

**To Become the Best Application of the Copper Foil
Manufacturer and Service Provider**

22 Years Copper Foil Manufacturing Experiences

The Spirit of Craftsmanship



Company mission

*To become
the best application of
the copper foil manufacturer
& service provider*

Co-Tech Outline

Establishment : May 22nd, 1998

Headquarters: Yunlin, Taiwan

Capital : US\$ 85 millions

Assets : US\$ 233 millions

Employee : 313 by Mar.2021

Chairman : Raymond Sung

President : Frank Lee

Revenue in 2020: US\$ 216 millions

Certification : IATF-16949, ISO-9001, ISO-45001 & IS-45001



Roof solar power system

Power 2000 KW, generating 2.54 million kWh per year, reducing CO2 emissions by 1.34 million kg, 1.98 million M2 forest area

CO-TECH CONFIDENTIAL



1st Factory



Toulieu 1st Plant Capacity: 7,800 T/year

2nd Factory



Toulieu 2nd Plant Capacity: 13,800 T/year

3rd Factory (under construction)



Toulieu 3rd Plant Capacity: 10,000 T/year

Co-Tech	2020	2021	2022 (Plan)
Total Capacity (Ton/Year)	21,600	21,600	31,600
HTE / RTF / RG	16,800	16,800	23,200
RV	1,200	1,200	1,200
HVLP (VL / VG)	3,600	3,600	7,200

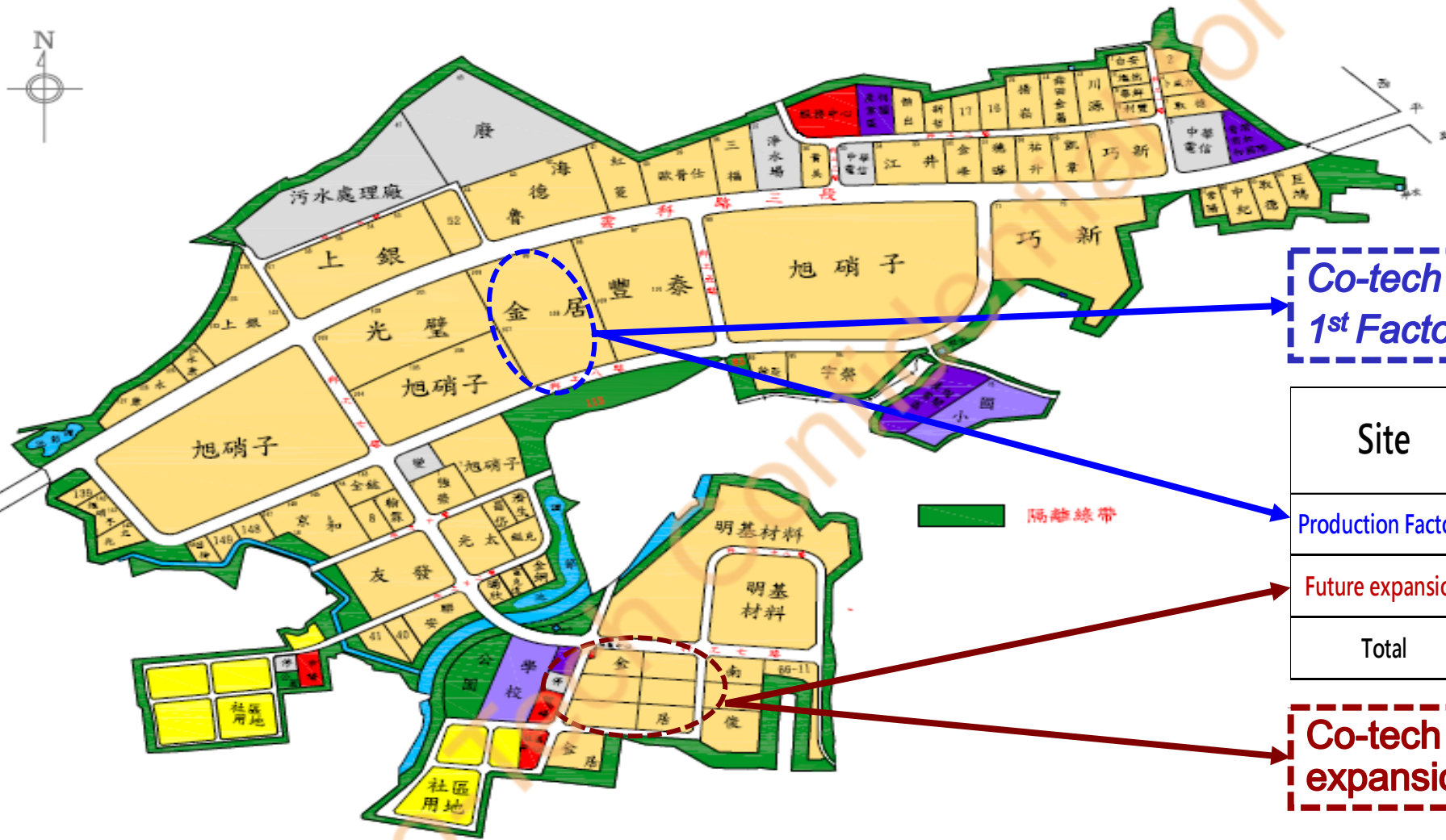
Δ HTE / RTF / RG / RV : Capacity can be interchangeable.

