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Parasitic and leakage RF fields affecting the BPM readings at the ESRF

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The installation of so-called Solid-State-Amplifiers (SSA) for the RF-cavities nearly 2 years ago had initially produced an excessive level of perturbation to the results of nearby BPM through the SSA leakage fields being picked-up by low-quality RF cables. The replacement of these, and additional shielding plates around the cabinets holding the Libera-electronics, has reduced this impact to acceptably low levels., but still noticeable when operating with low SR beam currents. This has given rise to investigate further this point of the entire BPM system (BPM-head, RF-cables, Liberas) being sensitive to (even very) low levels of parasitic RF fields. For this we have devised a portable low-power RF-emitter with a hand-held antenna, and took a full recording of all BPM signal levels while walking this antenna around the Ring (both inside & outside Tunnel). The obtained results will be presented and high-light the impact of any parasitic RF fields on BPM stability.

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