Lesson 3.8a
UAS Unit

Contents

- Terminology
- Characteristics and capabilities.
- Strengths and limitations.
- Deployment Considerations.
- Tasking and Employing.

Learning Outcomes

- Describe UAS characteristics, capabilities, acquisition and analysis at Force, Sector and Battalion level.
- Explain the strengths and limitations of employing UAS units.
- Demonstrate how UAS units receive tasking, operates and are employed at FHQ and Sector level.
- Explain the differences between UAS and manned aircraft

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- Capabilities

- Strengths
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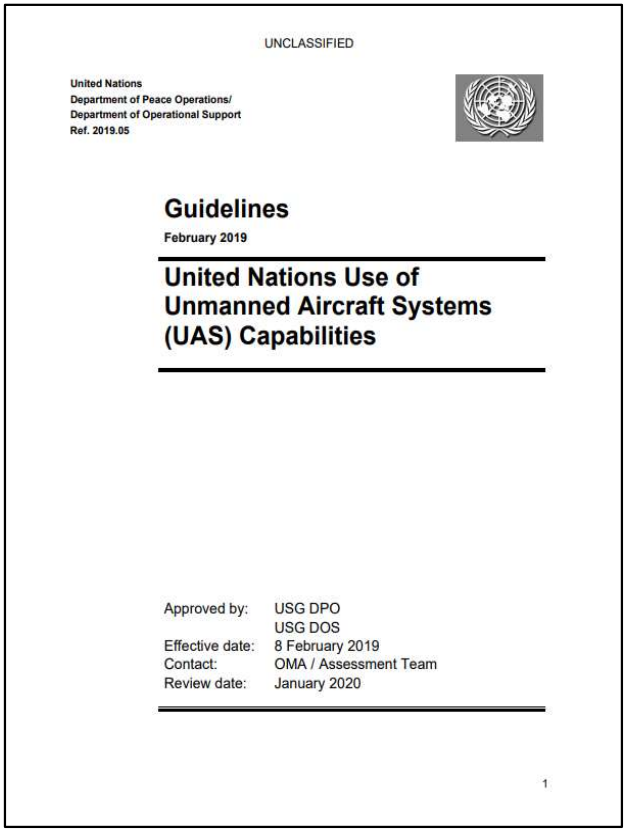
Reference materials



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Department of Operational Support
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Guidelines

