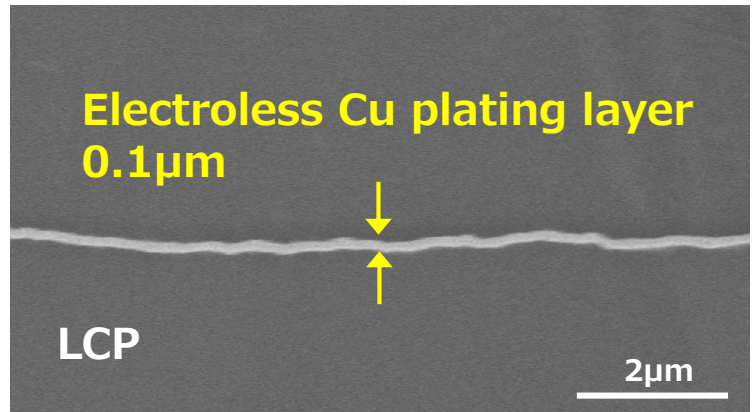
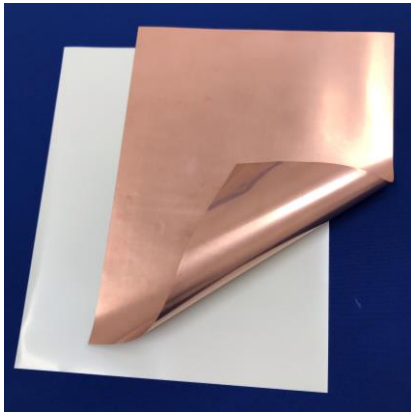


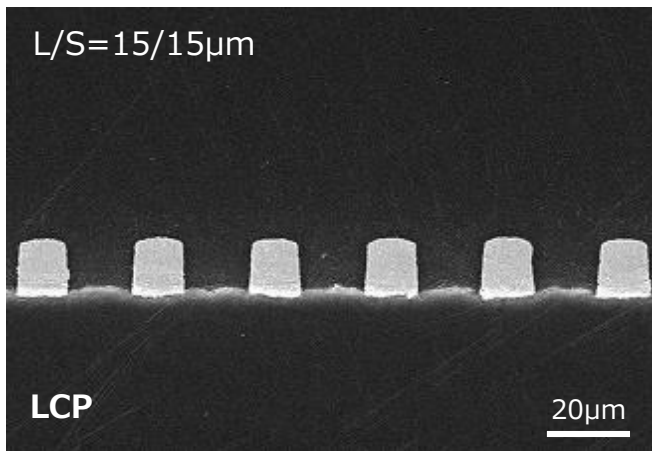
# Flexible Copper Plated Material for very fine pitch wiring

Under development

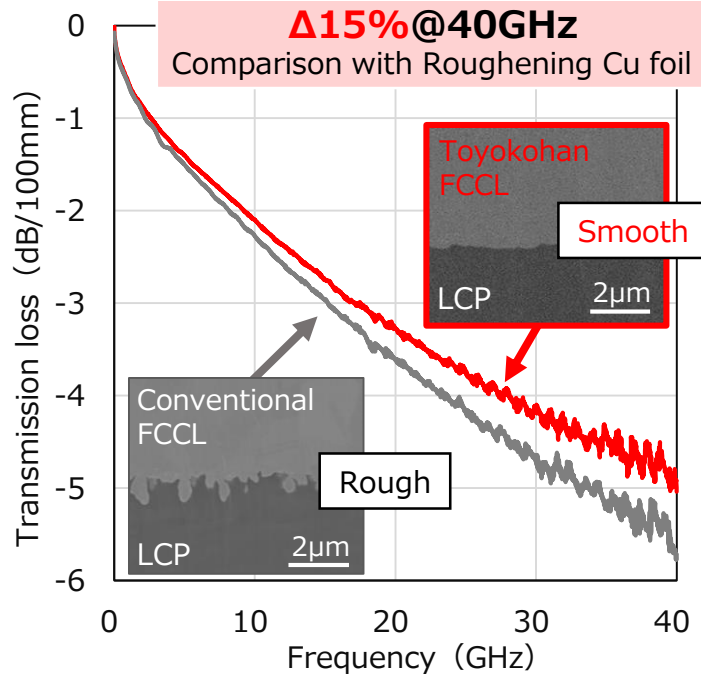
Very thin Copper plated material, on LCP with low profile interface, also possible to form very fine pitch wiring using SAP



