

Collins Aerospace respectfully submits the following information relating to the current use of arc-lamp technology in our Pro-Sim simulator projection products and for consideration of exemption 4(f) of the RoHS Directive 2011/65/EU (RoHS 2) and its critical importance to our current and future simulation customers.

1. Applications using lamps within the scope of 4f:

The Collins Pro-Sim projectors are a key component in our wide field-of-view display systems used in training and simulation applications for both military and commercial platforms. Our Pro-Sim based systems are primarily used for multi-national fixed-wing military aircraft. Our largest customer end-use is for the Joint Strike Fighter (JSF) F-35 Full Mission Simulator.

2. Applicability of alternate technologies and why these lamps are required to support our EU and global customers:

The arc-lamp technology utilized in the Collins' Pro-Sim projection systems provides the unique light output and optical characteristics needed to meet the highest-fidelity display system requirements.

The Collins Pro-Sim has proven to be the industry's most successful simulation specific projector by total installed base as well as longevity. Pro-Sim production is planned to continue through Q3 of 2022 with product support extending a minimum of 10 years thereafter.

Alternative technologies, including solid-state light sources, were evaluated at the time of the Pro-Sim projector design but were insufficient to meet the system requirements. These technologies have continued to improve but are not technically or economically feasible to be integrated into our current Pro-Sim design given the current delivery commitments, schedule and planned end of production date.

Collins does utilize environmentally friendly non lamp based projectors, where they meet the end-customer requirements, and we even offer our own line of projectors utilizing LED illumination. We are also taking active steps to develop new display solutions that do not depend on arc-lamp technology to achieve the highest levels of system performance.

In the meantime, however, the Pro-Sim, with the planned production life through Q3 2022, requires the continued use of the existing lamp based illumination design.

3. Impact of a decision to discontinue exemption 4f:

The Collins Pro-Sim projectors are required to meet our existing contractual requirements, including those for our JSF customers and others.

Exemption 4(f) has made this possible, and a lack of renewing this provision would have a significant negative impact to Collins and our customers.

This could impact both existing customers of the more than 3000 fielded Pro-Sim projectors by potentially rendering these systems non-serviceable, and could also impact future customers as well as disrupting internal Collins funding and development – which is needed to help facilitate the rapid transition to newer technologies.

As such, a short term renewal of Exemption 4(f) will actually help facilitate a long-term more environmentally friendly solution.

Answer provided as is by David Kanahle on behalf of Collins Aerospace on the 27th of May.