THE MASTERS TOUCH GLOBAL

MT-404 EMF RF BLOCKER

Drone / UAS Application – Radar Signal Interaction & Resistance to RF-Based Interference

Technical Briefing on Signal Attenuation and Protection of Onboard Control Systems

1. Purpose

This briefing illustrates how the MT-404 multilayer coating interacts with external radar and RF signals on a drone (unmanned aerial system). It also explains the realistic contribution the technology can make toward reducing the vulnerability of the aircraft to external RF interference and unauthorized signal injection attempts.

2. Radar / Hostile RF Signal Interaction with a Protected Drone

When external radar energy or other RF signals strike a drone treated with MT-404, a portion of the energy is reflected at the outer interfaces and a substantial portion is absorbed within the functional layers. The residual energy that reaches the interior is strongly attenuated.

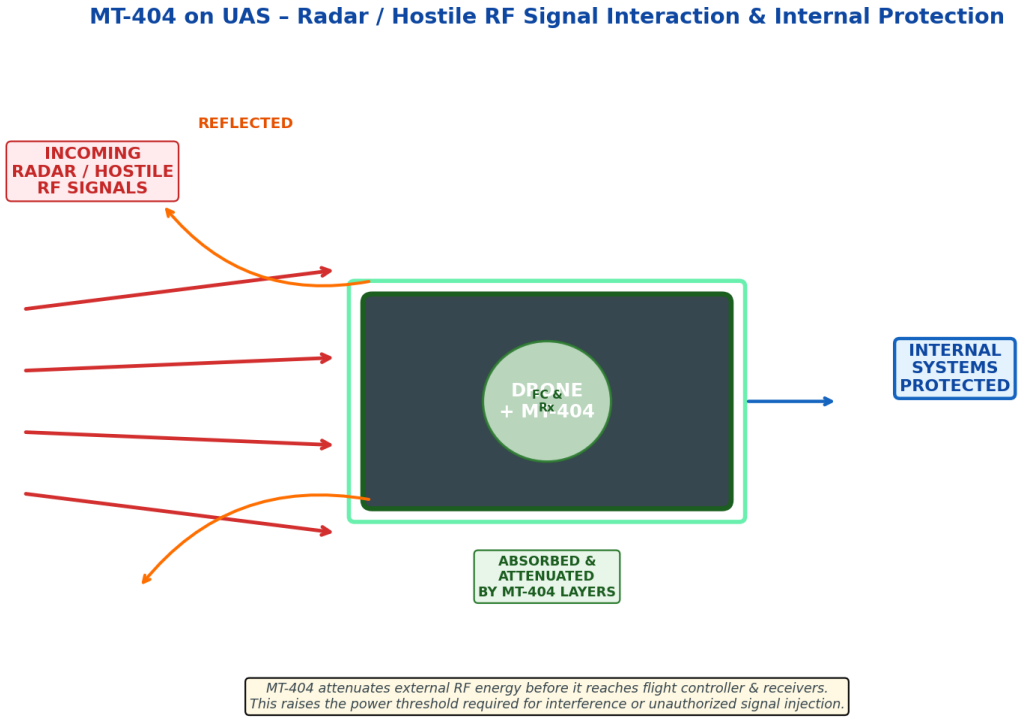


Figure 1. Conceptual depiction of incoming radar / hostile RF signals striking an MT-404-protected drone. Energy is reflected and absorbed by the multilayer coating, significantly reducing the signal strength that reaches the flight controller and receivers.