February 2019

United Nations Use of Unmanned Aircraft Systems (UAS) Capabilities

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Contact:	OMA / Assessment Team
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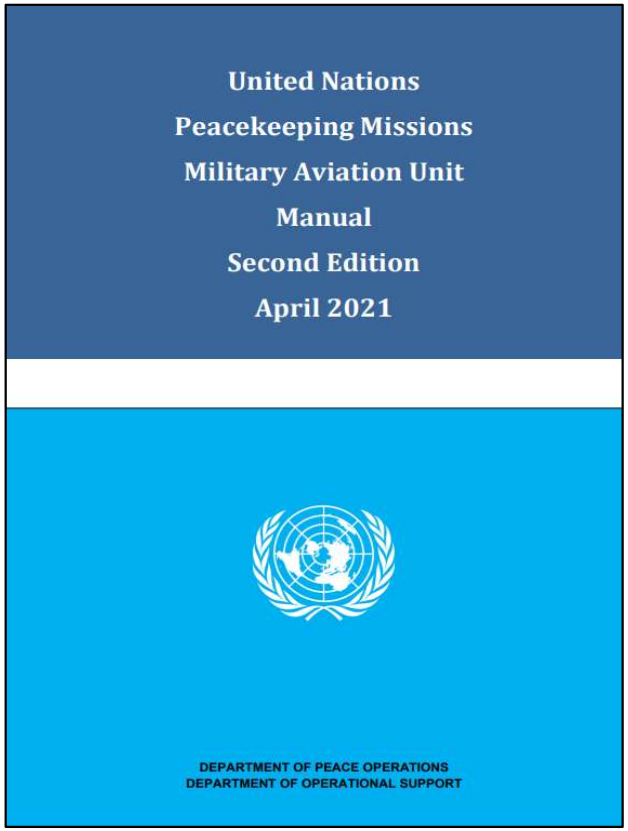
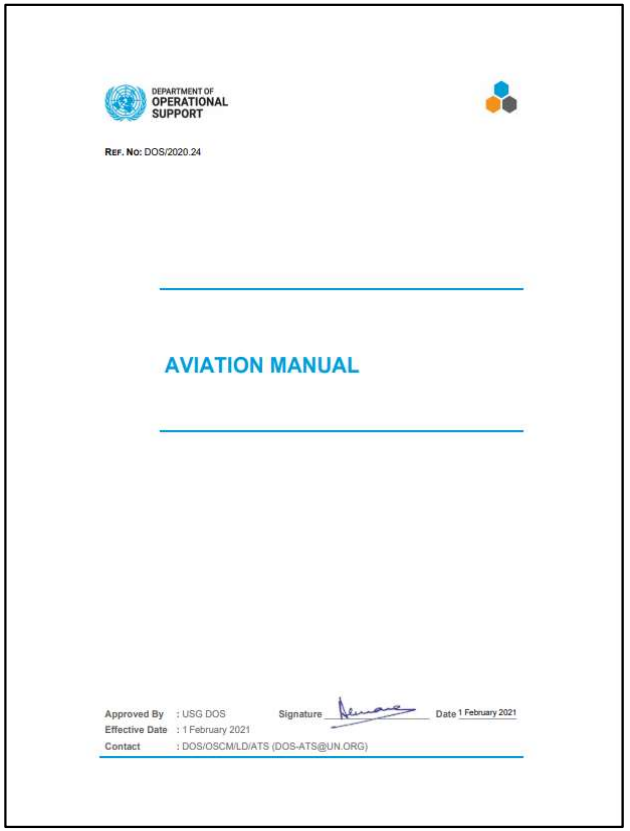


United Nations
Peacekeeping Missions
Military Aviation Unit
Manual
Second Edition
April 2021