Δ 3rd Factory is planning for additional 10,000t/y in 2022.



雲林科技工業區大北勢區土地使用配置圖

Land Use Layout of Yunlin Technology Industrial Park



Co-tech (Capa: 21,600T/Y)
1st Factory, 2nd Factory

Site	Area			Approximate No. of football field
	M ²	坪	ft ²	
Production Factory	63,357	19,165	681,975	9
Future expansion	30,248	9,150	325,589	4
Total	93,605	28,316	1,007,564	13

**Co-tech property for future
expansion (capa: 10,000 T/Year)**

Co-Tech Milestones (1/2)

1998

Co-Tech established, started to build manufacturing site (6600ton/Capa)

2000

Factory 1 started production, ISO-9001 / ISO-14001 certified

2002

Factory 1 12u foil started production, leading the industry

Factory 2 Started production ;Shen Zhen customer svc & logistics commenced operations

2003

Successfully developed Copper Foil for hi-speed digital PCB(Microwave)

Taiwan (Patent NO:199216) – Copper foil recycling method

China (Patent NO:184828) -- Copper foil recycling method

2005

Successfully developed Halogen Free & Lead Free Copper Foil

2006

ISO-14001: 2004 certified

Honored with Sustainable Development Awards No 1 ranking

Honored with Green Products Award

2010

Listed company at Over the Counter successfully ; Annual production capacity 18,000 Ton
CNS-15006 ISO-18001 certified