3. Effect on Signals Reaching Critical Onboard Systems

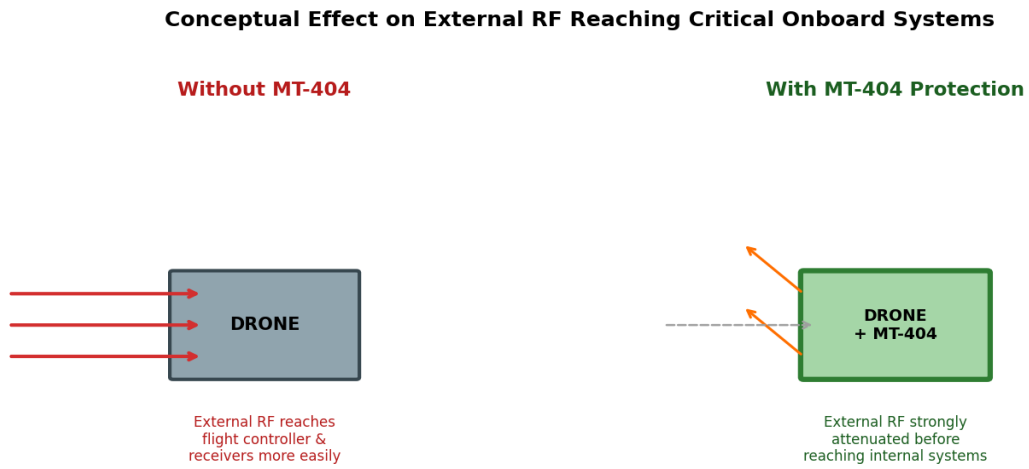


Figure 2. Conceptual comparison: without protection, external RF reaches internal systems more readily; with MT-404, the same external signals are strongly attenuated before they can interact with the flight controller and radio receivers.

4. Contribution to Resistance Against RF-Based Interference or Unauthorized Control Attempts

Many unauthorized control or disruption scenarios against drones rely on radio-frequency means: jamming, spoofing, or injection of commands on the control, telemetry, or video links. These attacks require the hostile signal to reach the drone's receivers and flight controller at sufficient strength.

MT-404, when properly applied around the avionics and receiver compartments (or as a selective exterior treatment), raises the power level that an external transmitter must produce in order for its signal to arrive at the internal electronics with usable strength. In practical terms this means:

• Low-to-moderate power jamming or spoofing attempts originating from a distance are more likely to fall below the detection or demodulation threshold of the protected receivers.
• The coating acts as a physical attenuation layer that complements (but does not replace) cryptographic authentication, frequency agility, and proper link design.
• Legitimate control links must still be engineered with adequate link margin or with designated RF windows so that authorized signals remain usable.

Important clarification: MT-404 is a passive electromagnetic attenuation material. It reduces the strength of RF energy reaching protected volumes. It is **not** by itself a complete anti-hijacking or cybersecurity solution. Robust resistance to hostile takeover also requires strong encryption, mutual authentication, secure key management, and resilient communication protocols. The coating provides an additional physical barrier that makes RF-based attacks more difficult to execute successfully.

5. Practical Guidance for Drone Integration

• Apply MT-404 preferentially around flight-controller and receiver enclosures (interior application) for maximum protection of critical electronics with minimal aerodynamic impact.
• Maintain clear RF windows or carefully designed apertures for the drone's own command, telemetry, GNSS, and video antennas so that authorized links remain reliable.
• Validate both the attenuation of unwanted external signals and the preservation of required own-link performance through laboratory and flight testing.
• Treat the coating as one layer in a multi-layer security approach that also includes cryptographic and procedural controls.

6. Summary

When a radar or other external RF signal strikes a drone protected by MT-404, a significant fraction of the energy is reflected or absorbed before it can reach the internal flight controller and radio receivers. This attenuation raises the difficulty of RF-based interference and unauthorized signal-injection attempts. The technology therefore contributes meaningfully to the physical protection of the aircraft's control systems. It should be used together with, not instead of, strong cryptographic and operational security measures.

Disclaimer: This briefing is for technical evaluation. Illustrations are conceptual. Actual attenuation depends on coating thickness, coverage, frequency, and installation quality. MT-404 does not guarantee immunity from hacking or loss of control; it reduces the effectiveness of RF energy reaching protected electronics. Full system security requires layered technical and operational controls. This document is confidential.

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MT-404 EMF RF Blocker – Drone RF Protection & Interference Resistance Briefing
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