

ARMY, MARINE CORPS, NAVY, AIR FORCE, SPACE FORCE



# COUNTER- UNMANNED SYSTEMS STUDY

SEP 2024

MULTI-SERVICE TACTICS, TECHNIQUES, AND PROCEDURES

**COUNTER-UNMANNED SYSTEMS STUDY**

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# **EXECUTIVE SUMMARY**

## **C-US STUDY**

### **Chapter I Overview**

Provides background information on the study, including its purpose, scope, historical perspective, problem statement, and research methodology.

### **Chapter II Findings**

Describes current joint and Service doctrine and provides discussion items pertaining to the purpose of the study.

### **Chapter III Conclusion**

Gives a list of recommendations and provides courses of action for the Joint Actions Steering Committee (JASC) consideration.

## **PROGRAM PARTICIPANTS**

The following agencies participated in creating this study:

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# Chapter I OVERVIEW

## 1. Purpose

a. Air Land Sea Space Application (ALSSA) Center action officers conducted this study of Counter–Unmanned Systems (C-US) to determine if a multi-Service tactics, techniques, and procedures (MTTP) gap exists across the Services. This study was directed by members of the Joint Actions Steering Committee (JASC) and derived from service or SME input.

b. The proliferation of unmanned systems has created a significant threat to Department of Defense (DoD) operations and joint, interagency, and multinational partners. To counter this threat, the joint force will need to utilize capabilities from all the Services. To what degree of service interoperability currently exists or lack thereof was a main purpose of this study.

## 2. Scope

a. The study was designed to understand how to mitigate the perceived multi-Service doctrine gap by analyzing joint and individual Service doctrine, and obtaining Service perspectives. Service perspectives were obtained from subject matter experts (SMEs) and are not official opinions of the Service doctrine centers.

## 3. Background/History

a. ALSSA explored the potential of developing a Counter-Unmanned Aerial Systems (C-UAS) Multi-Service Tactics, Techniques, and Procedures (MTTP) manual in 2016. Based on research available at the time, it was determined that the topic was not developed enough to warrant a standalone MTTP. At the same time, ALSSA was already publishing an Unmanned Aerial Systems MTTP in which many C-UAS topics were addressed. In 2017, MTTP *Unmanned Aerial Systems* merged into MTTP *Air and Missile Defense* due to numerous similarities with larger category unmanned aerial systems and manned aircraft. MTTP *Air and Missile Defense*, Chapter VI was specifically dedicated to counter-unmanned aircraft systems in lieu of a standalone MTTP also due to similarities in countering manned and unmanned aerial systems. Based on the increasing proliferation of unmanned systems, the JASC directed ALSSA in 2024 to conduct a study on the viability and potential requirement of a Counter–Unmanned Systems (C-US) MTTP based on the asymmetric threat that unmanned systems pose to the joint force.

## 4. Methodology

a. ALSSA action officers conducted research to examine existing Service and joint doctrine to ascertain if a MTTP is warranted for the topic. ALSSA consulted with Service specific subject matter experts (SME) to explore existing tactics, techniques and procedures (TTP) from the joint force and ascertain how countering unmanned systems factors into ongoing operations.

## Chapter II FINDINGS

### 1. Existing Doctrine and Tactics, Techniques, and Procedures (TTP) Analysis

a. ALSSA action officers found that although certain domains of unmanned systems are addressed in various Service or joint publications, no all-encompassing doctrinal source exists to define the various types of unmanned systems or address how to counter this unique threat to operations across the spectrum of conflict. Examples of domain specific C-US doctrine include:

(1) ATP 3-01.81 *Counter-Unmanned Aircraft System (C-UAS)*, August 2023.

(a) The Army Fires Center of Excellence (FCoE) is moving towards an annual revision of this publication due to the demand and the rapidly evolving nature of the subject.

(b) The USMC is a contributor and user of this ATP. It is yet to be determined whether this becomes a bi-Service publication, but either way it comprehensively addresses C-UAS. An ALSSA C-UAS publication would be redundant or counter-productive as Service doctrine already exists.

(c) As the Department of Defense (DoD) Executive Agent for c-SUAS, specifically unmanned aerial systems (UAS) categories 1-3, the Army FCoE is the logical place to maintain this publication and provide it for Services which require it.

(2) NTTP 3-20.5 *Counter FAC/FIAC*, 2019, change 3 JAN 2024 (S).

(a) This publication contains comprehensive tactical doctrine to counter Fast-Attack Craft/Fast Inland Attack Craft. We assess no significant difference in TTP to counter *unmanned* maritime vessels of this size and type than what is addressed in this publication regarding manned vessels.

(b) It is ALSSA's assumption that other Services do not require a TTP in the surface and sub-surface domain and that keeping this publication up to date with the U.S. Navy (USN) as the proponent is the most effective and expedient way to maintain TTP in these domains.