2014

Chairman Mr. Raymond Sung(Lite-on group Chairman) on board

2016

RTF copper foil / HVLP copper foil for CCL, FCCL

2017~2019

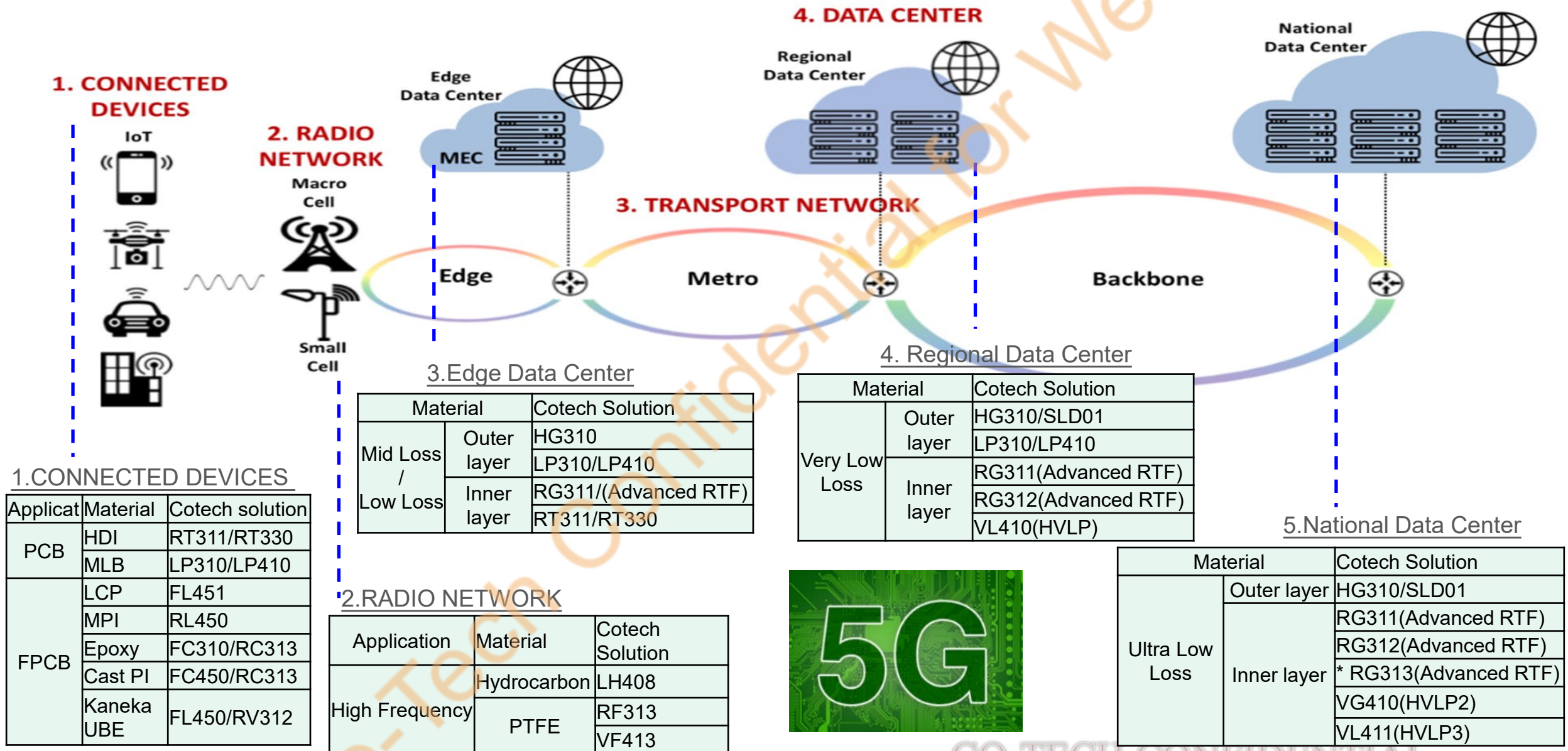
(a) List on "TPEX50 Index"

