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The effect of indoor temperature, radiant and convective cooling on tear film stability and eye blink frequency was examined. 24 human subjects were exposed to the non-uniform environment generated by localised chilled beam and a chilled ceiling combined with overhead mixing ventilation. The subjects participated in four two-hour experiments. The room air temperature was kept at 26 °C or 28 °C. Tear film samples were collected after 30 min of acclimatisation and at the end of the exposures. Eye blinking frequency was analysed for the first and last 15 min of each exposure. The tear film stability decreased as the temperature increased. The highest number of subjects with unchanged or improved tear film quality was observed with the localised chilled beam at 26 °C. A trend was found between subjects who reported eye irritation and had a bad tear film quality.

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