

Abstract Submitted
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Anomalous non-magnetic high field loss peak for a high Q copper TE011 microwave cavity LIAM KILCOMMONS, Colorado State University, FALKO KUESTER, CARL PATTON, Colorado State University — Recent off resonance magnetic loss measurements with high quality factor (Q) TE011 cavities have revealed the presence of a small anomalous loss peak at high field overlying the usual magnetic response. Precision measurements of the cavity Q vs. field by the ABA metrological substitution method for a special 99.99% pure OFHC (oxygen free high conductivity) copper cavity have now confirmed the presence of a broad and weak yet distinct magnetic field dependent empty cavity loss peak centered at about 8.8 kOe in applied field with a width of about 1 kOe. This loss peak has been confirmed to come from the copper response and not from any type of magnetic impurities or waveguide effects. Possible origins of this response are under investigation.

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