(b) 5G copper foil development project awarded by the committee organized by
Industrial Development Bureau

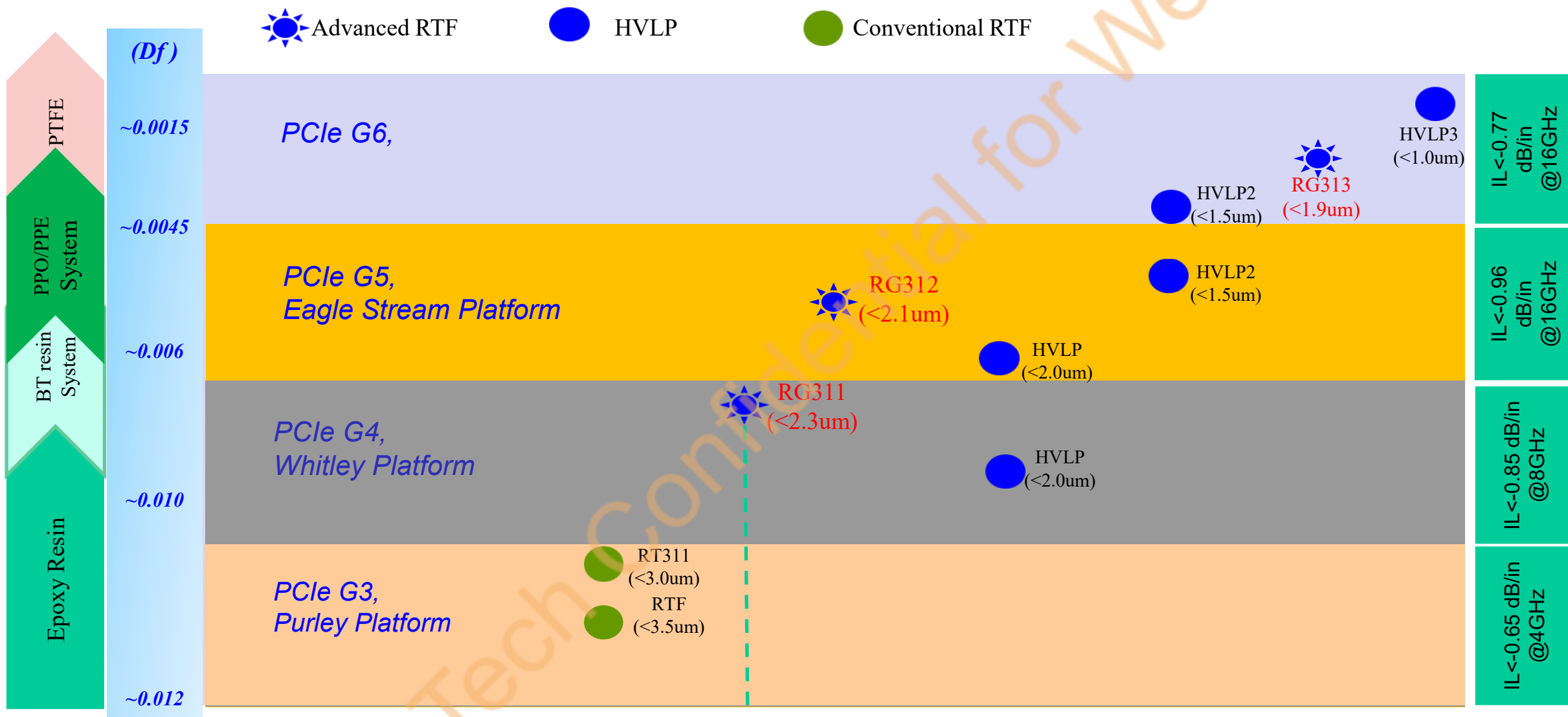
(c) Golden Award (for base metal products export) received by Ministry of
Economic Affairs