DEPARTMENT OF PEACE OPERATIONS
DEPARTMENT OF OPERATIONAL SUPPORT



DEPARTMENT OF OPERATIONAL SUPPORT

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AVIATION MANUAL

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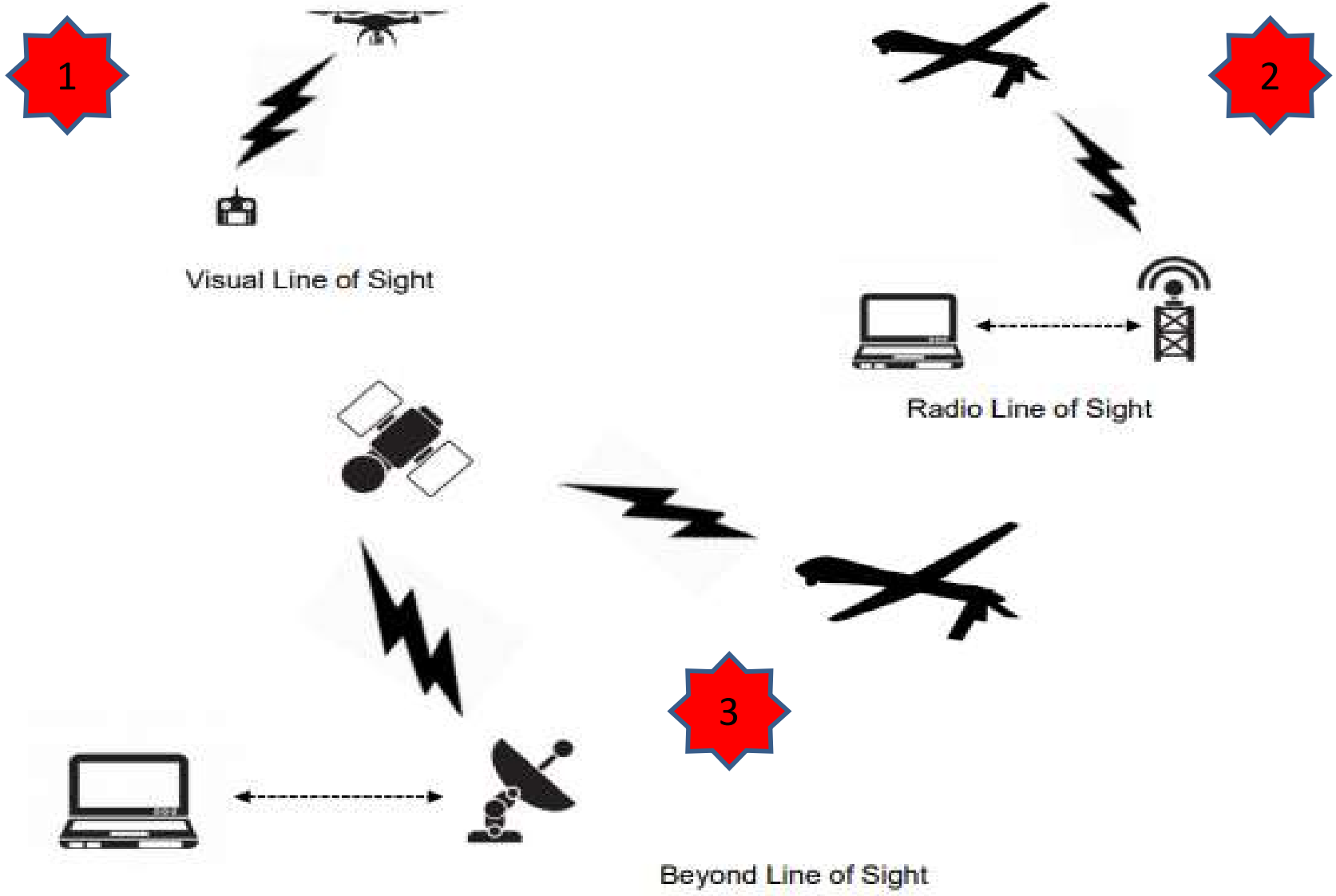
Effective Date : 1 February 2021
Contact : DOS/OSCM/LD/ATS (DOS-ATS@UN.ORG)

Terminology

The following are the recognized terms used in the UN

- Unmanned aircraft (UA)
- Unmanned Aerial Vehicle (UAV)
- Unmanned Aircraft System (UAS)
- Remotely piloted aircraft (RPA)
- Remotely piloted aircraft system (RPAS)
- Aviation Safety

