Twenty-second Meeting of the AFI Planning and Implementation Regional Group & Fifth Meeting of the Regional Aviation Safety Group for the AFI Region (APIRG/22 and RASG-AFI/5/4) (Accra, Ghana, 29 July – 02 August 2019)

Agenda Item 3: Regional Activities related to APIRG/RASG-AFI/AFI Plan common areas (RVSM Airspace Safety)

3.1 COLLISION RISK ASSESSMENT No.12 RESULTS AND WAYS TO REDUCE COLLISION RISK LEVELS IN AFI REGION

(Presented by the AFI Regional Monitoring Agency - ARMA)

SUMMARY
This working paper briefly discusses the outcome of the AFI Collision Risk Assessment # 12 which has been largely influenced by the work of AFI Tactical Action Group. It also provides guidance to the region on ways to reduce the collision risk levels in the RVSM airspace.
REFRENCE(S): AFI Collision Risk Assessment 12 Report.
Related ICAO Strategic Objective(s): A, B, E

1. INTRODUCTION

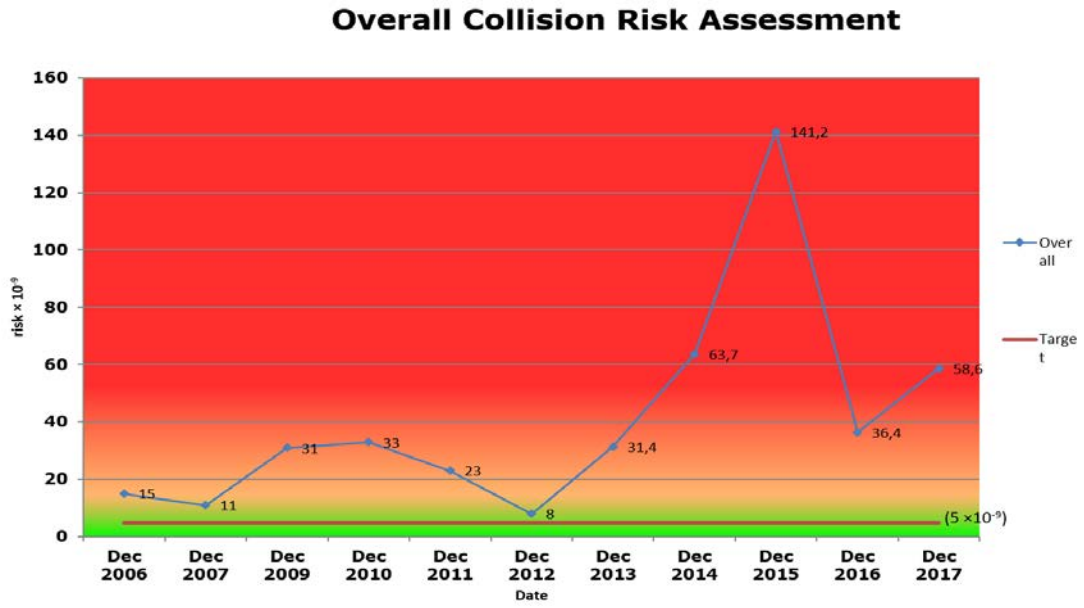
1.1 This Working Paper presents two of the AFI RVSM Safety Policy objectives, namely an assessment of the technical vertical collision risk measured against a Target Level of Safety (TLS) of 2.5×10^{-9} fatal accidents per flight hour, and an assessment of the total vertical collision risk measured against a TLS of 5×10^{-9} fatal accidents per flight hour.

1.2 The technical and total vertical collision risk assessments are based on the data and information available from AFI RVSM operations during the calendar year 2017 as collected and collated by ARMA.

2. DISCUSSION

2.1 The CRA 12 2017 estimate of the technical vertical collision risk was 1.2 x 10^{-10} fatal accidents per flight hour, i.e. approximately a factor of 20 smaller than the technical vertical TLS. This estimate was smaller than its CRA 11 2016 counterpart. The decrease was essentially attributable to a decrease in the estimate of the probability of vertical overlap parameter, of the technical vertical collision risk model. The decrease in the estimate of the probability of vertical overlap is believed to fall within the variation in the height monitoring data used to estimate this probability.

2.2. The CRA 12 2017 estimate of the total vertical collision risk was 58.6 x 10^{-9} fatal accidents per flight hour. It was approximately 1.6 times larger than its CRA 11 2016 counterpart. The increase in the CRA 12 2017 estimate of the total vertical collision risk represented the combined effect of increases in the probabilities of vertical overlap due to improper flight level crossings and flying at wrong flight levels. The graph below provides the evolution of the overall collision risk assessment in the AFI Region from CRA/01 2006 through CRA/12 2017:



2.3. There remain several factors that require the estimate of the total vertical collision risk to be treated with caution. The estimate is most likely affected by under-reporting of vertical events involving large height deviations. Continued efforts to bring the total vertical risk further down to below the total vertical TLS and to improve the event reporting in AFI must be sustained. RVSM system safety must be promoted at every available opportunity so as to reach all RVSM system role-players. i.e. Aircraft Operators, Maintenance Organisations, CAAs, and ANSPs.

2.4 WAYS TO REDUCE TARGET LEVEL OF SAFETY FOR AFI REGION

- The implementation and use of the ICAO Strategic Lateral Offset Procedure (SLOP) within AFI should be encouraged, where applicable, to counteract the adverse effect of very accurate GNSS navigation on vertical collision risk. The safety benefits of the SLOP were not worked into CRA 12 2017 as the implementation of the SLOP has not been completed in AFI Region.
- Non-Approved aircraft to not be given clearances to operate in RVSM airspace;
- States to submit the required RVSM Data to ARMA on a monthly basis as required;
- States to forward all the RVSM Approvals to ARMA as soon as an approval is issued to an operator so that ARMA can add the aircraft into the RVSM Long-term Height Monitoring Programme;
- All RVSM Approved aircraft to be height monitored every 2 years
- Deviations must be reported and duration of deviation must be included for the safety determination to be accurate;
- Category E (ATC to ATC Co-ordination failures) contribution to Large Height Deviations to be taken seriously, causes determined and effective corrective action implemented;
- Have No Country Left Behind;
- ICAO Safety initiatives to not be undermined because it's deemed as recommendations; and
- Civil Aviation Authorities to take action.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) Take note of the content of the paper;

b) States to submit RVSM Data to ARMA office on a monthly basis;

c) Civil Aviation Authorities to encourage Airlines and Operators to height monitor their RVSM aircrafts;

d) Encourage Strategic Lateral Offset Procedure implementation in all States; and

e) Consideration of the actions required to reduce AFI TLS as point 2.4 stipulates.

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