

***UAVs IN CONTROLLED
AIRSPACE - THE SOUTH
AFRICAN PERSPECTIVE***

UAV 2002



KENTRON UAV SYSTEMS



Report Documentation Page

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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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SEEKER II



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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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