

INTERNATIONAL CIVIL  
AVIATION ORGANIZATION

ORGANIZACIÓN DE AVIACIÓN  
CIVIL INTERNACIONAL



ORGANISATION DE L'AVIATION  
CIVILE INTERNATIONALE

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Ref: ES AN 4/44 - 0542

15 July 2004

**Subject: Regional RVSM Training Course**

**Action required: Reply by 31 July 2004**

Sir/Madam,

I have the honour to draw your attention to State letter Ref. ES AN 4/44 – 0399 dated 28 May 2004 (copy attached). AFI RVSM Task Force/2 meeting Conclusion 2/7 *inter alia* advocated as follows:

**Conclusion 2/7: Training of all personnel involved with the implementation of RVSM in the AFI Region**

**That:**

**ICAO and IATA explore the possibility of assisting States of the AFI Region through a Special Implementation Project (SIP) for training of personnel involved with the implementation of RVSM in the AFI Region.**

A Regional AFI ATS training program has been developed to support the implementation of RVSM and the intent is to train two controllers per State prior to RVSM implementation on 20 Jan 2005. The course will be conducted in English in South Africa from 23-27 August 2004. The Instructors who have attended the AFI Regional Training Course will be responsible for the delivery of the training in their respective States.

IATA has kindly agreed to pay for the tuition fees at the ATNS Academy and States/Service Providers will be responsible for travel and DSA for their respective participants.

In view of the above your administration is invited to confirm, as soon as possible but not later than **31 July 2004**, that the nominated two (2) Air Traffic Controllers who have the above qualifications will attend the course.

Accept, Sir/Madam, the assurances of my highest consideration.



Lot Mollel  
Regional Director

**Attachment:**

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Ref: ES AN 4/44 - 0399

28 May 2004

**Subject: Regional RVSM Training Course**

**Action required: Reply by 25 June 2004**

Sir/Madam,

I have the honour to draw your attention to APIRG/14 meeting held in Yaounde, Cameroon, from 23 to 27 June 2003 and State letter Ref. ES AN 4/45 – 0877 dated 16 December 2003 (copy attached). APIRG/14 Conclusion 14/21 and AFI RVSM Task Force/2 meeting Conclusion 2/7 *inter alia* advocated as follows:

**Conclusion 14/21: Implementation of RVSM in the AFI Region:**

**That:**

**States do their utmost to implement RVSM in selected airspaces, as per plan by AIRAC cycle date of 20 January 2005 concurrently with the CAR/SAM Region.**

**Conclusion 2/7: Training of all personnel involved with the implementation of RVSM in the AFI Region**

**That**

**ICAO and IATA explore the possibility of assisting States of the AFI Region through a Special Implementation Project (SIP) for training of personnel involved with the implementation of RVSM in the AFI Region.**

.../2...

The safety requirement associated with the ATS training is to show that all relevant staff have been appropriately trained in RVSM procedures and are competent to operate within an RVSM environment. It is therefore essential that ATS providers recognize their responsibilities for the competence of Air Traffic Controllers (ATC) in the provision of ATS in RVSM airspace.

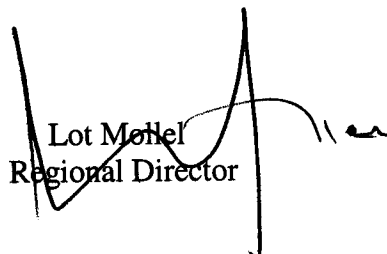
A Regional AFI ATS training program has been developed to support the implementation of RVSM. This detailed program subdivides into main activities and shows that it is the intent to train all controllers licensed in RVSM airspace sectors prior to RVSM implementation on 20 Jan 2005. The RVSM course material for a period of five days and training schedule are attached. The course will be conducted in English.

You may wish to note that ASECNA and ATNS have been identified to lead, prepare and deliver AFI Regional RVSM training. You are aware that RVSM relates primarily to the Area Control/En-route environment, and course participants should ideally hold valid Area Control and/or Area Radar ratings and should have completed a course in Instructional Techniques. Participants should preferably be instructors at a civil aviation training center or OJT instructors. The Instructors who have attended the AFI Regional Training Course will be responsible for the delivery of the training in their respective States.

IATA has kindly agreed to pay for the tuition fees at the ATNS Academy and States/Service Providers will be responsible for travel and DSA for their respective participants.

In view of the above your administration is invited to nominate, as soon as possible but not later than **25 June 2004**, two (2) Air Traffic Controllers who have the above qualifications to attend the course.

Accept, Sir/Madam, the assurances of my highest consideration.

