THE MASTERS TOUCH GLOBAL

MT-404 EMF RF BLOCKER

Application & Benefits for Drones (UAS) and Aviation Platforms

Technical Benefits Briefing

1. Purpose of This Briefing

This document outlines the suitability of the MT-404 multilayer RF/EMF attenuation technology for use on unmanned aerial systems (drones/UAS) and broader aviation platforms. It addresses the practical question of interior versus exterior application and summarizes the operational benefits the technology can provide.

2. Can MT-404 Be Applied Inside or Outside a Drone?

Yes – both interior and exterior applications are feasible, each offering distinct advantages and design considerations. The flexible multilayer nature of MT-404 allows it to be adapted to either location or used in combination.

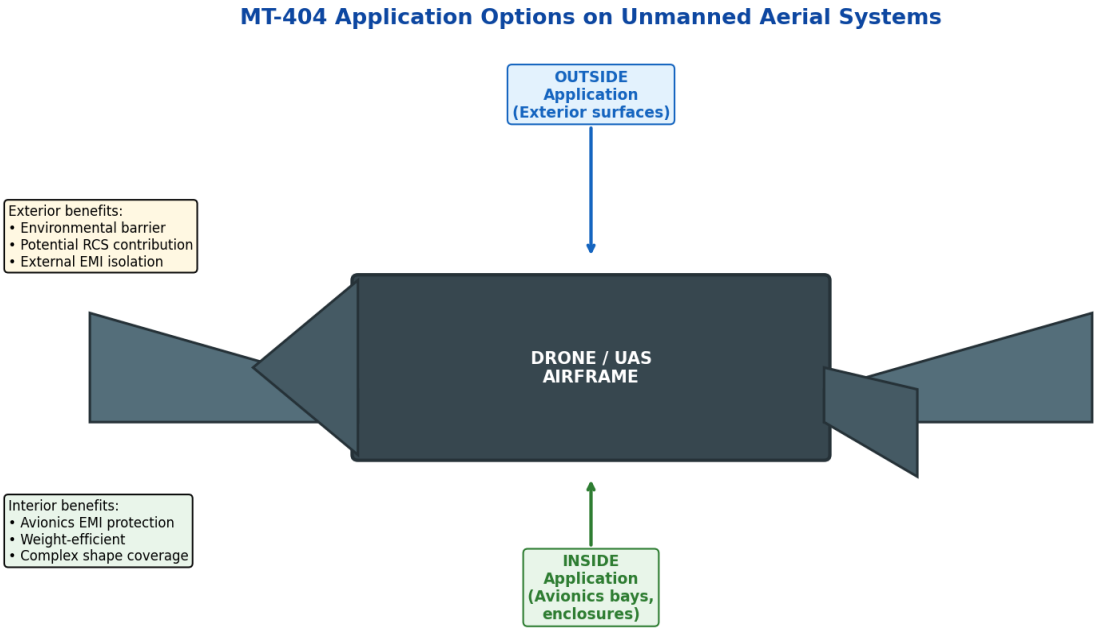


Figure 1. Conceptual illustration of MT-404 application locations on a typical unmanned aerial system – exterior surfaces and interior avionics / equipment bays.

