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On the contribution of the electromagnetic dipole operator to the $\bar{B}_s \rightarrow \mu^+ \mu^-$ decay amplitude

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We report on the construction of a factorization theorem that allows to systematically include QCD corrections to the contribution of the electromagnetic dipole operator O_7 to the $\bar{B}_s \rightarrow \mu^+ \mu^-$ decay amplitude. We elaborate on how the occurring endpoint divergences appearing in individual momentum regions cancel, and show how the resulting rapidity logarithms can be isolated by suitable subtractions applied to the corresponding bare factorization theorem. This allows to include in a straightforward manner the QCD corrections arising from the renormalization-group running of the hard matching coefficient, the hard-collinear scattering kernel, and the B_s -meson distribution amplitude. We estimate the effect numerically using a recently advocated parameterization of the B_s -meson light-cone distribution amplitude.

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