EUROPEAN AVIATION GROUP FOR OCCUPATIONAL SAFETY AND HEALTH

EAGOSH RECOMMENDATION NO. 13

Use of calculation software to estimate crew dose caused by cosmic radiation

This recommendation shall provide guidance to EAGOSH members regarding the issue of dose estimation and monitoring for aircrew exposed to cosmic radiation. It reflects EAGOSH's co-ordinated opinion on this matter.

1. Definitions

Cosmic Radiation is a radiological hazard for aircrew. European Council Directive 29/96/Euratom defines basic safety standards to protect the health of workers and the general public.
Individual records have to be kept for each single aircrew at least 30 years after having left the aviation company/organisation or after retirement.
The regulations EU-OPS 1.390 und 1.680(a)(1)(2) have to be implemented in the manuals of the aviation companies/organisations.

2. Best practice

Flight dose estimation software shall be used for dose estimation by using flight track data (waypoint, time and flight level (FL)) and heliocentric potential at date of flight.
The software utilised by an airline or service provider shall be validated and licensed by the national aviation authority or the supervisory body of the national state. In Germany the Federal Office of Civil Aviation (LBA) has licensed software and established ongoing validation tests to assure fully compliance with the defined standards as per table 1.

Software	Licensed version	Provider / Contact details
PCAire	PCAIRE-DLL v. 1.2.0.21 Calculation-DLL v. 1.1.0.1	PCAire, Inc., Ottawa, ON, Canada Europe: info@r-c-e.de Other regions: info@pcaire.com
IASON FREE	FREEBackend v. 1.3.0 FREEDu v. 1.3.1	IASON GmbH, Graz, Austria michael.schneider@iason.eu
EPCARD	v. 5.43	Helmholtz Zentrum München, Germany epcard@helmholtz-muenchen.de

Table 1. Overview of dose estimation software licensed and accepted by the German LBA

3. Procedures

EAGSOH members are encouraged to use the above listing of best practices as guidance for the cosmic radiation estimation and monitoring of their aircrews.

4. References

A.	European Council Directive 29/96/ Euratom	https://osha.europa.eu/en/legislation/directives/73
B.	Federal Office of Civil Aviation LBA	http://www.lba.de/DE/Technik/Umweltschutz/Strahlenschutz/Strahlenschutz.html
C.	Requirements on computer programs for calculation the radiation exposure of air crews, PTB Braunschweig	http://www.lba.de/SharedDocs/Downloads/DE/T/T3/Strahlenschutz/Requirements_for_calculation.html;jsessionid=672BA4AFDFD2A52F98CD2CBEA78EE9BD.live21301?nn=569538

5. Contact points

Mr Josef Hess	Ground Safety Officer NAEW&C Force Geilenkirchen, Germany	josef.hess@naew.nato.int
Mr Klaus W. Rose	MS Physical Engineering, RCE Rose Consulting & Engineering, Germany	klausrose@r-c-e.de