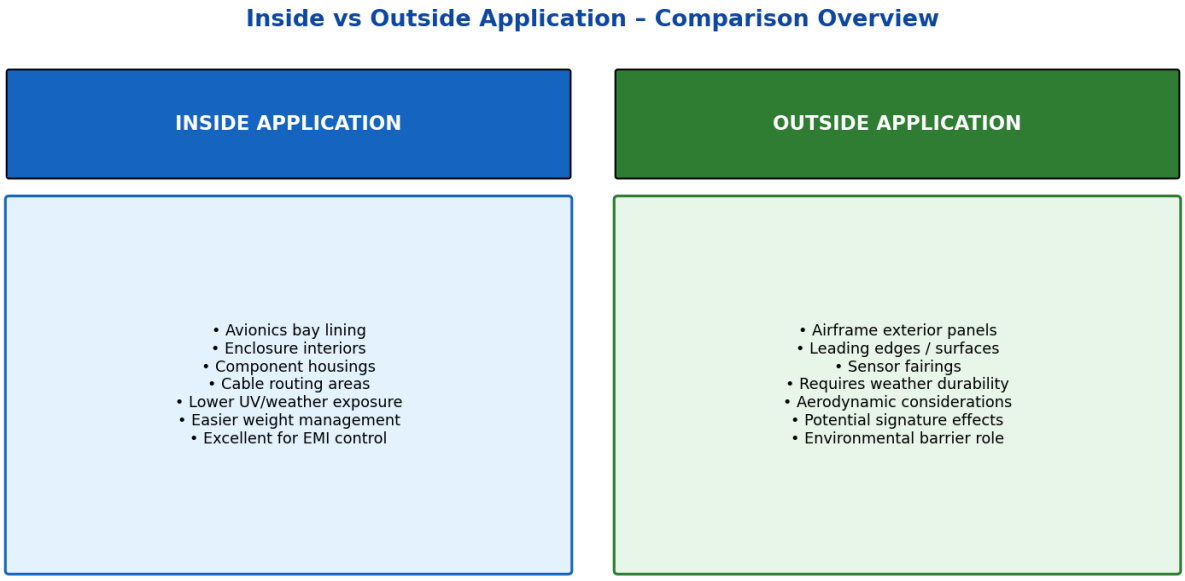


Figure 2. Side-by-side comparison of typical inside versus outside application characteristics for MT-404.

Interior (Inside) Application – Recommended for most avionics protection tasks:

- Lining of avionics bays, equipment enclosures, and component housings
- Reduced exposure to UV, rain, abrasion, and aerodynamic loads
- Excellent control of internal electromagnetic interference (EMI) and crosstalk
- Easier weight and thickness management
- Minimal impact on external aerodynamics or surface finish

Exterior (Outside) Application – Useful for specific surface and barrier roles:

- Coating of selected airframe panels, fairings, or sensor housings
- Provides an environmental and corrosion-support barrier in addition to RF attenuation
- Requires attention to weather durability, adhesion under flight loads, and aerodynamic smoothness
- May contribute to overall electromagnetic signature management (subject to design and testing)

3. Core Benefits for Drones and Aviation

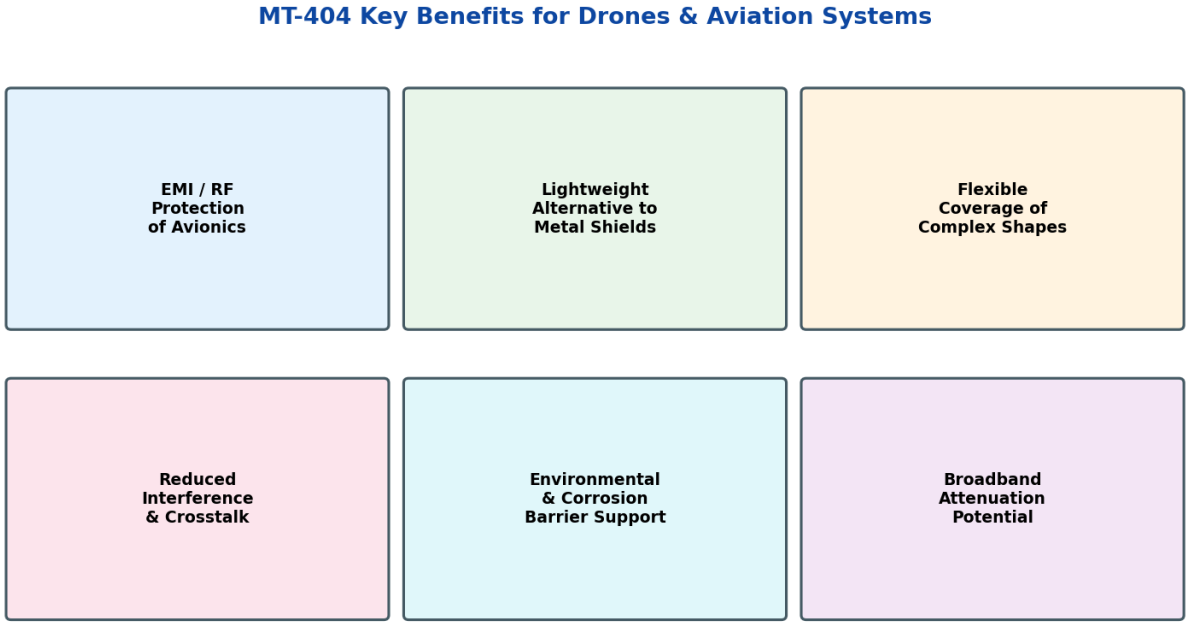


Figure 3. Primary benefit categories of MT-404 technology for unmanned and manned aviation platforms.

