

**International Conference on Occupational Radiation Protection:
Strengthening Radiation Protection of Workers –Twenty Years of Progress
and the Way Forward**

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Overview on Occupational Radiation Exposure of German Aircrew and Effects of the COVID-19 Pandemic

The main tasks of the German National Radiation Dose Register (SSR), which is a facility of the Federal Office of Radiation Protection (BfS), is the collection and surveillance of occupational radiation doses from workers which are occupationally exposed to ionising radiation. Furthermore, the SSR regularly performs statistical analyses of the collected data in order to explore the state of the art and trends of the occupational radiation exposure. A solid and broad knowledge in that respect is the basis to further optimise the operational radiation protection. In this context, the SSR performed a thorough analysis of the exposure situation of aircraft personnel since the beginning of the COVID-19 pandemic.

Within all working sectors in Germany, aircraft personnel usually belong to the group with the largest effective doses per year. In 2019, aircrew received a collective dose of 75.0 person-Sievert (person-Sv) and an average effective dose (per measurably exposed person) of 1.82 Millisievert (mSv). A more detailed look at the average effective dose per month shows that the dose values throughout the year are typically subject to seasonal variations. During the summer months, the average effective dose of aircraft personnel is usually higher than during the winter months due to an increased number of holiday and charter flights. This usual dose pattern of aircrew personnel was disrupted with the onset of the COVID-19 pandemic. Statistical analyses of the year 2020 show a steep decline in monthly average effective doses in the early spring and summer months as effect of a significant drop in the numbers of operating aircrew personnel. These unusual low dose values were in particular noticeable for cabin personnel, which is the consequence of the drastic decrease of passenger aircraft activity. Only towards the end of the summer, the dose values of all aircrew personnel slightly increased as a result of a slowly recovering travel industry. Cargo plane activity, on the other hand, experienced an increase beginning with late 2019, and stayed at a high level throughout the year 2020. In summary, the collective dose (23.6 person-Sv) and average effective dose (0.62 mSv) of aircraft personnel was at a record low in 2020.

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