



The regulatory challenges facing industry
EASA-Thales TAC
Watchkeeper Airworthiness
Analysis of TAC meetings outcomes
Tuesday 24th March 4th 2015
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- ◆ **Thales in the framework of a Technical Advice Contract (TAC) held a series of meetings related to the EASA regulatory procedures for civil type certification of Watchkeeper**
- ◆ **Thales provided EASA with a detailed introduction into the Watchkeeper system including the military certification process and the intended civil operation**
- ◆ ***Rationale;***
 - Watchkeeper is MAA certified and released to service by UK MOD
 - Watchkeeper establishes a strong basis for Civil Certification ~ EASA/UK CAA
- ◆ **WK design and test programme is compliant with, or exceeds, the majority of the requirements of the UK Military Airworthiness Standards Def Stan 00-970 (design and airworthiness requirements) and Def Stan 00-55 (software)**
 - Compliance has been assessed against NATO STANAG 4671 by the MAA
 - Certification requirements for UAS are specifically contained in Def Stan 00-970 which effectively uses NATO STANAG 4671 as the core requirements document
 - STANAG 4671 (USAR) was based on CS-23 manned civil certification standard
 - UK MAA has awarded (October 2013) Statement of Type Design Assurance (STDA) to the WK system

- ◆ **EASA provided an introduction into the main topics of Civil Certification and Operation;**
 - Organization Approvals (DOA / POA)
 - Procedures for Civil Certification
 - Procedures including restricted type certification
 - Operational aspects (airspace classes, special areas, etc.)
- ◆ **The main technical topics for discussion were:**
 - Detect and avoid
 - Automation of flight
 - Data Link system and provider (mobile, satellite, etc.)
 - Safety of complete RPAS
 - Flight Conditions for Permit to Fly
- ◆ **The desired outcomes of the TAC, as agreed with Thales were:**
 - Thales to better understand civil certification process and issues as well as civil operation
 - Identification of Special Conditions for civil certification
 - Identification of potential critical and challenging issues

- ◆ Agreement on the basis of certification
- ◆ Approach to a restricted type certification
- ◆ An audit of the Watchkeeper safety assessment process
- ◆ Design assurance and production approval process
- ◆ Required levels of autonomy and pilot interaction
- ◆ Discussions with NAA to establish type of operation



- ◆ **Fundamental to an application for civil certification would be a formal discussion to agree the Basis for Certification**
 - In the absence of RPAS airworthiness standards this would be essential to ensure a successful outcome.
 - It could act as a cut-off point beyond which an application would continue or be deferred or suspended depending on outcomes and market interest
 - This stage is considered crucial to help break the cycle of “*no market – no certification*”

- ◆ **An audit of the Watchkeeper safety assessment process should be conducted to establish the additional requirements to achieve a civil safety process**
- ◆ **An assessment of the Watchkeeper design assurance process will be required to establish the additional requirements to achieve the required equivalent civil design assurance levels**
- ◆ **To achieve civil DOA and POA, analysis of the relationship and structure of the organisations involved in Watchkeeper design and manufacture should be undertaken to establish compatibility with civil requirements**

- ◆ **Levels of autonomy and pilot interaction will need to be established in order to satisfy civil legal requirements for timely pilot intervention to the flight process**
- ◆ **Discussions with the national aviation authorities would be required to establish an acceptable civil type of -operation for Watchkeeper**
- ◆ **Discussions with EASA to establish the extent of fees and charges for an application for civil certification should be undertaken**

Restricted airspace



Certified by UK
MAA for operations
in restricted
airspace

Controlled airspace

DAA with collision avoidance

Regulated

- EASA Airworthiness and type certification x 11 requirements
- System safety approval (AMC 1309)
- Flight crew licencing
- C2 approval
- Operator authorisation