3.1 Protection of Avionics and Sensors
Modern drones carry dense suites of radios, flight controllers, GPS/GNSS receivers, cameras, and data links. These systems are susceptible to electromagnetic interference from onboard transmitters and external RF sources. MT-404 applied inside enclosures or bays helps attenuate unwanted RF energy, improving signal integrity and reducing the risk of interference-related anomalies.

3.2 Lightweight Alternative to Traditional Metal Shielding
Conventional metal shields (foil, mesh, or formed enclosures) add weight and can be difficult to integrate into complex composite airframes. The polymer-based multilayer structure of MT-404 offers a lower-density option that can be applied as a coating or laminated film, supporting weight-critical UAV designs.

3.3 Coverage of Complex Geometries
Spray or laminate application allows the material to conform to irregular surfaces, internal structures, and tight spaces that are challenging for rigid metal solutions.

3.4 Broadband Attenuation Potential
The multilayer design targets a wide frequency range relevant to common aviation and UAS communication, navigation, and radar bands, supporting comprehensive EMI control rather than narrow-band solutions.

3.5 Environmental and Durability Support
When applied externally or as a barrier layer, the coating can contribute to moisture, chemical, and corrosion resistance of underlying structures, adding secondary value beyond RF performance.

4. Operational Value Chain

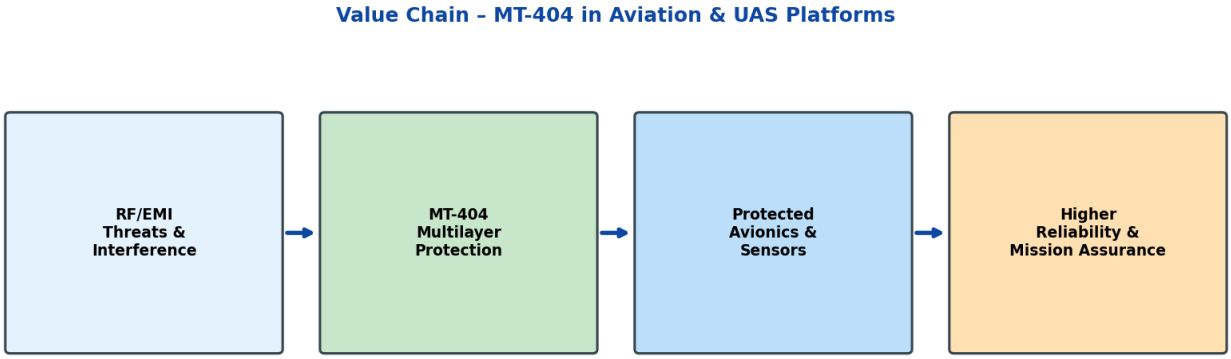


Figure 4. Simplified value chain: RF/EMI threats are mitigated by MT-404, resulting in better-protected systems and improved mission reliability.

5. Practical Design Considerations

• **Weight & Thickness** – Optimize dry-film thickness for the required attenuation while respecting UAV mass budgets.
• **Antenna Transparency** – Keep RF apertures (GPS, telemetry, video antennas) clear of the coating or use designed RF windows; the material is intended to attenuate, not to be transparent.
• **Adhesion & Environmental Qualification** – Exterior applications require validation under vibration, temperature cycling, humidity, and UV exposure typical of the aircraft's operational envelope.
• **Integration with Composites** – Compatible with many polymer and composite substrates common in modern UAS.
• **Testing** – Final RF performance, adhesion, and environmental durability must be verified on representative hardware under laboratory and, where required, flight conditions.

6. Summary Recommendation

MT-404 can be used effectively both inside and outside drone and aviation structures. **Interior application** is generally preferred for primary avionics EMI protection because it minimizes aerodynamic and environmental challenges while delivering strong attenuation of internal and external RF energy. **Exterior application** is viable for selected surfaces when additional environmental barrier function or signature-management contributions are desired, provided durability and aerodynamic requirements are met.

In both cases the technology offers a lightweight, conformable, multilayer solution that supports higher electromagnetic compatibility, improved system reliability, and design flexibility for modern unmanned and manned aviation platforms.

Disclaimer: This briefing is for technical evaluation purposes. All performance statements are based on the design principles of the MT-404 multilayer technology. Actual attenuation levels, weight impact, and environmental durability must be confirmed through testing on the specific platform and application. Antenna and RF-aperture design must be coordinated to avoid unintended signal blockage. This document is confidential.

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