



Integrating larger drones at airports

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*SESAR 2020 Solutions PJ03a-09 – Surface operations by RPAS and
PJ10-05 – IFR RPAS Integration Leader*

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Founding Members



RPAS in SESAR Solutions



PJ10-05: IFR RPAS Integration



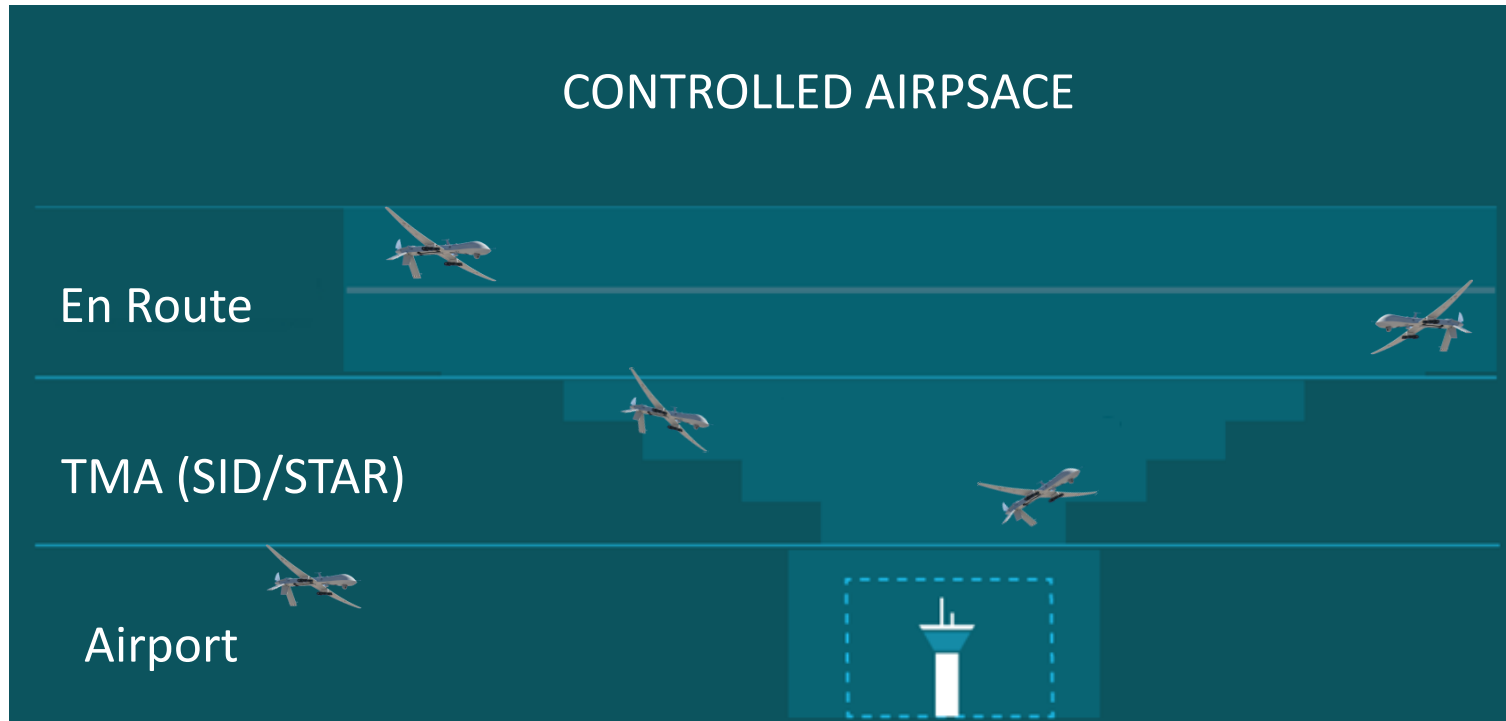
PJ03a-09: Surface Operations by RPAS



POLSKA AGENCJA ŻEGLUGI POWIETRZNEJ
POLISH AIR NAVIGATION SERVICES AGENCY



Operational environment



- Low/medium density/complexity”En-route and TMA airspace
- Others and small airports (Regional/third node)

*ATM Master Plan “operating environment”

RPAS Target Categories

EASA

“Certified” category Requirements are comparable to those for manned aviation.



EUROCONTROL RPAS CONOPS

‘Class VI’ RPAS

IFR Operations
(Network, TMA,
Airport)

Use of SID/STAR
designed for manned
a/c

Flight plan (included
contingencies,
backup comm.link)

Two way
communication link
with ATC

Meet CNS
Airspace/Airport
Requirements

D&A capability
interoperable with
ACAS systems

Scope and main objectives

Investigate ways in which RPAS may be able to use technical capabilities and procedural means to be safely integrated in ATM including compliance with ATC instructions in order to execute operations in non-segregated airspace (En-route and TMA) in IFR mode and surface operations on airports (Taxi-in/out, landing, take-off)



How?