Terminology



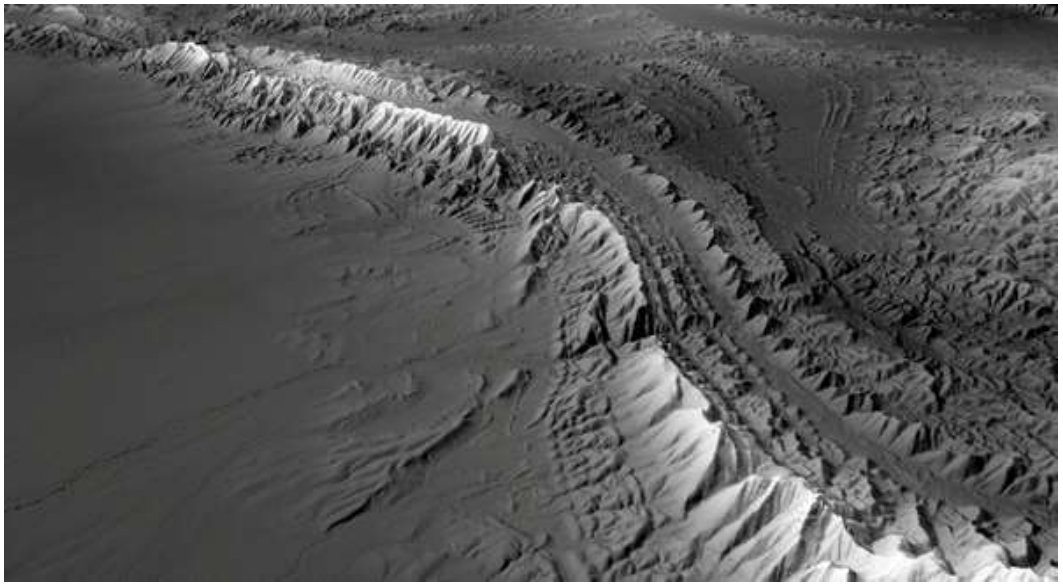
Characteristics

Class	Category	Recommended Employment	Normal Aprox Recommended Altitude (AGL)	Range	Examples
Class III	HALE	Strategic/National	< 65,000 ft	Unlimited (BLOS)	Global Hawk
	MALE	Operational/Theater	< 45,000 ft	Unlimited (BLOS)	Heron/Hermes 900
Class II	Tactical	Tactical Formation	< 18,000 ft	< 150 km (LOS)	Hermes 450/Falco Sperwer
Class I	Small	Tactical Unit	< 1,000 ft	< 50 km (LOS)	Scaneagle/ Shadow 200 Luna
	Mini	Tactical Subunit (manual or hand launch)	<1,000 ft	< 25 km (LOS)	Raven/Aladin Puma/Skylark Heidrum V1
	Micro	Tactical Subunit (manual or hand launch, tethered)	< 400 ft	< 5 km (LOS)	WASPIII/MICADO DJI Phantom 4, DJI Mavic Pro Hovermast 100

Sensor capabilities

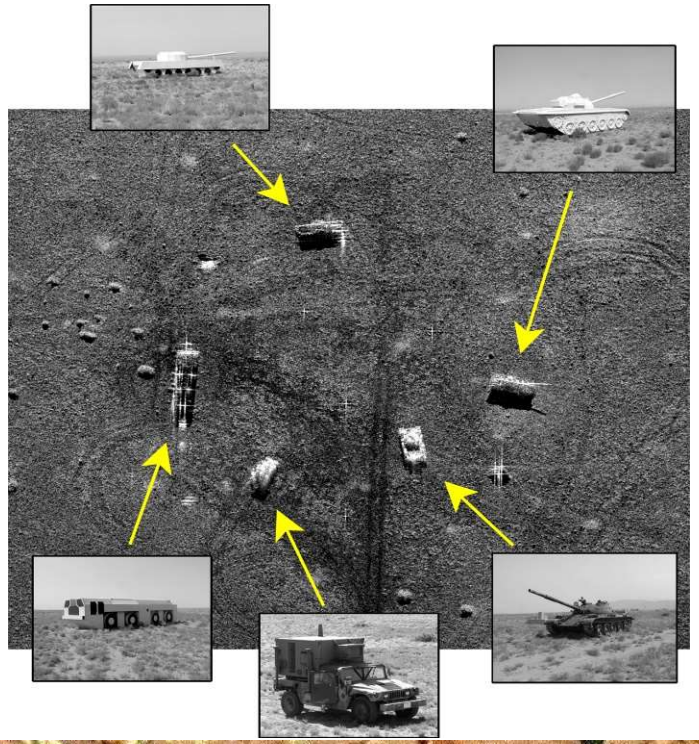
- Full Motion Video (FMV)

- Synthetic Aperture Radar (SAR)