(c) If other Services require a TTP in these domains, this publication should be used as the basis for a multi-Service TTP or provided to those Services.

b. Countering-unmanned systems is not a new concept. There is a breadth of study at all levels of the DoD to counter unmanned autonomous, unmanned, and uncrewed systems. The Defense Science Board Task Force on Counter Autonomy published a final report in September of 2020 which included the following statement (emphasis added):

“The Task Force found a heavy focus across the whole-of-government on fielding U.S. autonomous systems with **very little attention given to countering autonomous systems deployed by adversaries**. One major exception is the U.S. government's **many programs focused on the counter unmanned aerial system (c-UAS) mission**. Although c-UAS is critical to ensuring the safety and security of U.S. forces, allies, and the homeland, the DoD **must adopt a broader**

**view of counter autonomy**, or it will not be prepared to effectively defeat future adversary systems. “

c. ALSSA’s research aligned with the above statement. Counter-UAS doctrine is largely developed and understood. The Army is formally assigned as the Executive Agent for counter UAS categories 1-3 and has assigned doctrine development to the FCoE. Other Services (USMC in particular) coordinate with the FCoE to update s-UAS doctrine. The FCoE has a plan to update counter-sUAS doctrine annually for the rapidly changing threat environment. While not formalized, it is widely understood that counter-UAS categories 4 and 5 fall within the USAF’s core mission of Air Dominance. FCoE’s position as the Army’s air defense doctrine center, which is also responsible for operating the Joint C-sUAS University, makes it uniquely positioned geographically with the subject matter expertise on hand to maintain FCoE’s goal of an annual revision for existing doctrine.

d. Regarding the other domains, ALSSA found that doctrine for integrating our own unmanned systems into plans and operations is either published or in development, but there is no doctrine focused on countering adversaries’ systems. For example, the USN has maintained doctrine with regard to autonomous systems for several years and the USA and USMC are actively building robotics and autonomous systems into their formations. There is an added consideration that due to the large scope of the assigned topic of countering unmanned systems, the varying levels of classification would mitigate the usefulness of a ALSSA produced unclassified MTTP with the normal intended audience of the tactical warfighter.

## 2. Discussion Items

a. Are there requirements for separate multi-Service c-sUAS doctrine? The FCoE has a glide path to update this doctrine annually and works closely with the USMC. Is there a need for a multi-Service c-sUAS doctrine since it is integrated into USN and USAF protection plans as well? (the challenges we’ve seen are with authorities and integration, not in doctrine)

b. At the tactical level, what significantly differentiates countering unmanned surface, sub-surface, or ground-based systems from manned systems? Put another way, is *tactical doctrine* required to counter these systems at this time?

ALSSA noted that other solutions across the DOTMLPF-P spectrum are being worked, that doctrine does need to keep up with the rest of the DOTMLPF-P but does not have enough information at this time to firmly say a counter-unmanned system tactical publication is needed.

c. There are counter-autonomy, counter-unmanned, and/or counter-uncrewed systems efforts across all echelons of the DoD. The Deputy Secretary of Defense directed the Establishment of a Warfighter – Senior Integration Group Counter Uncrewed Systems (W-SIG C-UXS) on 01 MAR 2024.

(1) Other than aircraft, there are no definitions to distinguish the terms autonomous, unmanned, or uncrewed in the DoD dictionary and they are often used interchangeably.

(2) A common doctrinal term and definition should be established.

(3) Efforts to develop doctrine for any of the above should align with the sub-groups of the W-SIG C-UXS. ALSSA identified several Joint Staff divisions or offices involved, but it is unclear how much the Service doctrine centers contribute to the doctrine development aspect of this senior integration forum. Additionally, ALSSA found that the majority of the current discussion at the DoD level is focused on policy as opposed to tactics or interoperability.

d. Is there an interoperability gap that currently exists? ALSSA found that Service specific doctrine currently meets operational requirements and when interoperability challenges arise, the Services mitigate those issues through alignment of doctrine as is the case with the USA and USMC's collaboration on ATP 3-01.81 *Counter-Unmanned Aircraft System (C-UAS)*.

Specific to other domains, in the case of surface or sub-surface, the USN addresses this in depth as a part of NTTP 3-20.5 *Counter FAC/FIAC (S)*. This domain is relatively exclusive to the USN, and no interoperability challenges were noted by ALSSA. Additionally, the USN remains best postured for future revisions of their Service specific doctrine.