- Development of specific Operational Service and Environment description for En-route/TMA + Airport
- Development of Technical Specifications
- Development of Cost Benefit analysis
- Execution of 11 Validation Exercises (Real Time simulations with human in the loop + Fast Time Simulations)

Way Forward: Validation Activities



**PJ10-05: IFR RPAS
Integration**



Leader	Type	Scenario	When
Eurocontrol	RTS	Malta+Italy en-route	Executed
DSNA	RTS	Bordeaux Merignac TMA	Executed
PANSA	FTS	Rzeszow TMA	Executed
Eurocontrol	RTS	Maltese cross-border airspace	Nov-May
ENAV	RTS	Italian TMA sector (Sardinia)	Mar-Apr
COOPANS	RTS	Swedish TMA sectors (Ostergotland County)	Nov-Apr



**PJ03a-09: Surface
Operations by RPAS**



Leader	Type	Scenario	When
ENAV	Gaming	Taranto Grottaglie Airport	Executed
DLR	Gaming	Stuttgart Airport	Executed
ENAIRES	FTS	Matacan Airport	Jan-Mar
ENAV	RTS	Taranto Grottaglie Airport	March
DLR	FTS	Stuttgart Airport	March

Way Forward: Validation Activities

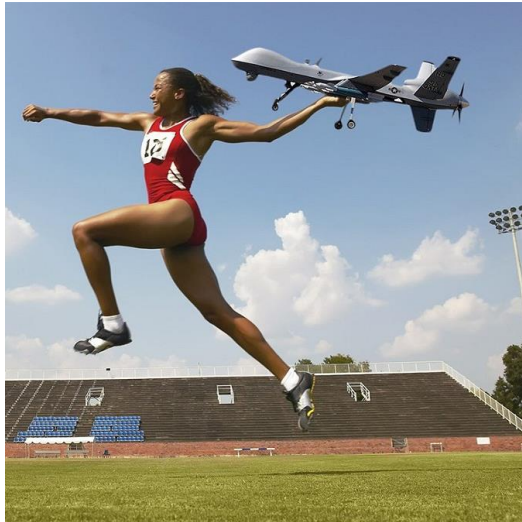


- Impact of the latency in communication considering the BRLOS operations and sat link in en-route/TMA and Airport
- Integration of class VI RPAS in non-segregated TMA (medium Density/Medium complexity) using SID and STAR
- Formulation of minimum performance requirements of RPAS for instrument procedures in TMA
- Taxi-in and Taxi out operations in non-segregated way for class VI RPAS
- Assessment of contingency procedures related to loss of C2 link and loss of comm.link in en-route/TMA and Airport.
- React of RPAS to ATCO vectoring in TMA operations considering the delay in communication and C2 link
- Provide experience and data to support validation of DAA capabilities for cooperative collision avoidance in controlled airspace
- Explore lost separation and collision scenarios by the use of DAA system on the RPAS in controlled airspace
- Assessment of Safety and Human Performance considering the participation of human actors (ATCOs, Remote Pilots) to validation activities
- Assessment of capacity at airport level for non-segregated operations with RPAS
- Provide experience and data related the HMI (Controlled working position/ Remote pilot station)
- Cost Benefit Analysis taking in consideration new business opportunity for stakeholders: ANSP, Airport Operators, RPAS Operators/Pilots

Expected Benefit for Stakeholders

Stakeholder	Expected Benefit
ANSP	<ul style="list-style-type: none"> • The possible increase of economic entrance (fees) linked to the provision of En route/TMA +Aerodrome control service for new Airspace Users (RPAS). • Appropriate integration solutions will support and ease ANSP's task to guarantee a high level of safety and efficiency also in mixed manned and unmanned traffic
Network Manager	<ul style="list-style-type: none"> • New RPAS AUs that will need NM services: (e.g Flight plan submission, management)
RPAS Industry	<ul style="list-style-type: none"> • Selling vehicle, hardware/software, systems, technological solutions, trainings related to RPAS.
Regulatory Authorities	<ul style="list-style-type: none"> • Revenues related to certifications process
RPAS Operator	<ul style="list-style-type: none"> • New business opportunity related the possibility of RPAS to operate in en route/TMA+airport • Free and equal access to controlled non segregated airspace and airport/aerodrome infrastructure
Airport Operator	<ul style="list-style-type: none"> • The increase of economic entrance (fees) linked to the provision of Aerodrome services for new AUs (RPAS). • Regional and remote airports with low traffic could benefit from an increase of operations related to this new RPAS AU

Questions?





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Thank you very much for your attention!



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