Reliability & Loss Properties of Copper Foils for 5G Applications

Motivation:

- Copper foil manufacturers apply treatments to copper foil and PCB fabricators treat copper surfaces to improve adhesion to resin systems. This treatment is often essential for PCBs to survive thermal shock but can have a detrimental effect to signal loss for high frequency / 5G applications which require very low-profile copper foil and low-loss resin systems for electrical performance.

Objective:

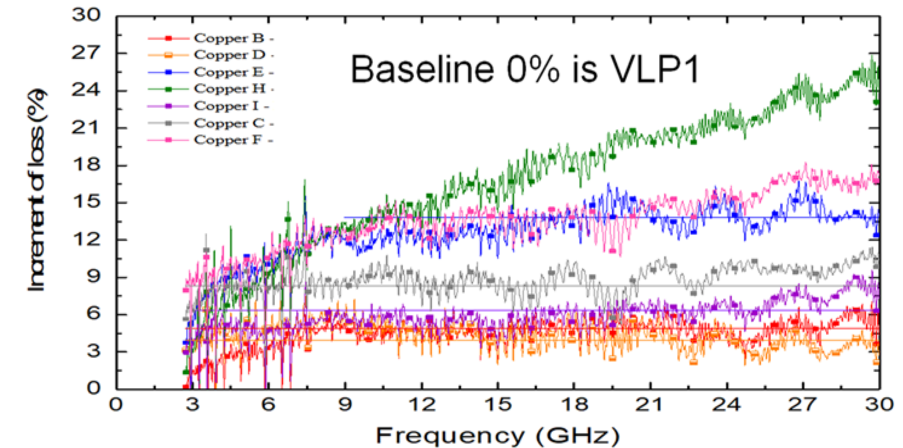
- To characterize various copper surface treatments to mitigate signal loss while maintaining good adhesion and, hence, durability of the PCB.

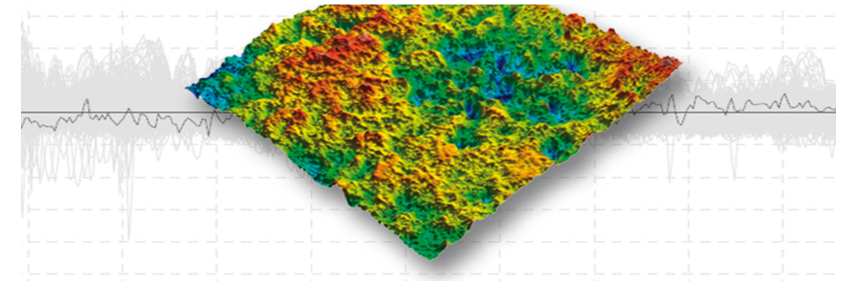
Strategy/Approach:

- Determine signal loss characterization for various surface topology & profilometry results for signal frequencies used in 5G applications.
- Determine and characterize copper to dielectric bond strength methodology for various copper foil thicknesses and types.

Longer term:

- Publish guidelines.





Status:

- Of interest to OEMs, EMS providers, PCB fabricators, PCB laminate & copper foil suppliers
- Draft project scope
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