



ICAO

**SEVENTH MEETINGS OF THE SAT IMPLEMENTATION MANAGEMENT GROUP (SAT IMG/7)
AND
SAT SAFETY OVERSIGHT GROUP (SAT SOG/7)**

Dakar, 6-10 April 2026

Agenda Item 6: SAT Collision Risk Assessments (CRA)

6.b) Monitoring and Safety events reporting

LHD REPORTS – THE EUR/SAM CORRIDOR (2025)

(Presented by LHD Reporting Team – The EUR/SAM Corridor)

SUMMARY	
This information paper presents the LHD data reported by the LHD Reporting Team, ARMA and CARSAMMA, which were used by SATMA as input for the development of the CRA for the EUR/SAM corridor for 2025.	
<i>Strategic Objectives</i>	<i>A – Every Flight is safe and secure.</i> <i>E – Aviation Delivers Seamless, Accessible, and Reliable Mobility for All.</i>

1 INTRODUCTION

1.1 In 2025, SATMA received a total of 25 Large Height Deviation (LHD) reports, submitted either by the LHD Reporting Teams of the States and/or ANSPs concerned. These reports were processed within the framework of the collaborative arrangements established among the Regional Monitoring Agencies (RMAs), namely CARSAMMA and ARMA, supporting the safety oversight activities conducted in the EUR/SAM Corridor.

2. DISCUSSION

2.1. ICAO Doc 9574 RVSM Implementation Manual specifies that ATC authorities are responsible for reporting Large Height Deviations (LHD) to the responsible Regional Monitoring Agency (RMA). The RMA will use this information to assess the overall risk of RVSM airspace as LHDs are main contributing factors to the risk of mid-air collision.

2.2. ICAO Doc 10063 Manual on Monitoring the Application of Performance-based Horizontal Separation Minima defines Large lateral deviation (LLD) and Large longitudinal error (LLE) where the performance-based separation is applied. It is not applied in the EUR/SAM Corridor.

3 ANALYSIS

3.1. LHD Reporting Teams analysed all LHD reports received from State and ANSP, together with those provided by the relevant RMAs (ARMA and CARSAMMA), to assess the overall safety risk of RVSM operations in the EUR/SAM Corridor.

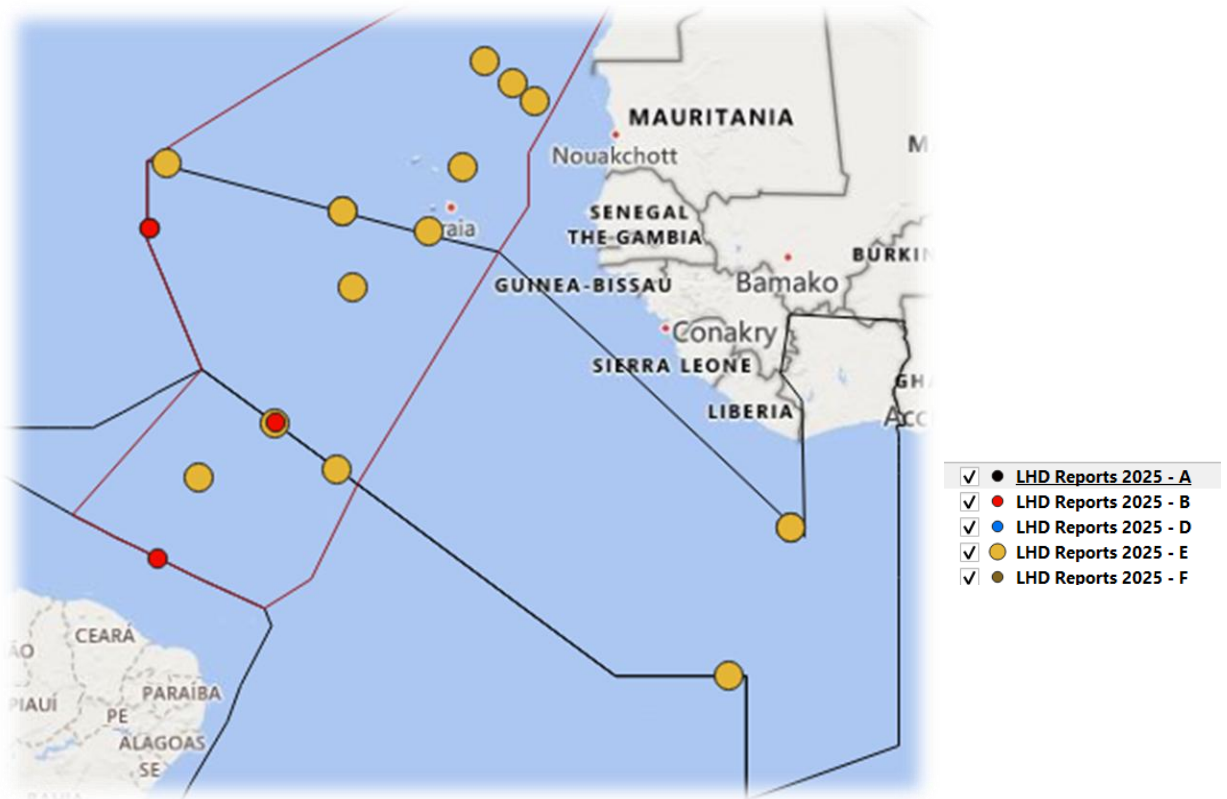
3.2. Six reported deviations were excluded from the assessment as they occurred outside the RVSM airspace within the EUR/SAM Corridor. The analysis indicates a stable safety performance, with no variation observed in the number of reported LHDs.

