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Extremist Threat Report

(U) Weaponized UAS Capabilities and the Threat to the Homeland

(U) KEY FINDINGS:

(U//FOUO) We assess that the Unmanned Aircraft System (UAS) threat to the Homeland is viable and that drone-based attacks in the United States, particularly against soft targets, are feasible. Criminal enterprises and violent extremist threat actors may employ these tactics in North America, as well as in global conflict zones. Emerging UAS technologies will likely only increase these threats.

(U) Foreign Terrorist Organizations (FTOs) and other groups developed, employed, and promoted weaponized UAS attacks in conflict zones. In 2016 and 2017, the Islamic State of Iraq and ash-Sham (ISIS) conducted a propaganda campaign that focused on its successes of carrying out lethal UAS attacks against Coalition Forces in Iraq and Syria.

(U) As part of that propaganda campaign, ISIS encouraged its followers and supporters in the West to use weaponized UAS platforms against Western targets, and provided tactics, techniques, and procedures (TTPs) for drone operations.

(U//FOUO) In October 2017, alleged members of a Mexican drug cartel possibly attempted to employ a Commercial Off-The-Shelf (COTS) drone platform for a lethal attack. Criminal organizations, such as drug cartels, that use drones for other nefarious purposes, may advance the use of COTS systems for targeting purposes by adopting TTPs similar to those used by extremist groups in conflict zones.

(U//FOUO) Increasing UAS popularity may make it more difficult to determine whether a drone is being used for legitimate or nefarious purposes. Drone capabilities continue to advance; improving characteristics such as speed, payload, and range with ever decreasing system costs, while emerging technologies may give violent extremists and/or criminals a greater capacity to conduct UAS operations.

(U) Phantom 4 COTS Drone modified to drop IED
Source: Conflict Armament Research

(U) Weaponized ISIS Drone
Source: almasdarnews.com

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(U) Current Situation:

(U) In a September 2017 U.S. Senate hearing, the FBI Director announced that the use of drones to carry out terrorist attacks is an 'imminent' threat to the Homeland. In the same proceeding, the Director of the National Counter Terrorism Center (NCTC) stated that ISIS and other groups are utilizing drones overseas, and cited examples of potential lethal UAS uses, such as dropping small explosives or dispersing toxins from a UAS platform.

(U) FTO/Extremist Use of Weaponized UAS:

(U) In 2016 and 2017, the Islamic State of Iraq and ash-Sham (ISIS) utilized UAS platforms to drop Improvised Air-Dropped Munitions on targets and highlighted these attacks in propaganda videos. The common ordnance observed in the propaganda films appear to be modified 40mm grenades or ISIS-produced and employed Improvised Air-Dropped Munitions.

(U) In August 2016, according to press reporting and Hizballah-affiliated social media outlets, Lebanese Hizballah allegedly used a "mini-drone" to drop small munitions, which were possibly Chinese-made MZD-2 submunitions, on Syrian rebel forces near Aleppo, Syria.

(U) On 20 October 2017, police in Guanajuato, Mexico recovered a UAS with an attached IED in a delivery configuration. The reported explosive device is known as "Papas Bombas," which is an impact sensitive improvised grenade. However, the drone also contained a radio-controlled (RC) receiver, which could be used to initiate the device once it was placed on a target.

(U) Improvised Air-Dropped Munition
Source: Conflict Armament Research

(U) Chinese-Made MZD-2 Submunitions
Source: PopularMechanics.com

(U) Papas Bombas
Source: excelsior.com.mx

(U//FOUO) ANALYST NOTE: Impact sensitive HMEs with the same weight as munitions used by FTOs could be released from a drone or used in a "suicide drone" attack. The Guanajuato, Mexico incident used a "Papas Bombas," an impact sensitive HME, which if released during a UAS attack, could cause significant damage to persons and/or property. Soft targets, including outdoor sporting venues with limited overhead protection, could be viable targets for a weaponized drone strike.