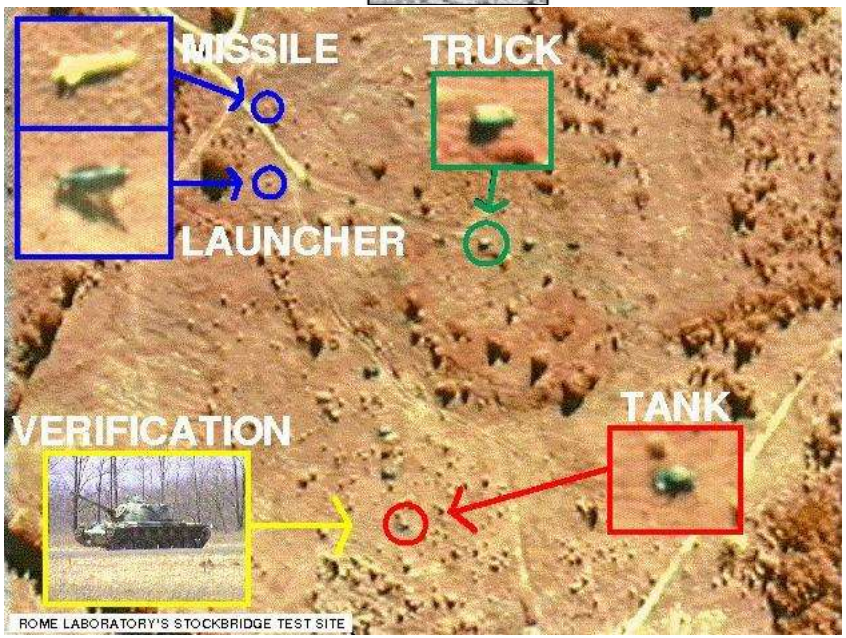


Sensor capabilities

- Ground Moving Target Indicator (GMTI)



- Multi/hyper Spectral Imaging (MSI/HSI)



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- Limitations

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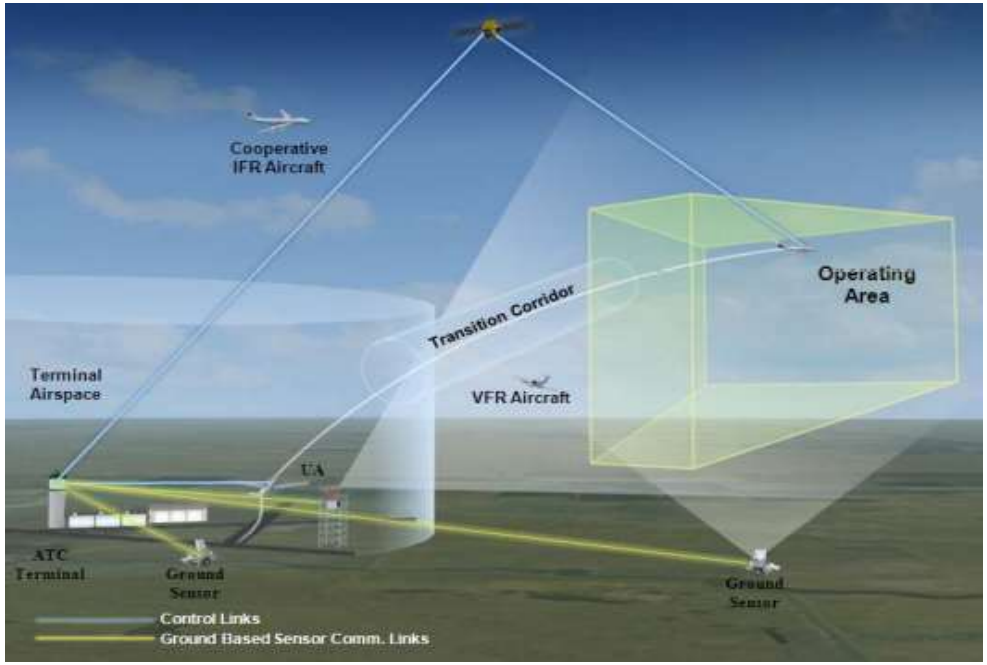
Strengths