AREA	2025	% TOTAL	2024	VAR %
Corridor	10	41.7%	11	-10%
DCT AREA	7	29.2%	6	14%
OUT	6	25.0%	4	33%
TOTAL	23	-	21	9%

Table 1.- Total LHD reports received by SATMA (2025 vs 2024)

3.3. In the whole of EUR/SAM Corridor there is safety culture based on reporting and providing operational data for the assessment of each occurrence. The key for this excellent job is the participation of the LHD Monitoring Team sending reports as well as the collaboration with the others RMAs: ARMA and CARSAMMA.

3.4. Next picture shows a geographical representation of the mentioned above. The localization of the LHD is not relevant for CRM, nevertheless, it must be highlight **that only 58.8 % were over airways**.



Picture 1. Localization of LHD deviations in the EUR/SAM Corridor 2025

3.5. Following the analysis of the deviation reports within the assessed airspace, it is concluded that the recorded deviations can be classified in accordance with ICAO definitions and criteria, as outlined below.

TYPE	2025	%	Impact 2025	2024	Impact 2024
A		0.0%			
B	6	35.3%	0	2	3 FL
C		0.0%			
E	11	64.7%	180	15	270
F				1	
TOTAL	17	-	180	18	270

Table 2.- Type of deviation analysed by SATMA (2025)

3.6. The most common operational error was E “Coordination errors in the ATC-to-ATC transfer of control responsibility as a result of human factors issues”, 11 cases (65% of the total.). This figure is kept although its contribution to risk assessment has been reduced. The main mitigation, of E LHDs, has been ADS-C and CPDLC.

3.7. In this period, 2026, it has been remarkable six B deviations “Flight crew climbing/descending without ATC Clearance” which one has contributed significantly for time and flight levels in incorrect way. The main mitigation, of B LHDs, has been also ADS-C and CPDLC.

3.8. On the other hand, it can be concluded that their contributing to the risk assessment is the following.

AFFECTED DEVIATION FIR	YEAR	DURATION (Seg)	DEVIATION (ft)	Number FL (Wrong)
SAT AREA	2025	180	2,000	0
	2024	270	2,000	3

Table 3.- LHD’s Contribution to CRA in the EUR/SAM corridor (2025)

4. PROPOSAL OF SAFETY PROCEDURES

4.1 Ongoing regional programmes in the SAT Area, such as PBCS and AIDC/OLDI, are aimed at enabling reductions in aircraft separation minima, with the objective of optimising the use of flight levels and longitudinal separations within the corridor. In this context, it is recalled that previous recommendations already issued by SATMA in SATs/SOG01 are intended to mitigate, or where possible prevent, the occurrence of LHD.:

- There are not data link mandate in the EUR/SAM Corridor, however it is recommended the use of ADS-C and CPDLC to increase the awareness when if possible. In this way, any inconsistency of flight level information between the ADS-C track with the previous estimate should be confirmed by the receiving ACC. In fact, this has been the main mitigation for LHDs.
- It is already established SLOP for aircrafts flying along the SAT Area - EUR/SAM Corridor: IATA’s campaign in the SAT Area has contributed to achieve it. It could be needed to combine with no Flight level change close the Cross-Boundary when there is impossible, difficult or incomprehensive radio/CPDLC communication as well as doubt or impossible confirmation of any clearance issued by ATC.

- c) On the other hand, lack of information is the worst enemy for Safety. Under this point of view, it becomes essential to reinforce LHD/LLD/LLE investigations and reports:
 - i. The systematic manner it should be provided any report to ARMA/CARSAMMA/SATMA about all Large detected deviation in the respective ACC/flight. A recommended practice would be to inform even if no LHD has any operational impact.
 - ii. Including material in training session for air traffic controller/crew to promote awareness and reporting of large deviation (LHD/LLD/LLE).**
 - iii. The LLD/LLE are not considered in the current operation in the EUR/SAM Corridor. However, it is needed to start its awareness.

4.2 The LHD Reporting Team/SATMA note that, with a view to reducing B-LHD occurrences, it recommends that flight crew training on CPDLC and PBCS operational environments be refreshed and reinforced, where necessary.

5. NEXT STEPS

5.1 SATMA, in collaboration with ARMA/CARSAMMA and the SAT RMA Harmonization/Standardization Project Team, will establish and share with the ANSPs the procedures for reporting LLE/LLD in accordance with applicable ICAO documentation.

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