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(U) FTO/Extremist Encouragement of UAS Employment against Western Targets:

(U) The following is a sampling of FTO/extremist encouragement of lethal UAS use and does not include all instances:

(U) In May 2017, an ISIS Propaganda video entitled, *"We Will Surely Guide Them to Our Ways"* from the group's Ninawa Province, featured videos of multiple ISIS drone attacks against Coalition Forces in Iraq, followed by a "suicide-drone" attack. This footage was immediately followed by an English-speaking ISIS fighter encouraging attacks against the U.S. using any means at one's disposal.

(U) In February 2017, ISIS propaganda images distributed via Telegram featured fighters launching drones against Western targets, such as the U.S. Capitol Building and Statue of Liberty, in Washington D.C. and New York City.

(U) In July 2016, jihadist supporters in a pro-Al Qaeda Telegram Channel named "*Inspire the Believers*," promoted attacks using "toy drones" outfitted with explosives against the 2016 Olympic Games.

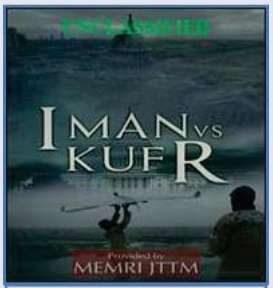
(U) In July 2016, ISIS followers in a pro-ISIS Deep Web forum encouraged additional "toy drone" attacks against landing and departing civilian aircraft at airports.

(U) Disrupted UAS Plot against Western Target:

(U) In August 2017, Turkish police arrested a suspected Russian ISIS operative for attempting to acquire a drone to attack and "bring down a US airplane" at the U.S. Incirlik Air Base in Turkey. The suspect reportedly requested monetary support from other ISIS militants on Telegram for the purchase of a $782 UAS platform.

(U) Suspect in ISIS Incirlik Plot
Source: *The Sun*

(U) ISIS Propaganda Image
Source: *MEMRI*



(U) ISIS Propaganda Image
Source: *MEMRI*

(U//FOUO) ANALYST NOTE: The West may encounter an increasing number of UAS threats if FTOs and extremists continue to utilize successful propaganda campaigns to encourage lethal drone use outside of conflict zones and share TTPs.

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(U) Current COTS UAS Capabilities

Recreational-Use UAS Platforms					
Size	**Price**	**Maximum Range**	**Flight Time**	**Maximum Speed**	**Payload**
Small	$25 - $1,000	230' - 4.3 Miles	5 - 30 min	11 mph - 40 mph	0.4 lbs
Medium	$450 - $3,500	2624' - 4.3 Miles	21 - 30 min	18 mph - 45 mph	0.66 - 3 lbs
Large	$2,000 - $3,000	3.1 miles - 4.3 miles	15 - 18 min	49 mph - 67 mph	4 lbs

Commercial-Use UAS Platforms					
Size	**Price**	**Maximum Range**	**Flight Time**	**Maximum Speed**	**Payload**
Small	$399 - $1,200	500 m - 1.2 miles	16 - 25 min	31 mph	N/A
Medium	$749 - $5,300	1.2 - 4.35 miles	15 - 40 min	35 mph	4.4 - 11 lbs
Large	$6,000 - >$18,000	up to 9.3 miles	up to 40 min	37 mph	>500 lbs

NOTE: The sample categories in this table are intended to illustrate UAS capabilities (payload, range, speed, etc.) of concern to First Responders. Community of Interest recognized and detailed UAS classifications can be found in the provided FAA and DoD links.

(U//FOUO) The table above illustrates the capabilities of common rotary-wing or multi-rotor COTS platforms that are conducive to weaponized payload delivery. The UAS platforms included in the top portion of this chart are recreational-use UAS systems and are generally less expensive than more advanced commercial-use platforms. The UAS platforms included in the bottom part of this chart are more powerful commercial-use systems. Payload capacities vary from 0.4 to greater than 500 pounds, with flight times of 5 to 40 minutes. Speeds range from 10 mph to greater than 60 mph, and costs can range from $25 to over $18,000 for specialized and sophisticated commercial products.

(U//FOUO) Recreational UAS platforms may be modified to enhance characteristics such as max range, flight time, max speed, weight, and payload. For example, the maximum range of these platforms can be extended beyond the standard range through a First Person View (FPV) kit and flight time can be improved with manufacturer-offered batteries or other supplementary capacity enhancements.

