the Freespacers have discovered countless different low-power systems to produce, or rather refine, energy. The Starlight Cell is considered the epitome of this philosophy: a system that requires no fuel, no maintenance, and can work under the harshest conditions deep space has to offer.

Construction

A Starlight Cell can have countless shapes and dimensions, from a thin metallic coin to power a lightbulb to huge blocks of composite machinery as large as a car, but all have the same fundamental structure and function: composite voltaic cells of polymers and nano particles are used to form an array of multi-spectral radiant energy cells.

Centuries of refining solar harvesting methods means that Starlight Cells can absorb most conceivable types of radiant energy (plus some extras), and with exceptional efficiency. This system relies on ambient energy, so it's not very useful in emergency situations, unless a very small craft is powered by a very big cell, and even then it's still a gamble. What Starlight Cells ARE useful for is to allow every single secondary system aboard a ship to be powered locally, so that there are no power lines that can be damaged or cut. It basically works like a high-efficiency, full-spectrum solar panel that tries constantly to convert just about anything going on in its vicinity in a form of energy. FREE Energy.

Energy Absorption

Starlight Cells give their best in the proximity of a star, of course, channeling its radiations and transforming them into power. However, they can also leech off other EM emissions, such as radio communications, communications lasers directed onto them, or even sound energy if there is an atmosphere. Additionally, if energy-based weaponry is being used in the area, Starlight Cells can feed off the residual radiation. Many large ships have folding deployable mirrors installed, allowing them to enter a sort of "recharge mode" and concentrate on collecting ambient energy by focusing radiation on their Starlight Cells.

Starlight Capacitors

The energy harvested from Starlight Cells and not immediately used is usually stored in high-density capacitor banks called Starlight Capacitors. Starlight Capacitors are usually shielded by a buckypaper Faraday cage, which both shields their energy signatures from external sensors and prevent damage if the capacitor itself malfunctions or overloads.

Prism Shield-Sails

The only shield technology used by the Freepacers, thanks to its low power consumption, ease of use, lack of need of an advanced energy grid all over the ship, and, last but not least, the fact that it can be used both as a solar sail and to refract sunlight and energy-based attacks in such a way as to be focused against a craft's Starlight Cells and therefore re-used. Prism Shield-Sails allow to reflect and refract energy, and can be used for defense (although they are not very sturdy), but also for stealth, disguising its sensor signature as something like an asteroid or "hiding in the shadow" of a nearby ship. Thanks to solar sails (both normal and Prism Shield-Sails) being completely emissionless, this low-energy cloaking system ensures that a ship using it will almost never show up on passive long-range sensors. In summary, it uses a contemporary shielding systems to create a giant invisible starlight cell 'sails' around the craft, dramatically improving the performance of the vessel without compromising it's low sensor profile.

Older versions look like masts with literal sails of billowing golden foil, but more modern designs look like long thin wings. As a rule of thumb, long and wide arrays tend to be faster, whilst shorter designs arrayed closer to the hull have better shield efficiency.

Shield Rating: 4 for merchant ships, 5 for combat ships.

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