  
Lot Mohel  
Regional Director

**Attachments:**

## **Attachment A:**

**Course Aim:** The course will equip participants with the knowledge, skills and attitudes required to provide air traffic services in the designated RVSM and transition airspaces within the AFI Region, after completion of a period of on-the-job-training as prescribed by the specified national authority.

**Delivery Method:** The training will be delivered by means of theoretical lectures, classroom exercises and practical simulator exercises.

**Language:** The course will be delivered in the English language.

**Target population:** Supervisors and air traffic controllers providing Area within the designated AFI RVSM and transition airspace.

**Pre-requisite Learning:** Trainees should hold valid Area Procedural and/or Area Radar ratings.

**Course Duration:** Five days, consisting of:

- Nine (9) periods of theoretical lectures and one period of theory assessment.
- Twenty four (24) periods of practical, which includes one (1) assessment per delegate.
- Two periods for course administration.

**Assessment criteria:** Trainees are required to successfully complete:

- A written assessment, by achieving seventy (70) percent or more.
- A practical assessment, by achieving seventy (70) percent or more.

Trainees will be allowed a once off reassessment in each of the assessments, provided that a score of at least fifty (50) percent is achieved on the first attempt. Reassessments must be completed during the normal duration of the course.

### **1. Historical Background of RVSM. (Duration: 1 Period)**

This module will provide the trainees with an awareness of the historical development of RVSM in ICAO and an overview of RVSM implementation in the NAT Region and Europe.

- 1.1 Topic: The Origins of 2000 feet above FL 290.**
- Objective:** Trainees will be aware of the origins of 2000 feet above FL 290.
- Content:**
- Determination of the Vertical Separation Panel in June 1954.
- 1.2 Topic: Development of RVSM in the NAT Region and Europe.**
- Objective:** Trainees will be aware of RVSM implementation in the NAT Region and Europe.
- Content:**
- ICAO feasibility study during the 1970's for RVSM above FL290.
  - NAT Region MNPS.
  - European implementation:
    - Safety implications.
    - Traffic complexity.
    - Categories of aircraft types.
    - Percentage of aircraft climbing/descending.
    - Stakeholders.
- 1.3. RVSM in AFI Region.**
- 1.3.1 Topic: Background of RVSM in AFI.**
- Objective:** Trainees will be aware of the background to RVSM in AFI.
- Content:**
- Extension of RVSM in AFI Region.
- 1.3.2 Topic: The need for RVSM in AFI Region.**
- Objective:** Trainees will be aware of the need for RVSM in AFI Region.
- Content:**
- APIRG endorsement.
  - Aspects that need to be considered for RVSM implementation in the AFI Region.
  - Cost/benefit analysis.
  - Operational advantage of RVSM.
- 1.3.3 Topic: The RVSM programme organisation in the AFI Region.**
- Objective:** Trainees will be aware of the organisation and structures for RVSM in the AFI Region.
- Content:**
- AFI RVSM Programme.
  - Programme management.
  - Aircraft operations and airworthiness.
  - ATM.
  - RVSM safety assurance.
  - RMA.
  - National RVSM Programme.

## **2. Aircraft Requirements and Approval. (Duration: 1 Period)**

This module will provide the trainees with an awareness of the requirements and processes for the certification and approval of aircraft to operate in designated RVSM airspace within the AFI region.

### **2.1 RVSM Approval Process.**

#### **2.1.1 Topic: Aircraft requirements.**

**Objective:** Trainees will be aware of the aircraft requirements for RVSM approval.

**Content:**

- MASPS
- MEL
- Approved maintenance.

#### **2.1.2 Topic: Operator responsibilities .**

**Objective:** Trainees will be aware of the responsibilities of aircraft operators.

**Content:**

- Flight crew training.
- Operating procedures.
- RVSM status on AOC.

#### **2.1.3 Topic: State Approval**

**Objective:** Trainees will be aware of the State approval process.

**Content:**

- Responsibility the state of the operator/registry.
- Validity of approval.

## **3. Safety and Monitoring. (Duration: 1 Period)**

This module will provide the trainees with an awareness of the safety case and monitoring of RVSM

### **3.1 Safety.**

#### **3.1.1 Topic: Collision Risk Model (CRM).**

**Objective:** Trainees will be aware of the CRM.

**Content:**

- Height keeping performance.
- Airspace parameter characterising.
- Aircraft speed and length.

### **3.2 Monitoring.**

#### **3.2.1 Topic: The need for monitoring.**

**Objective:** Trainees will be aware of the need to monitor.

- Content:**
- TLS.
  - Efficacy of RVSM MASPS.

**3.2.2 Topic: Height Monitoring.**

**Objective:** Trainees will be aware of the aspects of height monitoring.

- Content:**
- Total vertical error (TVE).
  - Assigned altitude deviation (AAD).
  - Altimetry system error (ASE).
  - The AAD/ASE relationship.