- Long endurance
- Enhancing situational awareness
- Supporting the protection of forces
- Reducing footprint in dangerous environments
- Verifying reports on displaced people

Limitations

- Cost
- Meteorological effects
- Constraint: operating near international borders



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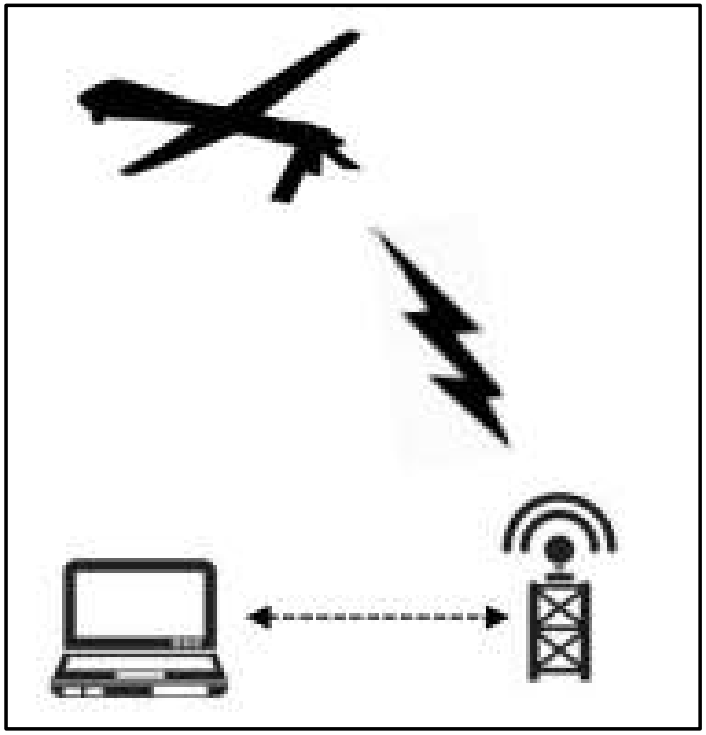
Deployment Considerations

- Operational context
  - Understanding the task.
- Airspace considerations
  - Adherence to international and national rules.
- Command and control
  - Maintain high-level command, while delegating control.
  - Supported by CAVO and Chief PKISR.
- Endurance
  - Distance to the NAI will affect time on task.
- Range
  - Range can be affected by UAS command and control mechanism.

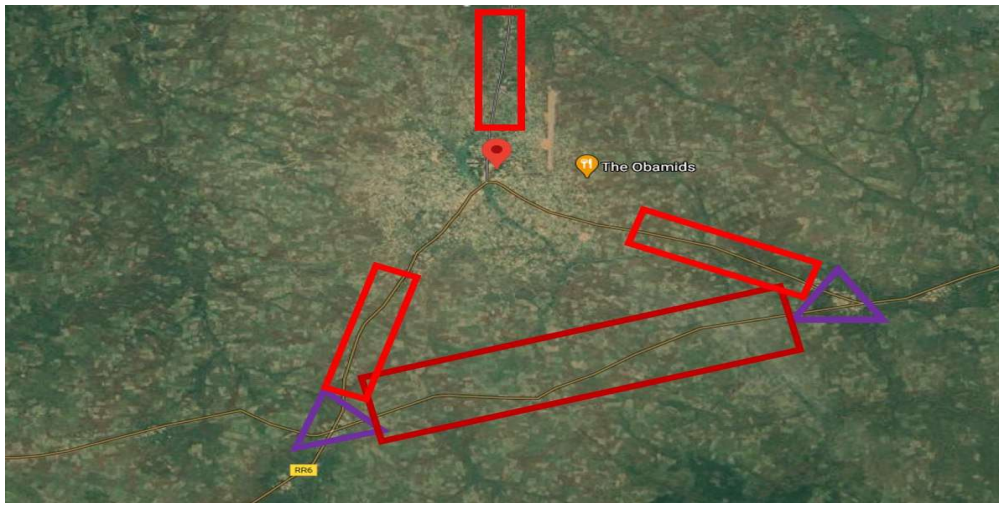
Deployment Considerations

- Launch and recovery
  - Time taken to launch and recover will vary between aircraft.
- Communications
  - Interference with other systems.
- Logistic footprint
  - Moving UAS can be difficult.
- Data storage
  - Data must be accessible.
- Aircraft safety
  - Adhering to national and/or international rules.

