

# ***UAVs IN CONTROLLED AIRSPACE – THE SOUTH AFRICAN PERSPECTIVE***

## ***UAV 2002***



***KENTRON UAV SYSTEMS***



| Report Documentation Page                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                    |                                     |                                            | Form Approved<br>OMB No. 0704-0188          |                                    |
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# **SCOPE**

- **INTRODUCTION**
- **UAV AIR TRAFFIC MANAGEMENT FORUM**
- **SA AVIATION LEGISLATION CHANGE**
- **CURRENT UAV ATM REGULATIONS (CONCEPT)**
  - **CERTIFICATION**
  - **OPERATOR QUALIFICATIONS**
  - **AIRSPACE PRINCIPLES FOR UAVs**
  - **MALE/HALE OPERATIONS**
  - **CAA POLICY STATEMENT**



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# ***INTRODUCTION***

- **UAVs Operating in Controlled Airspace Since 1994.**
- **Debate: Military vs Civil Operations.**
- **Minimum Equipment Required to Operate in Controlled Airspace.**
- **Same ATM Procedures From 1994 – 2000.**
- **UAVs Restricted to IFR Levels, Not VFR Levels.**
- **Foreign Armed Forces UAV Training in South Africa  
Created Paradigm Shift for CAA wrt UAVs in Controlled  
Airspace.**



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# ***UAV AIR TRAFFIC MANAGEMENT FORUM***

- Requirement Identified by CAA to Review the Gap in UAV ATM Procedures.
- 2. ATNS requested to establish forum consisting of:
  - *South African Air Force.*
  - *Kentron UAV Systems.*
  - *Civil Aviation Authority.*
  - *Air Traffic and Navigation Services.*
- 3. Consensus to Amend Aviation Legislation to Include UAVs as Independent Aircraft Type – Finalised by 2003.
- 4. Utilise Inputs from UCARE Concept of Operations .



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# ***SOUTH AFRICAN AVIATION LEGISLATION CHANGE***

- 2001 Division of Airspace Sectors - Flexible Use of Airspace Concept.
- 3 Main FIRs in South Africa – Improved VHF Comms Network with Strategically Placed Repeaters Countrywide.
- All Airspace Requirements Managed by CAMU.
- CAA is Policy Maker, ATNS runs Airspace Management.
- Emphasis shifted from Military vs Civilian Operations to Manned vs Unmanned Operations.



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# ***CONCEPT UAV ATM REGULATIONS***

## **CERTIFICATION**

- ***Establish Airworthiness Requirements***
- ***Approval of Navigation Systems and Other Equipment***
- ***Response/Reaction Times***
- ***Security of Payload/Control Links***
- ***Ground Station***
- ***Emergency Procedures***
- ***Failure/Termination Modes***
- ***Blackbox (Retrievable Downlink)***
- ***ATC Communication System and Functions***



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# ***CONCEPT UAV ATM REGULATIONS***

## **OPERATOR QUALIFICATIONS**

- ***No Regulations Governing UAV Operator Qualifications***
- ***Crew Licensed and Appropriately Rated – Instrument Rating Endorsed “UAV”***
- ***CAR to Specify Required Levels of Training and Proficiency:***
  - ***Aeronautical Knowledge***
  - ***Knowledge of Flight Critical Systems of Specific UAV Type***
  - ***Manned Aircraft Pilot Qualifications***
  - ***UAV Flight Training Levels***
  - ***Flight Proficiency and Currency for UAVs***
  - ***ATM Knowledge***



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# **CONCEPT UAV ATM REGULATIONS**

## **AIRSPACE PRINCIPLES FOR UAV OPERATIONS**

- UAVs to Meet Same or Better Safety Standard as Manned Aircraft
- UAV Operators to Act Within Existing Aviation Regulations
- Information on Airspace Regulations to be sought from the CAMU
- No Different ATM Procedures for UAVs
- All UAV Callsigns to include the word “UNMANNED”
- UAVs will Operate IFR under CLoS
- “*See and Avoid*” will be termed “*Sense and Avoid*”
- Approved TCAS Systems for UAVs in the FIR and Controlled Airspace
- Collision Avoidance Rules Apply to all Flights under IFR with ATC Clearance and VFR



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# ***CONCEPT UAV ATM REGULATIONS***

## **HALE/MALE UAV OPERATIONS**

- ***South Africa has no Current Requirement***
- ***CAA and ATNS aware of Probable Operations in South African Airspace***
- ***ATM Based on Same Principle as for Tactical UAVs***
- ***Provision to be made in Aviation Legislation to Accommodate HALE/MALE Platforms***



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# ***CONCEPT UAV ATM REGULATIONS***

## **CAA POLICY STATEMENT**

***UAVs WILL BE CONSIDERED AS MANNED  
AIRCRAFT IN ALL OPERATIONAL ASPECTS***



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