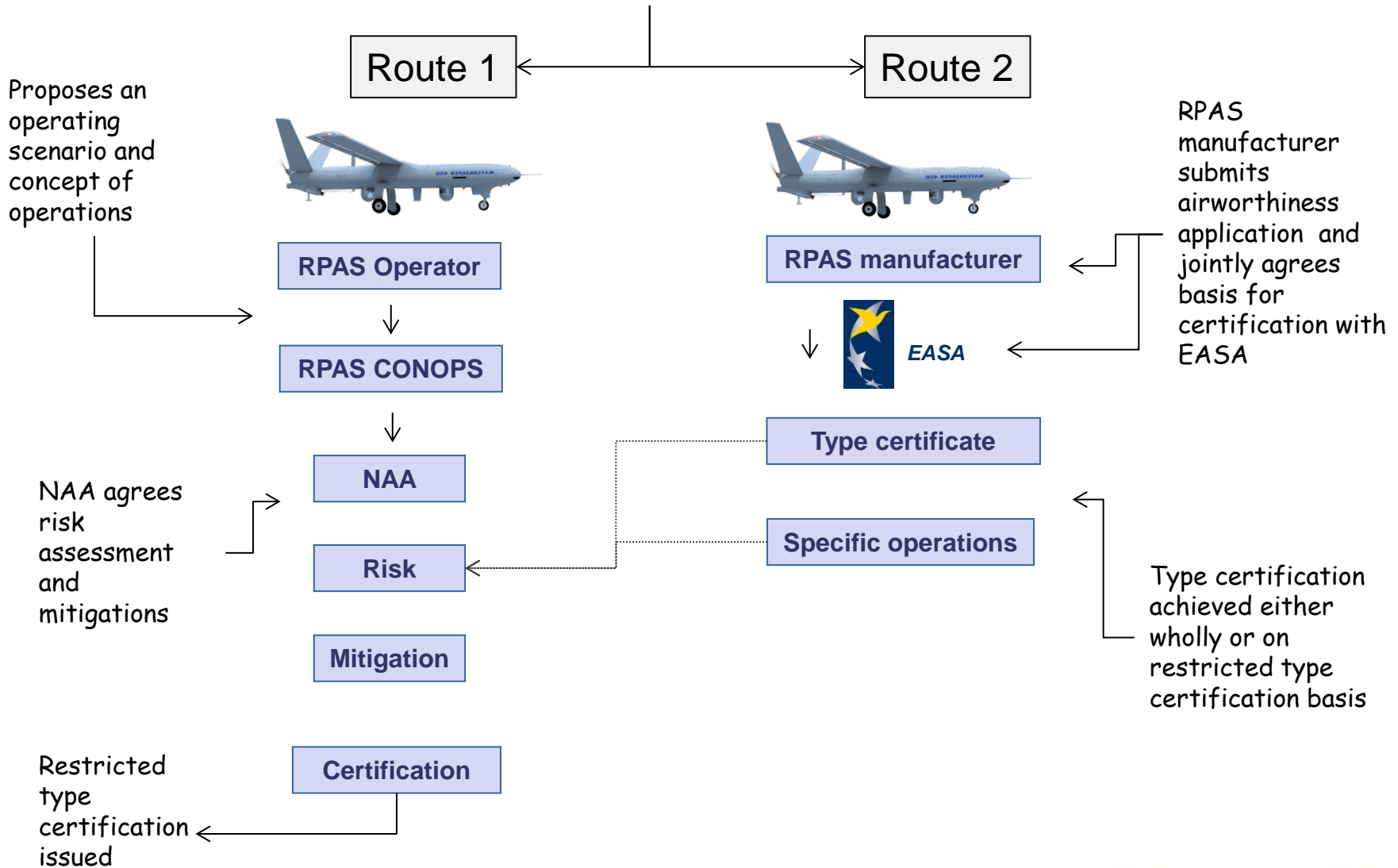


Specific approval

- Airworthiness: Risk mitigation
- Licencing: Specific training
- C2: demonstrations
- Operator authorisation: with limitations



A route to certification





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That completes
EASA-Thales TAC
Watchkeeper Airworthiness
Summary of TAC meetings analysis