

Insertion Loss Copper Comparison

Copper foils properties :

Parameter	R copper 35µm	S copper 35µm	N copper 35µm
Features	ED copper Dendritic structure Drum side treated	Ultraflat ED copper Grain structure Matte side treated	Ultraflat ED copper Grain structure “No profile treatment”
Untreated side roughness (µm)	Rz ≤ 9.0	Ra < 0.35	Ra < 0.35
	Rq : 1.2	Rq : 0.3	Rq : 0.3
Treated side roughness (µm)	Rz ≤ 5.1	Rz : 2.0 – 3.0	Rz ≤ 1.3
	Rq ≤ 1.1	Rq : 0.5	Rq : 0.3
Elongation 180°C	6 – 8%	20 – 25%	20 – 25%
Tensile 180°C	160 – 180 MPa	180 – 200MPa	180 – 200MPa

Test structure :

NX9255IM0762 material - 50Ω grounded coplanar waveguide

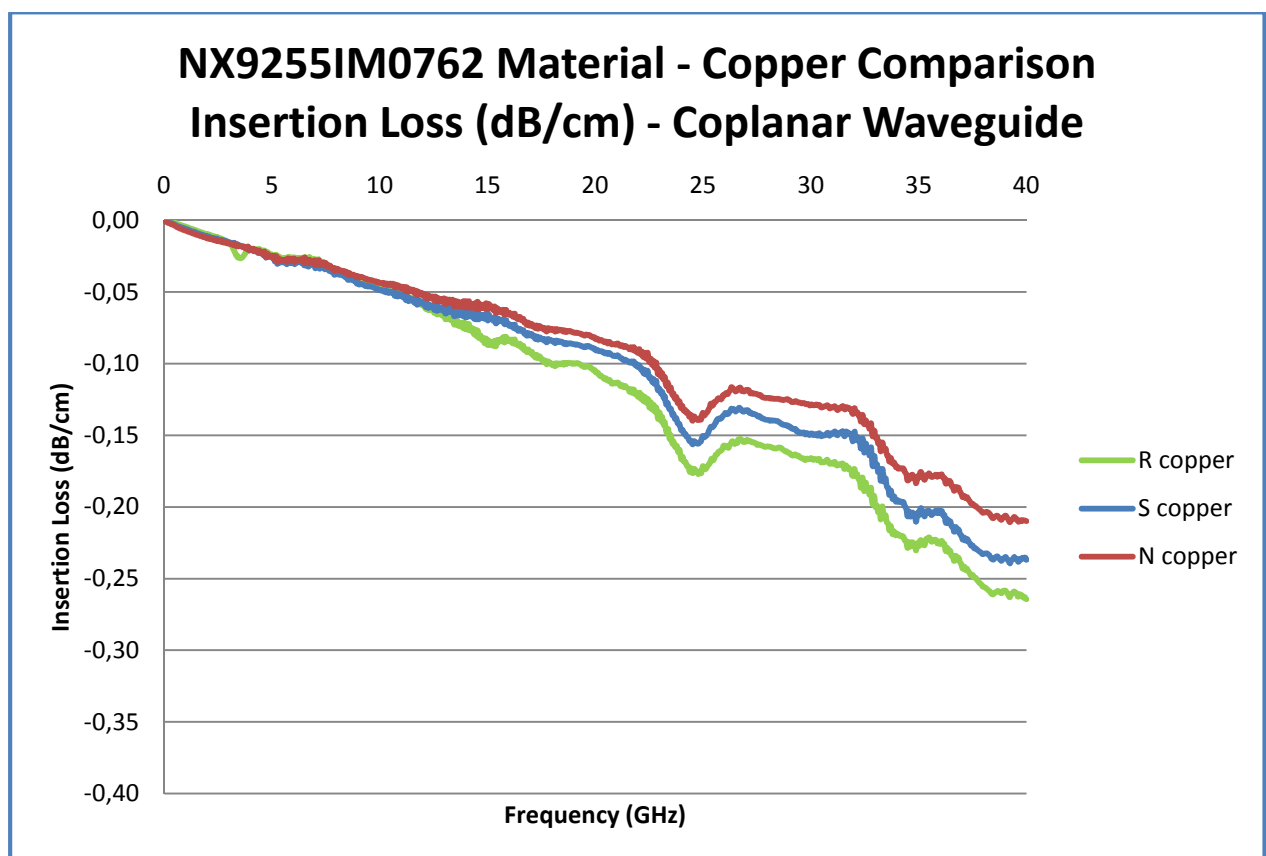


Figure 1 - 250mm long grouded CPW / 2.92mm connectors

Insertion Loss testing results :

S21 parameter measurements from 0 to 40GHz for insertion loss determination.

Material	Copper	Insertion Loss (dB/cm)			
		10GHz	20GHz	30GHz	40GHz
NX9255IM0762	R – 35µm	-0.0463	-0.1046	-0.1659	-0.2617
	S – 35µm	-0.0483	-0.0896	-0.1487	-0.2359
	N – 35µm	-0.0433	-0.0818	-0.1285	-0.2094



S copper – Up to 10% improvement in comparison with R copper

N copper - Up to 11% improvement in comparison with S copper and
Up to 20% in comparison with R copper