**3.2.3 Topic: Height Monitoring Systems.**

**Objective:** Trainees will be aware of the height monitoring systems.

- Content:**
- HMU.
  - GMU.

**4. Flight Planning. (Duration: 1 Period)**

This module will provide the trainees with an awareness of the flight planning elements of RVSM.

**4.1 Flight Planning.**

**4.1.1 Topic: Flight plans (FPL).**

**Objective:** Trainees will be aware of the RVSM requirements for FPLs.

- Content:**
- RVSM specific inclusions for FPLs.

**4.1.2 Topic: Repetitive flight plans (RPL).**

**Objective:** Trainees will be aware of the RVSM flight planning requirements for RPLs.

- Content:**
- RVSM specific inclusions for RPLs.

**5. Operational Procedures. (Duration: 3 Periods)**

**5.1 General Procedures.**

**5.1.1 Topic: General Procedures.**

**Objective:** Trainees will explain the general procedures for operations within AFI RVSM airspace.

- Content:**
- Definition of OAT.
  - Definition of GAT.
  - ACAS Version 6.04a and Version 7.
  - Flight level allocation scheme (FLAS).



- Minimum vertical separation between RVSM aircraft.
- Minimum vertical separation between non-RVSM aircraft and any other.
- Vertical separation minimum for transition task.
- Formation flights by civil aircraft and State aircraft.
- Flight level allocation to non-RVSM approved aircraft other than State aircraft.

**5.1.2 Topic: ATM System Support.**

**Objective:** Trainees will explain the ATM Systems Support requirements for RVSM.

- Content:**
- FDP systems.
  - RDP systems.
  - Flight progress strips.
  - OLDI.
  - STCA.
  - MTCB.

**5.1.3 Topic: Inter-Centre Co-ordination.**

**Objective:** Trainees will explain the inter-centre co-ordination requirements.

- Content:**
- Computer assisted co-ordination of estimate messages.
  - Verbal co-ordination of estimate messages.

**5.1.4 Topic: Vertical Spacing from Prohibited, Restricted, Danger and Temporary Segregated Areas.**

**Objective:** Trainees will explain the minimum vertical spacing associated with activity within Prohibited, Restricted, Danger and Temporary Segregated Areas.

- Content:**
- Delineation of airspace restrictions.
  - Vertical spacing requirements.

**5.2 Transition Procedures.**

**5.2.1 Topic: Traffic entering RVSM airspace.**

**Objective:** Trainees will explain the procedures applicable to aircraft entering AFI RVSM airspace.

- Content:**
- Responsibility.
  - Vertical separation minimum.
  - Flight level allocation.

**5.2.2 Topic: Traffic exiting RVSM airspace.**

**Objective:** Trainees will explain the procedures applicable to aircraft leaving AFI RVSM airspace.

- Content:**
- Responsibility.
  - Vertical separation minimum.
  - Flight level allocation.

**5.2.3 Topic: Aircraft landing within the lateral limits of RVSM airspace.**

**Objective:** Trainees will explain the procedures applicable to aircraft landing within the lateral limits of RVSM airspace

- Content:**
- Responsibility.
  - Flight level allocation.

**5.2.4 Topic: Aircraft landing outside and transiting the lateral limits of RVSM airspace.**

**Objective:** Trainees will explain the procedures applicable to aircraft landing outside, and transiting the lateral limits of, RVSM airspace.

- Content:**
- Responsibility.
  - Flight level allocation.

**5.3 Topic: Contingency Procedures.**

**Objective:** Trainees will explain the RVSM contingency procedures.

- Content:**
- Overview.
  - Equipment related procedures.
  - Weather related procedures.
  - Loss of separation procedures.

**5.3.1 Topic: Communications Failure in transition airspace.**

**Objective:** Trainees will explain the procedures applicable to aircraft within AFI RVSM transition airspace.

- Content:**
- ICAO Communication Failure Procedure.

**5.3.2 Topic: Communications Failure in Non-Transition RVSM Airspace**

**Objective:** Trainees will explain the procedures applicable to non-transition RVSM airspace.

- Content:**
- ICAO Communication Failure Procedure.

**6. Phraseology. (Duration: 1 Period)**

This module will provide the trainees with an appreciation for, and the ability to apply, correct RVSM phraseologies for use between controller/pilot and inter/intra ATSU.