## **Chapter III CONCLUSION**

### **1. Recommendations**

a. ALSSA believes that there is not a significant interoperability challenge that exists regarding countering unmanned systems and that Service specific doctrine meets the needs of the warfighter at the tactical level. As technology advances, the topic of unmanned systems will only grow in importance and relevance at the tactical level. At present however, the largest gaps that currently exist are with regard to policy, authorities, integration and procurement, not the implementation of systems already in the inventory or because doctrine does not exist. Furthermore, if an MTTP was produced, the scope of the topic would require downsizing due to the encompassing nature of countering unmanned systems in all domains. Lastly, varying levels of classification would mitigate the usefulness of an MTTP as ALSSA strives to write MTTPs at the unclassified level for widespread use and dissemination by the tactical warfighter.

b. ALSSA recommends that this study does not move forward into the production of a MTTP on the topic of Counter-Unmanned Systems (C-US) at this time.

### **2. ALSSA Recommended Course of Action (COA) Options**

a. ALSSA has provided three Courses of Action for the JASC to consider; ALSSA recommends pursuing COA 1.

(1) COA 1 – Accept ALSSA’s recommendation to conclude the C-US study without initiating production of an MTTP with the understanding that this topic may be addressed at a later date as DoD policy becomes more codified.

(2) COA 2 – Initiate the drafting of an MTTP focused on C-US as it applies to a single domain with significant input from the Service doctrine centers.

(3) COA 3 – Initiate a MTTP focused on C-US as it applies to the air, land, sea and space domains. Provide general overviews of each domain referencing current Service doctrine in order to produce a MTTP at the unclassified level to enable maximum accessibility by the tactical warfighter. A proposed chapter and topic structure is reflected below;

(a) Chapter I – Counter-Unmanned Systems overview, definition of terms, characteristics, commonalities.

(b) Chapter II – Unmanned Systems

(c) Chapter III – Counter-Unmanned Aircraft Systems (complex attack, environment attack, low attribution, suppression of enemy air defenses (SEAD))

(d) Chapter IV – Counter-Unmanned Sea Systems (surface/sub-surface)

(e) Chapter V – Counter-Unmanned Land Systems

### **3. Closing**

a. ALSSA’s findings and recommendation do not necessarily reflect the views of Service doctrine centers or other organizations that assisted with this study. The

findings and recommendation put forward by ALSSA are based on independent research working in conjunction with SMEs focused on the goal of providing MTTP publications to the tactical warfighter.

## REFERENCES

### JOINT PUBLICATIONS

*DoD Dictionary of Military and Associated Terms*, 15 August 2023

JP 3-30, *Joint Air Operations*, 25 July 2019

### ARMY

ATP 3-01.81, *Counter-Unmanned Aircraft Systems (C-UAS)*, August 2023

ADP 3-37, *Protection*, 18 January 2024

### MARINE CORPS

MCTP 3-20F, *Control of Aircraft and Missiles*, 02 May 2016

### NAVY

NTTP 3-02.1.3, *Amphibious/Expeditionary Operations Air Control*, February 2017

### AIR FORCE

AFDP 3-52, *Airspace Control*, 31 December 2021

### MULTI-SERVICE PUBLICATIONS

ATP 3-01.15/MCTP 10-10B/NTTP 3-01.8/AFTTP 3-2.31, *Multi-Service Tactics, Techniques, and Procedures for Air and Missile Defense*, 07 April 2023

ATP 3-52.1/MCRP 3-20F.4/NTTP3-56.4/AFTTP 3-2.79, *Multi-Service Tactics, Techniques, and Procedures for Airspace Control*, 21 June 2023

## GLOSSARY

Part I of the glossary contains abbreviations and acronyms, listed in alphabetical order. Part II contains terms and definitions, examples follow.

### PART I – ABBREVIATIONS AND ACRONYMS

#### A, B

<b>ACC</b>	Air Combat Command
<b>ADP</b>	Army Doctrine Publications
<b>AFDP</b>	Air Force Doctrine Publication
<b>ALSSA</b>	Air Land Sea Space Application [Center]
<b>ATP</b>	Army Techniques Publications

#### C

<b>COA</b>	course of action
<b>C-UAS</b>	counter unmanned aerial system
<b>C-US</b>	counter unmanned systems
<b>C-UXS</b>	counter uncrewed systems

#### D

<b>DoD</b>	Department of Defense
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#### F, G, H

<b>FCoE</b>	Fires Center of Excellence
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#### J, K, L

<b>JASC</b>	joint action steering committee
<b>JP</b>	Joint Publication

#### M

<b>MCTP</b>	Marine Corps Tactical Publication
<b>MCoE</b>	Maneuver Center of Excellence
<b>MTTP</b>	multi-Service tactics, techniques, and procedures

#### N

<b>NWDC</b>	Naval Warfare Development Center
<b>NTTP</b>	Navy Tactics, Techniques, and Procedures

#### S, T

<b>SME</b>	subject matter expert
<b>SEAD</b>	suppression of enemy air defenses
<b>TTP</b>	tactics, techniques, and procedures

#### U, V

**UAS**                      unmanned aircraft system

**W**

**W-SIG**                      warfighter senior integration group