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Towards 90% efficient generation, transport, and readout of a microwave squeezed state DANIEL PALKEN, MAXIME MALNOU, WILLIAM KINDEL, JILA, Univ of Colorado - Boulder, LEILA VALE, GENE HILTON, National Institute of Standard and Technology - Boulder, KONRAD LEHNERT, JILA, Univ of Colorado - Boulder — A Josephson parametric amplifier (JPA) can be used as a phase sensitive amplifier to create a squeezed state of the microwave vacuum, which can in turn be detected with a second JPA [1]. Such an arrangement, known as a squeezed state receiver, can be used to circumvent the vacuum fluctuations that ultimately limit the search for dark matter axions [2]. But the benefit of the squeezed state is diminished to the degree that the state is lost in transit from one JPA to the other. In this talk we detail the sources of loss in the microwave path, along with strategies for their minimization. In conjunction, we describe how the choice of JPA pump modality impacts this loss budget.

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