(d) List on MSCI index


















5G Architecture VS Co-Tech Copper foil Solution



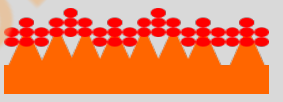






The Advantages of Advanced RTF

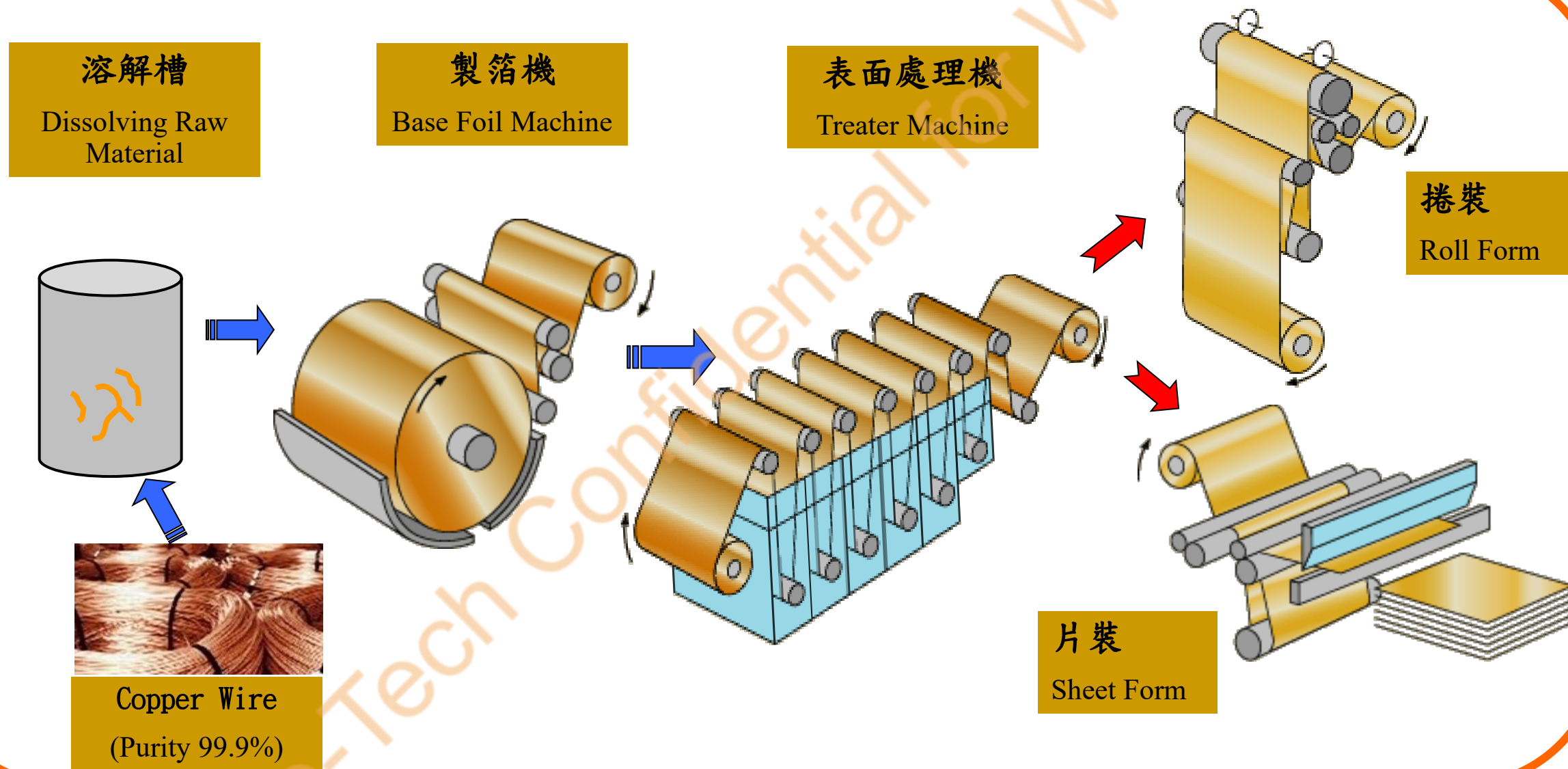


Product lineup for High Speed / Frequency

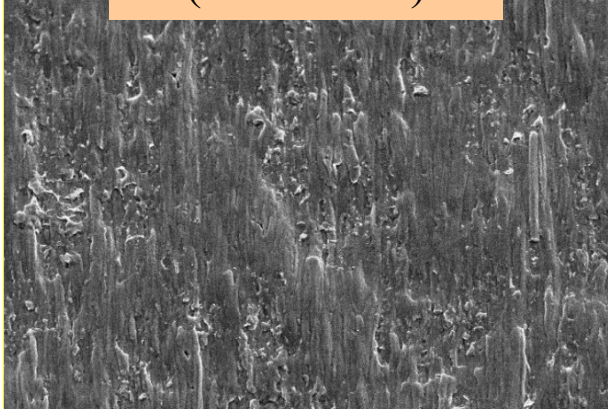
Main Customer	Application	Material	Product	Cross Section Image	Bonding side JIS94 Rz(um)
CCL/ PCB	<u>Outer layer</u> IT 、3C Products HDI LED car lighting module	Stand Loss	LP310/ LP410		$\leq 9.5(1oz)$ $\leq 7.2(Hoz)$
		mid-Loss & Low Loss	HG310		$\leq 8.0(1oz)$ $\leq 6.0(Hoz)$
		Low Loss & Ultra Low Loss	SLD01		≤ 3.0
	<u>Inner layer</u> Server/ weitch Storage Touch module Rigid-Flex PCB 3D face recognition	mid- Loss	RT311		≤ 3.0
		Low Loss	RGB11(Advanced RTF)		≤ 2.3
			RGB11(Advanced RTF)		≤ 2.3
			RGB12(Advanced RTF)		≤ 2.1
			* RGB13(Advanced RTF)		≤ 1.9
		Ultra Low Loss PPO/ PPE	VL410 (HMLP)		≤ 2.0
			RGB12(Advanced RTF)		≤ 2.1
			* RGB13(Advanced RTF)		≤ 1.9
			VG410 (HMLP2)		≤ 1.5
			VL411 (HMLP3)		≤ 1.0
			* PF511(HMLP4)		N P.
	<u>High frequency</u> 5G/ Antenna / Radar ADAS	PTFE	RF313		≤ 3.0
			VF413(HMLP2)		≤ 1.5
		Hydrocarbon	LH408		≤ 9.5

(* Under development)

