



Selection of Counter Drone and Counter UAV Antennas

Aside from their useful applications, the most critical reason that drones are becoming effective threats is that even the simple ones may pose a significant security threat at a relatively cheap cost. In addition, there are many highly capable UAV (unmanned aerial vehicle) systems in military use. Depending on their size and altitude, these systems can be equipped with several electronic warfare systems.

It is critical to safeguard civil and military systems from emerging dangers such as drones, UAVs, or UASs (unmanned aerial systems). As a general rule, such systems are chosen in systems built to protect critical facilities, border security, security for military bases or patrols, infrastructures, and additional VIP protection. The type of protective systems to be utilized and the features of such systems differ depending on the application.

Drones or UAV systems can perform their attacks alone or in multiple numbers. Swarms of systems may also gear up towards one another utilizing several ways. These threats are far more capable than drones, which can be easily transformed into threats.

The article discusses the relevance of RF jamming systems' effectiveness against threats such as UAV, UAS, or drones, as well as the properties of the antennas used in RF jamming systems. "Anti-drone systems" or "Counter-drone systems" can be fixed-site ground-based, ground-based mobile, UAV-based or hand-held. A crucial feature to consider is whether or not the antennas chosen for deployment on these systems are appropriate for the environment in which they will be used.

Counter-UAV jamming systems attempt to obtain a signal level greater than the one seen by the target in the RF/GPS receiver or a level that distorts the signal in the RF/GPS receiver. Therefore, it is assured that the target's communication with the controller is terminated, or the target is unable to receive the signal it needs from GPS/GNSS navigation systems, and it either returns home destination or falls. In addition, by utilizing spoofing techniques, targets might be redirected to a different location.

Antenna systems are critical components in achieving the power at the desired levels on the target. Since they broadcast equally in all directions on the azimuth axis, omni antennas are favored in swarm drone and UAV attacks, as well as in situations where numerous attacks would be launched simultaneously from different directions. It is possible to use one or more antennas in the jammer systems depending on the frequency range and power levels of the power amplifiers used. Systems that use narrowband power amplifiers are more likely to use single-band antennas, whereas systems that use multi-band or wideband power amplifiers are more likely to use multi-band or wideband jammer antennas. Antenom Antenna Technologies' Omni-directional counter-drone antenna "[VWBO-4006000](#)" broadcasts successfully in all frequency bands between 400 MHz and 6000 MHz. A stand-alone jamming system can be formed by connecting a wideband power amplifier operating in the 400-6000 MHz frequency band and linearly polarized wideband [VWBO-4006000](#) anti-drone antenna. In the case of utilizing narrowband power amplifiers, it is possible to achieve the optimal solution by using more than one [VWBO-4006000](#) anti-UAV antenna and power amplifiers into a single system.



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As the power level of this antenna is 200 Watt, it is possible to provide a higher power level source by integrating more than one antenna, as compared to single-antenna systems. [VWBO-4006000](#) Counter-UAV antenna is compatible with all fixed-site ground-based, ground-based mobile, UAV-based, and hand-held jamming systems and has been tested under MIL-STD-810H standard. Additionally, this antenna can be conveniently mounted on the UAV or Drone with its 0.5 kg weight, radome, and relatively small size.

Directional antennas are also frequently used in counter-UAV (also called as anti-UAV or C UAV) systems. In case the directions of the threats are identified; for instance, if the threat can arise from a sector of 120 degrees rather than 360 degrees, the antenna's power can be focused on a narrower area by using directional antennas ranging this sector. As a result of the electromagnetic power being concentrated in a narrow zone, the antenna gain and, thereby, the effective range of the counter-drone jammer is increased. The [HPLPDA-4006000](#) is a directional anti-drone antenna that spans the entire frequency band of 400 MHz to 6000 MHz and has 7 dBi typical gain. This high power anti-drone antenna has a power level of 200 Watt. It is capable of providing sectoral jamming when used as one or more in a jamming system. This antenna is suitable for ground-based systems. It may be used either as radome integrated or not.

GNSS jamming antennas (or GPS jamming antennas) can be circularly or linearly polarized. GPS jamming can be executed with omni antennas or directional antennas. Antenom Antenna Technologies offers a specialized antenna solution for GNSS jamming in two distinct frequency bands. In this frequency range, the circular polarized [HP-AMHA-11501700](#) developed for L1 GPS (1.5-1.7 GHz) has 200 Watts of power range, whereas the circular polarized [HP-AMHA-11001350](#) developed for L2 GPS (1.1-1.4 GHz) has 200 Watt power. Both counter GNSS antennas (and counter GPS antennas) are available with or without radomes. These antennas can be used for fixed-site ground-based and mobile ground-based applications.

The article discusses the counter-drone antenna (also called as counter UAS or counter UAV) types that should be utilized for counter drone jammers and counter GNSS jammers and how Antenom Antenna Technologies' COTS antenna products in this sector may be utilized. Antenom Antenna Technologies has developed a product family that is used by many companies in this sector. In addition, Antenom Antenna Technologies create custom designs that are tailored to the platform's specifications. The company consistently enhances the number of its products in this sector and contributes to protection from drone, UAV, and UAS threats.

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