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RF and beam dynamics considerations for the cavity end group of the all superconducting DESY gun

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Future high duty cycle (HDC) operating modes are under development for the European XFEL. A L-band superconducting RF (SRF) gun is foreseen as the injector operating continuous wave (CW). To preserve the small beam emittance distracting effects like RF kicks from the power coupler, trapped higher order modes (HOMs) in the cavity end group and RF field asymmetries need to be considered and countermeasures to be taken. Apart from the beam dynamics, the feasibility and effort of the manufacturing and surface treatment, the later assembly and operation needs likewise consideration. In our contribution we present the outcome of our studies and the cavity end group which will be realized at our next prototype cavities.

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Footnotes

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Yes

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