

Exercises

NATO Non-lethal Technology Exercise C-UAS (NNTEX-22C)

Sardinia, Italy 14-25/03/2022



Focus on

Low-collateral damage effectors including high energy lasers, electronic warfare, nets, etc.

NATO C-UAS Technical Interoperability Exercise (TIE2022)

Vredepeel, Netherlands 13-23/09/2022



Focus on

Technical interoperability. More than 25 companies deploying more than 70 systems (sensors, effectors and C2 systems) for "time-zero" integration.



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You can find further information
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www.nato.int/cps/en/natohq/topics_77646.htm

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**NATO Emerging Security Challenges
Division**
Counter-Terrorism Section

Counter Class I Unmanned Aircraft Systems C-UAS



Date 21-03-2022 Time 09:30:12 Height 503.2 m East 542200 North 4381216 Zone 32									
Labeled Targets RADAR Targets TAKE OVER Targets									
Sources	North	East	Azimuth(°)	Range(m)	Altitude(m)	Velocity(m)	SNR(dB)	Course(°)	
4381461	541930	310.9	991	595	5.8	26.2	248.2		
4381074	541899	288.6	822	643	8.1	26.8	219.8		

Context

NATO's Brussels Summit Communiqué issued by Allied Heads of State and Government on 14 June 2021:



"We are taking into account the increasingly diverse and challenging air and missile threats from state and non-state actors ranging from simple **Unmanned Aerial Vehicles** to sophisticated hypersonic missiles."



"We are developing capabilities to protect our forces against **terrorist misuse of technology**, while capitalising on **emerging technologies to help us in the fight against terrorism.**"

What role for NATO? What is NATO doing?

- Support Allies in the development and deployment of capabilities.
- Share best practices to boost domestic security.
- Promote operational and technical operability.
- Bring together different expertise.

Programme of Work 2021-2023



On 9 July 2021, NATO Allies approved the **NATO C-UAS Work Programme**, which identifies nine work strands.

To counter the UAS threat, **coordination** is key at all levels:

- **Technical level:** coordination is key to the development of multi-domain solutions.
- **Tactical level:** coordination helps mitigate risks of blue-on-blue incidents and increase interoperability.
- **Operational level:** coordination facilitates the seamless integration of capabilities across forces.
- **Strategic level:** coordination is essential to the development of whole-of-government approaches, strategies and plans.

Deliverables

01 Building the C-UAS Community

- Engagement with different stakeholders.
- Engagement with partner countries and other International Organizations.
- Involvement of industry and academia.

02 Policy, Concepts, Doctrine: Preliminary steps towards Operational Interoperability

- NATO UAS Technical Exploitation Lexicon.
- NATO Countering Class I Unmanned Aircraft. Systems (C-UAS) Handbook.

03 Development of standards

- Development of a NATO Reference Architecture, including all the elements of a typical C-UAS system.
- C-UAS Data Exchange Format, to connect the C-UAS sub-systems (sensors, effectors, command and control).
- Through Technical Interoperability Exercise.

04 Encourage Research, Development and Operation

- Funding of exercises and activities, covering the full kill-chain (C2, detection, tracking, identification, engagement) and application of novel technologies.
- Through the NIAG study on "Low-Collateral Damage C-UAS Effectors Other Than Jammers".
- Focus on UAS exploitation.