## Fine pitch wiring using SAP



## Transmission loss using 50µm LCP



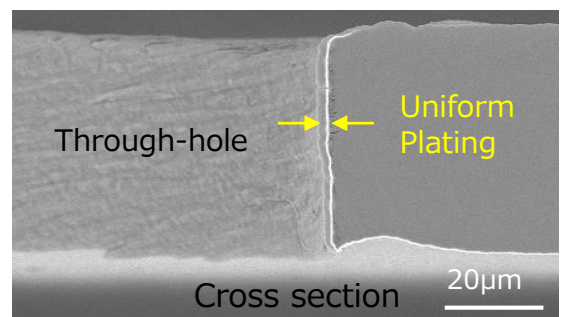
## General properties

Item	Test conditions	Cu Plating FCCL
Peel strength	Cu thickness : 18µm At R.T	0.7 N/mm
	After 150°C, 168hr	0.7 N/mm
dielectric constant	Fabry-perot method 28GHz	3.3
dissipation factor		0.002
Solder heat resistance	260°C, 5sec	pass

The above data presents typical values that are not guaranteed.

## Process saving

Plating on pre-pored film



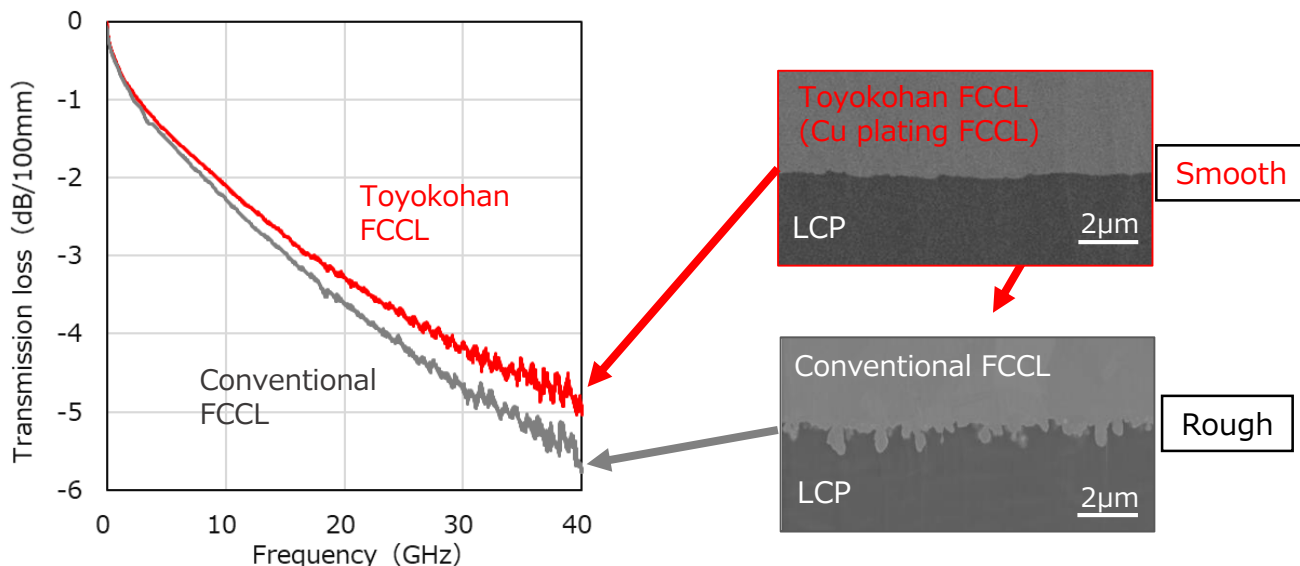
# Initiatives for High-Speed Transmission

Toyo Kohan is working on development using various materials to propose substrate materials for high-speed transmission.

$$\text{Transmission loss reduction} = \text{① Conductor loss reduction} + \text{② Dielectric loss reduction}$$

## ① Initiatives for Conductor loss reduction

Realization of “smooth interface” by lamination of non-roughening Cu foil or formation of electroless Cu plating



## ② Initiatives for Dielectric loss reduction

Combination of “low-dielectric film” and ① “smooth interface”

