The following sections have been added to the original thesis based on the reviews we received. These additions aim to provide a more comprehensive understanding to the reader and eliminate any ambiguity present in the original thesis.

Materials and fabrication techniques:

Copper paste used for the fabrication of balun is very soft and viscous compared to other materials commonly uses in aerosol jet printing [1–3]. Fabrication of the THz antenna using AJP technology, a type of additive manufacturing, is novel [4][5]. AM is fundamentally distinct from conventional subtractive manufacturing or similar ultra-high vacuum fabrication methods [6–9]. The AJP machine must perform several passes to deposit the ink in a layer-by-layer method to achieve the desired thickness and remain conductive. This significantly reduces the material waste and energy consumption involved with the production of high-quality and customized items from digital designs, which is not the case when intentionally growing the filaments [10–19] or other laser-based fabrication methods [20–23]. This makes it challenging to use copper in aerosol jet printing because it is difficult to combine it with other ingredients to improve its viscosity and dispersion, while concurrently preventing the clogging of the nozzle. Copper also tends to easily get oxidized, which reduces its conductivity. The likelihood of oxidation is increased because the ink must be aerosolized with nitrogen or air. Hence, due to practical and availability issues, silver ink was used for the AJP process because of its usability and ability to mix with Xylene, to improve viscosity and particle dispersion. In addition, it is also the closest to copper in resistivity and conductivity so we felt it would be a fair substitute in our study. We have made the recommended changes in the revised manuscript and highlighted the changes.

Material	ρ (Ω•m) at 20 °C Resistivity	σ (S/m) at 20 °C Conductivity
Silver	1.59×10^{-8}	6.30×10^{7}
Copper	1.68×10^{-8}	5.96×10^{7}

Deposition thickness:

The fabrication of the flexible baluns (both Silver ink and Copper paste) is achieved on a flexible 100 microns thick FR4. In addition, our thickness measurements were taken using Keyence microscope (please see below images). The average measure thickness of the conductive coating obtained to be around 20 microns for silver and copper. We believe that since both the baluns (Silver and Copper) are fabricated on the same FR4 flexible substrate, it is appropriate to assume that the substrate doesn’t play a role when comparing this. However, when comparing rigid with flexible, the substrate does play a role. In addition, we would like to mention that rigid FR4 does perform well at some frequencies while the flexible baluns are on par with the rigid ones at most of the frequencies.

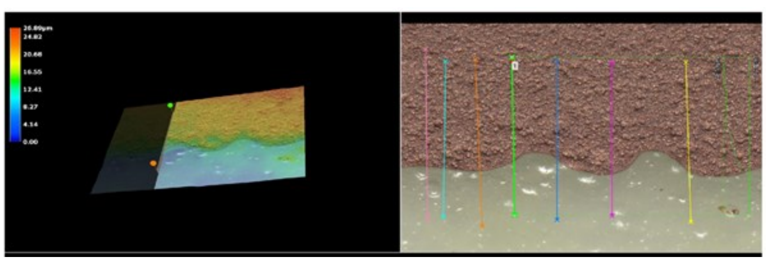

Figure 1: Screen-Printed deposition Thickness

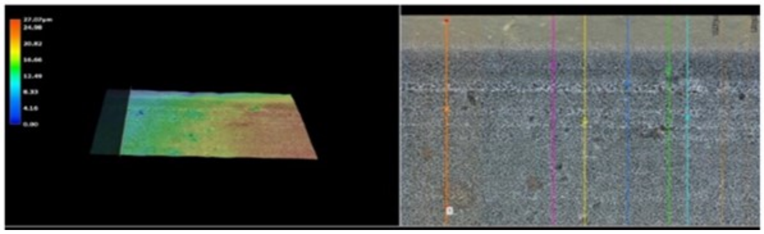

Figure 2: AJP deposition Thickness

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