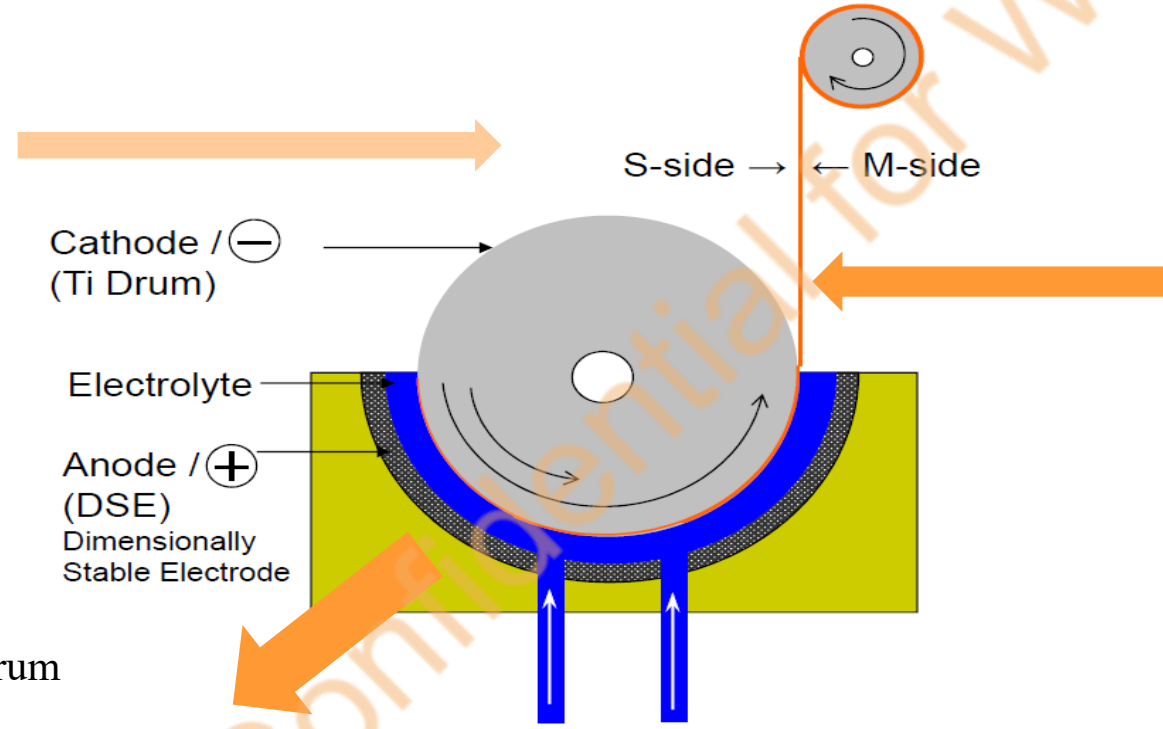
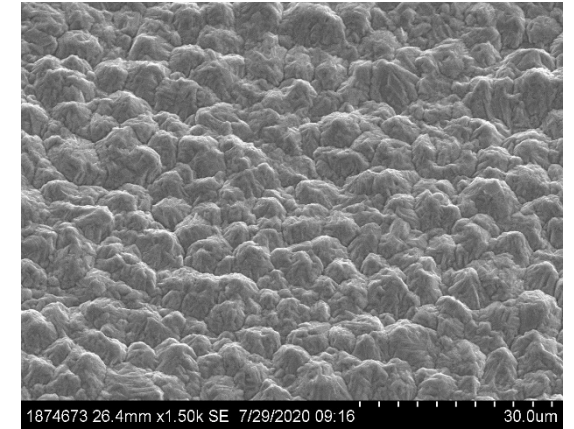
Co-Tech Product Lineup					
Main Customer	Application	Material	Product	Cross Section Image	Bonding side JIS 94 Rz(um)
FCCL FPCB	<u>Casting FCCL</u> HDI/Rigid-Flex Board /Touch module	Epoxy	FC310 (HTE)		$\leq 4.5(\text{Toz})$ $\leq 8.0(1\text{oz})$ $\leq 5.5(\text{Hoz})$
		PI	RC313 (RTF)		≤ 3.0
			FC450 (HVLP)		≤ 2.5
	<u>Laminate FCCL</u> Wearable devices /VR Augmented Reality Mobile terminal 3D face recognition communication module	Kaneka Film UBE Film	RV312 (RTF)		≤ 2.5
			FL450 (HVLP2)		≤ 2.0
		MPI	RL450 (HVLP2)		≤ 2.5
	<u>Laminate FCCL</u> 5G Antenna Radar ADAS	LCP Film	FL451 (HVLP2)		≤ 1.5



