



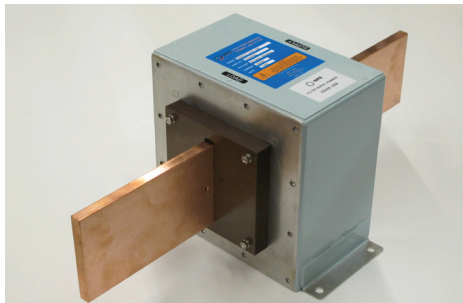
Company Bulletin

for EMC, EMP, HEMP & TEMPEST Protection

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USAF Space Fence installation at Kwajalein Atoll in the Marshall Islands



MPE protection filter for the USAF Space Fence

USAF Space Fence – another giant leap for mankind

The USAF 20th Space Control Squadron Detachment 4 manages a fence. But not just any fence . . . a Space Fence. So is this really a giant fence in space? Yes and no . . . it's actually a radar on the ground . . . and it's now operational.

The USAF Space Fence is made up of a ground-based sensor that broadcasts constant bands of energy (like fence posts) 24 hours a day, 7 days a week, to some 1,900 miles out. Any object that passes through those "posts"— debris, satellites and even the International Space Station— is automatically tracked. This is an improvement from other radars where an object's location needs to be known in order to track it.

Operated from its home on Kwajalein Atoll in the Marshall Islands near the Equator, the radar operates at a high wave frequency and can aid the detection and tracking of nanosatellites and debris measuring less than 10 centimetres across.

Major Bryan Sanchez commented: "The mission is Space Domain Awareness (SDA). Space Fence provides the Space Surveillance network with enhanced SDA in all orbital altitudes, a better revisit rate of objects in Low Earth Orbit, and an increased capability to create initial orbit determination on new objects. We're expected to field this capability to achieve actionable space domain characterization."

The radar is not just for tracking items. It monitors movement from Low Earth Orbit (LEO, altitude of 400 to 1,200 miles) to a circular Geosynchronous Orbit (GEO, a constant altitude of 22,236 miles that allows satellites to match Earth's orbit) as well as the spacing of objects. Cast-off pieces of satellites or rockets, collisions between objects and general deterioration increase the amount of space debris as well as the risk of future collisions, which then creates even more debris that needs to be tracked. The more pieces in orbit, the more problems!

Ensuring the electromagnetic integrity and protecting this innovative technology against the threat from high power pulses, MPE manufactured and supplied a suite of custom high-current protection filters to the Space Fence program. The custom filters provided by MPE were designed to meet the demanding performance specification laid down by prime contractor Lockheed Martin.

Alongside the demanding performance criteria, of particular importance was the space envelope taken by the filters and the mechanical design to allow ease of integration to the subsystems on site. The custom filter suite delivered by MPE comprised a wide range of units for use within low current through to very high current applications.

With the Kwajalein Atoll system now operational and with an option for a second space scanning radar site to follow in Western Australia, MPE will continue to "boldly go where no filter manufacturer has gone before!"