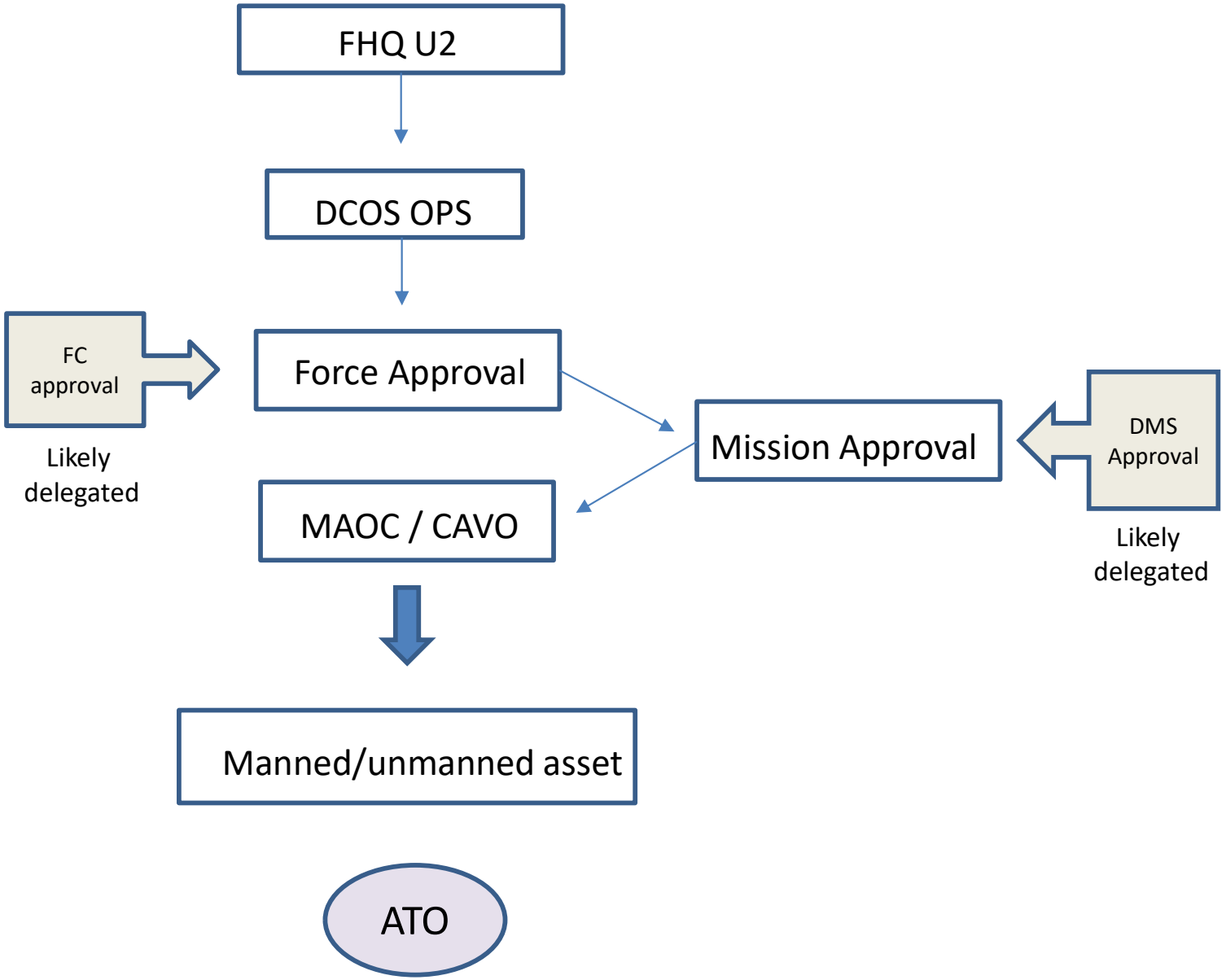


Tasking

- UAS mission management:
  - Mission Air Operations Centre (MAOC), led by the Mission's Chief Aviation Officer.
- Class II and III UAS/RPAS – U2 (ATO)
  - The ATO is a MAOC responsibility
- Class I UAS – U2 (ATO) or SOPs

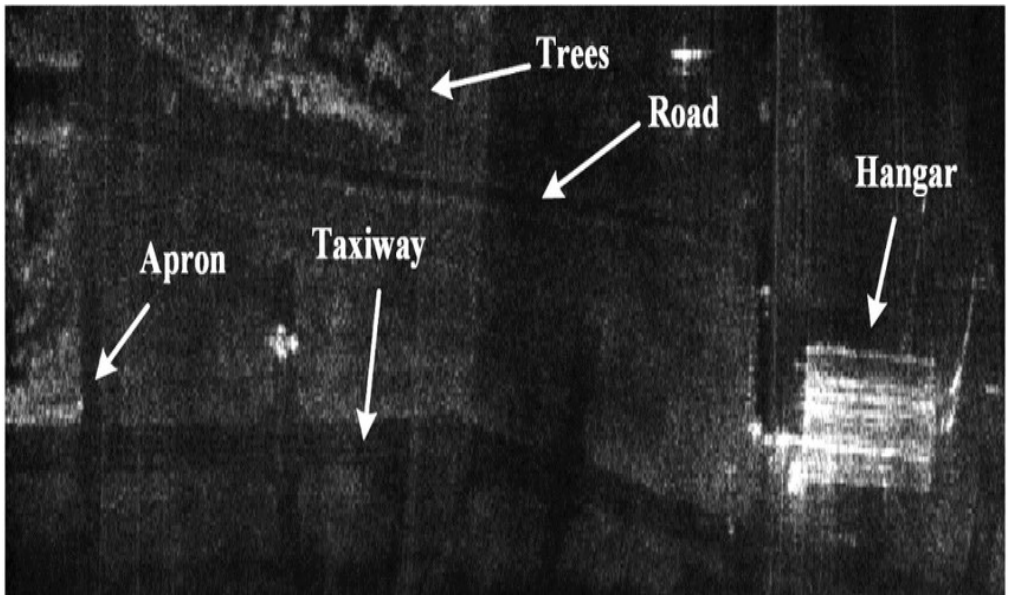


Tasking authority - example



Tasking

- Commander's intent (mission goals)
- Clear reporting lines
- Command and control



Employment of Class II / III UAS

- Tasking, by U2, is through an Air Tasking Order (ATO).
- Flights operate under UN aviation standards.
- Understand the command and control measures associated to the employment of UAS.
- The Mission is responsible for the overall airspace management coordination plan.

Employment of Class I UAS

- Operations within 8 Km from an airfield or heliport are restricted.
- Operational altitude is restricted to 400 feet above ground level.
- Visual Line of Sight (VLOS) operations only.
- Night operations need coordination with the Mission's Aviation Section
- Must not be flown close to other aircraft

Differences between UAS and manned ISR aircraft

- Same sensors – EO and SAR
- Endurance
- Response time - speed over distance
- Human engagement allows more flexibility over target areas
- Detection

Take Away

- ISR payload can vary.
- Assign the most appropriate ISR asset to the information requirement.
- Coordination between Force HQ and MAOC is essential.
- Understand the different types of manned and unmanned aircraft – this will help dynamic tasking.

Questions