**6.1 Phraseology.**

**6.1.1 Topic: Flight operations within the AFI RVSM airspace.**

**Objective:** Trainees will utilise the correct controller-pilot RTF phraseology for given situations.

- Content:**
- To ascertain RVSM approval status.
  - Pilot indication of non-RVSM approval status.
  - Denial of clearance into RVSM airspace.
  - Non-compliance with RVSM due to turbulence.
  - Non-compliance with RVSM due to equipment failure.
  - Pilot indication of ability to resume RVSM operations.
  - Controller request for pilot ability to resume RVSM operations.

**6.1.2 Topic: Co-ordination between ATS Units.**

**Objective:** Trainees will utilise the correct phraseology to be used in inter-unit co-ordination messages.

- Content:**
- Supplementary information to automated message exchange without Item 18.
  - **Supplementary information on non-RVSM approved aircraft.**
  - Supplementary information on contingency aircraft.

## **7. Simulated Practical Exercises. (Duration: 24 Periods)**

This module will allow the trainees the opportunity to practice and demonstrate competence in various aspects related to RVSM in the operational environment.

**7.1 Topic: Simulated practical exercises.**

**7.1.1 Topic: Exercise 1.**

**Objective:** Introduce trainees to the application of RVSM in designated RVSM airspace.

- Content:**
- RVSM approved aircraft.
  - Application of information indicated on flight progress strips and radar displays, where applicable.
  - Phraseology.
  - Co-ordination with other sectors where RVSM is applied.

**7.1.2 Topic: Exercise 2.**

**Objective:** Introduce trainees to the application of RVSM in designated RVSM and adjoining transition airspace.

- Content:**
- RVSM approved and State aircraft.
  - Non-RVSM approved aircraft.
  - Application of information indicated on flight progress strips and radar displays, where applicable.
  - Phraseology.
  - Co-ordination with other sectors where RVSM is applied and transition airspace.

**7.1.3 Topic: Exercise 3.**

**Objective:** Introduce trainees to the application of RVSM in designated RVSM and adjoining transition airspace, whilst accommodating contingency procedures related to onboard equipment malfunction.

- Content:**
- RVSM approved and State aircraft.
  - Non-RVSM approved aircraft.
  - Phraseology.
  - Application of information indicated on flight progress strips and radar displays, where applicable.
  - Co-ordination with other sectors where RVSM is applied and transition airspace.
  - Contingency procedures related to onboard equipment malfunction.

**7.1.4 Topic: Exercise 4.**

**Objective:** Introduce trainees to the application of RVSM in designated RVSM and adjoining transition airspace whilst accommodating contingency procedures related to weather.

- Content:**
- RVSM approved and State aircraft.
  - Non-RVSM approved aircraft.
  - Phraseology.
  - Application of information indicated on flight progress strips and radar displays, where applicable.
  - Co-ordination with other sectors where RVSM is applied and transition airspace.
  - Contingency procedures related to weather.

**7.1.5 Topic: Exercise 5.**

**Objective:** Assess trainees in the application of RVSM in designated RVSM and adjoining transition airspace whilst accommodating contingency procedures related to weather and onboard equipment malfunction.

- Content:**
- RVSM approved and State aircraft.
  - Non-RVSM approved aircraft.
  - Phraseology.
  - Application of information indicated on flight progress strips and radar displays, where applicable.
  - Co-ordination with other sectors where RVSM is applied and transition airspace.
  - Contingency procedures related to weather.

The assessment will be based only on the objectives related to RVSM. The aspects related to normal VSM and ATC operations will not be assessed since trainees will be competent on those aspects.

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**Attachment B:**

<b>AFI REGIONAL ATS RVSM TRAINING COURSE DATES: SOUTH AFRICA ATNS TRAINING ACADEMY</b>		
<b>COURSE NUMBER</b>	<b>COMMENCEMENT DATE</b>	<b>COMPLETION DATE</b>
0420104	26/07/2004	30/07/2004
0420204	16/08/2004	20/08/2004
0420304	23/08/2004	27/08/2004
0420304	30/08/2004	03/09/2004
0420504	06/09/2004	10/09/2004
0420604	13/09/2004	17/09/2004
0420704	27/09/2004	01/10/2004
0420804	04/10/2004	08/10/2004

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Ref: ES AN 4/45 - 0877

16 December 2003

Subject: **Report of the Second Meeting of RVSM/RNAV/RNP Task Force  
(Dakar, 19 - 21 November 2003)**

Sir/Madam,

I have the honour to forward herewith the report of the Second Meeting of the RVSM/RNAV/RNP Task Force (RVSM/RNAV/RNP/TF/2) which was held in Dakar from 19 to 21 November 2003.

I would be grateful if you could take remedial actions on the areas that concern your State.

Accept, Sir/Madam, the assurances of my highest consideration.

  
Lot Mollel  
Regional Director

Attachment: **Report of the Second RVSM/RNAV/RNP Meeting**