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Noise of the lumped-element DC-SQUID microwave amplifier LAFE SPIETZ, MINHYEA LEE, JOSÉ AUMENTADO, NIST — We present measurements of the noise characteristics a microwave amplifier based on a DC-SQUID in a lumped element configuration. We describe measurements using both a heated load and a normal metal tunnel junction shot noise source. We use this information to describe the behavior of the noise both from the perspective of understanding the SQUID and from the perspective of developing a method for most effectively using these amplifiers in practical experiments. We show that the SQUID amplifier can improve system noise temperature by an order of magnitude over HEMT-based systems in the 4-8 GHz frequency range.

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