ACTIVITY 3: IFR/VFR & BVLOS – AIRSPACE ACCESS AND AIRPORT OPERATIONS

SESAR RPAS Definition Phase
Workshop N°2 – November 6th 2014
Activity #3 lead

CANSO

Partners contributing:
EDA, ASD, ONERA, Cassidian, Flighplus
Honeywell, BAE system, Onera, Thales,
Work performed so far

- Establishment of working group and agreed way ahead
- Brainstorming session to identify the main R&D priorities
- 3 webexes with interim periods for individual contributions
- Input: work plan from Ectrl and the EC roadmap
Approach

• Focus on WHAT are the research priorities and avoid providing too many details on HOW the research should be carried out.
  – Identify Research Areas
  – Identify the Questions that SESAR 2020 should answer

• We have assumed that RPAS manufacturers will do everything possible to comply with the existing aviation procedures and regulations.

• Regulation and Regulative Roadmap to be covered by EASA/JARUS
Description of work

• The top four recommended areas of research, in priority, are:

• I Airspace Access
  – I.1 RPA Categorisation / Classification
  – I.2 RPA Performance

• II Airport/Terminal Area (TMA):
  – II.1 Wake Turbulence:
  – II.2 Airport/Terminal Area

This activity might be under the responsibility of EASA/JARUS.
Context and objectives

• Remotely Piloted Aircraft Systems (RPAS) that are to operate under VFR or IFR will have to integrate into an environment which is dominated by manned aviation. To the maximum extent possible, RPAS will have to comply with the existing rules and regulations.

• This activity addresses the consequential airspace and airport integration aspects, such as, minimum performance requirements for IFR/VFR flights, separation criteria (e.g. wake turbulence, the impact of latency), airport and control zone operations, RPA categorisation/classification (including flight planning) and other ATM requirements.
Before RPAS can begin to be completely integrated, it is critical to understand and determine whether RPAS fit into the current manned aircraft classification criteria, or whether there is a need to establish a discrete RPAS classification. It is also important to understand whether or not the existing aircraft separation criterion is suited for the proposed RPAS integration.

Various metrics could be used to define a method for classifying RPAS: by kinetic energy (ground impact risk), by operating altitude (mid-air collision risk), by automation level (certification), or by mission objectives (altitude, endurance...).

Research is needed to define a classification method including but not limited to:

- **Aircraft characteristics**
  - weight (e.g. Maximum Take Off Weight)
  - wake vortex categorization
  - size (wing span, rotor diameter, etc.)
  - type of take-off and landing (Vertical Take Off and Landing, Short Take Off and Landing)
  - Other: type of propulsion

- **Performance**
  - Operating altitude,
  - Speed
  - Range (endurance)

- **Type of operations** (flight characteristics, airspace area and type of usage)

EASA/JARUS?
RPA Categorisation / Classification

- Can RPAS Conform to standard nomenclature for aircraft type identification?
- Do RPAS require an unique aircraft approach category?
- Can ATM apply existing wake turbulence criteria spacing on final approach or on departure for a complex scenario that will include RPAS?
- Can existing same runway separation criteria be applied to a mixed manned aircraft and RPAS operation? What about RPAS & RPAS operations?
- Will RPAS be able to actively participate in Land and Hold Short Operations (LAHOSO)?
- Which RPAS category can be safely integrated into controlled/uncontrolled airspace?
- Which RPAS category cannot be integrated into controlled/uncontrolled airspace?
RPA Performance

- What are the impacts of these performance characteristics will have on **Sector capacity**?
- What are the impacts of these performance characteristics will have on **Airport Capacity**?
- What are the impacts of these performance characteristics will have on **Controller workload**?
- What are the impacts of these performance characteristics will have on **Sector capacity and controller workload**, while changing the traffic mix from single or low numbers of RPAS, increasing to several RPAS within a sector at one time?
- What are the impacts of these performance characteristics will have on **System efficiency/capacity taking into consideration sector/airport capacity**?
- What are the impacts of these performance characteristics will have on **System Safety**?
Wake Turbulence

• Identify the applicability of the existing Wake Turbulence criteria as applied to RPAS and,
• If required, determine the impact of the new Wake Turbulence schema on ATM
• What will be the impact of having multiple criteria (presumed) for differing categories on ATM efficiency (e.g. arrival or departure delays caused by having to apply multiple criteria) and controller workload?
Airport/Terminal Area

- Will RPAS (IFR/VFR or VLL) be able to conduct a visual approach?
- Will RPAS (IFR/VFR or VLL) be able to comply with visual sequencing in a visual traffic pattern?
- Will RPAS (IFR/VFR or VLL) be able to be instructed to "maintain visual separation" from another aircraft?
- Will RPAS (IFR) be able to fly a standard instrument approach?
- Will RPAS (IFR/VFR or VLL) be able to make a controlled landing when beyond frequency line of sight?
- What if the Departure area is not a traditional runway?
- What would be the impact on the Airport/Terminal Area on ATM of not requiring VLL operations (VLOS, EVLOS, or BVLOS) to NOT transpond? or
- What would be the impact on the Airport/Terminal Area on ATM of not requiring VLL operations (VLOS, EVLOS, or BVLOS) to transpond
Next Steps

• Webex on 10 November to discuss RPA Categorisation and comments from program management (Eurocontrol, SJU)
  – Create awareness situation of everything operating in VLL closed to VFR or GA and come up with a flight identification system to see who is operating and where
  – Include latency issued
  – Transform questions raised into a working plan.

• Assess impact of this activity on SESAR 2020 through Exploratory Research, Industrial Research & Validation, Very Large Scale Demonstration.

• Links with other RPAS activities

• Reality Check
Thanks for your attention