(U//FOUO) Commercial payload release mechanisms, customized to fit various UAS platforms, are now available for purchase. Some UAS models are equipped with the necessary hardware and software needed to drop objects during flight. While there are legitimate uses for this technology, it could also be utilized to deliver explosives or other weaponized payloads, based on FTO use in conflict zones.

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(U) Emerging Technologies and Criminal/FTO Use:

(U//FOUO) Some developing UAS technologies provide for operational enhancements and the ability to support heavier payloads, employ precision guidance, and pre-planned operation with limited user control or real-time input. The following emerging technologies are the most likely to enhance the UAS threat environment in the short, medium, and long term, and are based on recent advances and past use, along with accessibility and cutting-edge capability to function in a semi-autonomous operational capacity:

(U//FOUO) Short-term Threats: COTS or "plug-in-play" payload release mechanisms with increased lift capacity likely present the most concerning emerging technology, based on their documented use in North America, as well as conflict zones, and their accessibility and relative ease of use.

(U) Criminal Case Scenario: On 26 November 2017, a US Person was arrested for flying a drone into two sports stadiums to distribute anti-media leaflets during two professional football games in San Francisco and Oakland. The UAS platform employed a commercially available payload release mechanism to distribute its fliers.

(U//FOUO) Medium-term Threats: Advances in pre-programmed or autonomous drones with sophisticated guidance systems possibly present another aspect related to concerns of emerging technology. The capacity to operate with limited user input and the potential for commercial availability, and their relative ease of use with features, such as GPS, inertial navigation, and/or obstacle avoidance can offer far reaching operational applications. The pre-programmed UAS platform can conduct surveillance and/or attack a target without direct and/or real-time operator input.

(U) Criminal Case Scenario: The 26 November 2017 incidents in San Francisco and Oakland utilized a UAS platform that possessed autonomous features, such as terrain avoidance and an application (app) for pre-programmable flight paths.

(U//FOUO) Long-term Threats: Do-It-Yourself (DIY) kits and new 'ad hoc' innovations may present future concerns of emerging technology, based on advances by FTOs, such as ISIS, which documented advocacy of their use for lethal attacks in the West and/or through possible use by other FTOs, such as Lebanese Hizballah, in conflict zones.

(U) FTO Case Scenario: On 24 August 2017, the pro-ISIS "*Lone Mujahid*" Telegram channel distributed two DIY video manuals on rotary-wing UAS assembly. Also, in August 2017, a UAS platform that was allegedly used by Lebanese Hizballah in Syria, appeared with a very similar design and composition to the platform featured in the ISIS-distributed DIY kit videos.

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(U) OUTLOOK:

(U//FOUO) The potential threat of a lethal UAS strike inside of the U.S is growing, based on extremist groups use of weaponized UAS platforms in conflict zones, their continued advocacy of drone attacks against Western targets, and recent criminal incidents in North America, which employed drones to conduct nefarious activity.

(U//FOUO) As UAS platforms become increasingly popular, more accessible, and less expensive, it may become gradually more difficult to ascertain whether these systems are being used for legitimate or nefarious purposes. Threat actors may attempt to integrate new UAS technologies in attacks, such as autonomous platforms and through DIY kits, because of the their ease of use, along with advanced capabilities. These improvements may present greater short, medium, and long-term threats, which will make it more difficult to deter and/or disrupt UAS platforms utilized for lethal means.

(U//FOUO) Homeland security officials, working with State, Local, Tribal, and Territorial Law Enforcement (SLTT/LE) and the private sector, may be able to raise awareness of this emerging threat by highlighting weaponized UAS indicators and by sharing operational lessons-learned from disrupted plots. Encouraging law enforcement to record and report UAS incidents, and share the information with partners may help them track and analyze trends to more effectively counter UAS threats.

(U) Weaponized ISIS Drone
Source: almasdarnews.com

(U) UAS carries camera over college football game
Source: sportsbusinessdaily.com

(U) Weaponized Papas Bombas Drone
Source: smallwarsjournal.com

(U) UAS carries leaflets during pro football game
Source: twitter.com