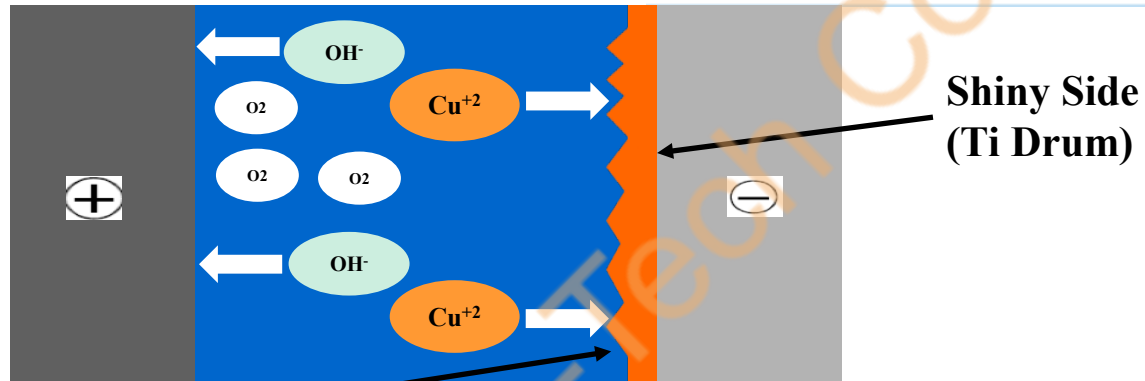
Shiny Side
(Drum Side)



Matte Side

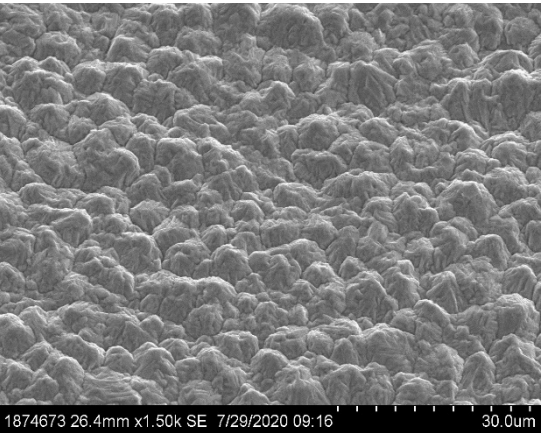
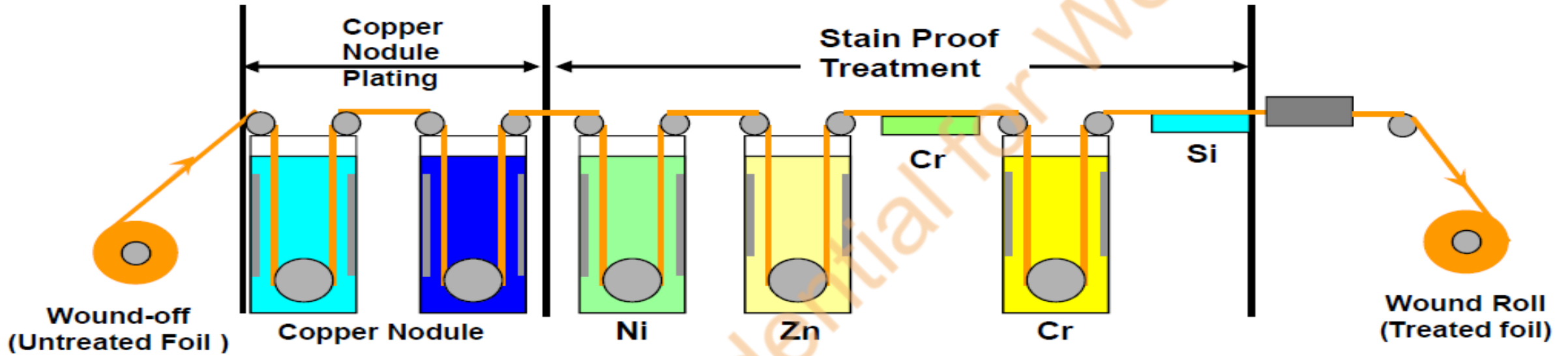


Rolling drum

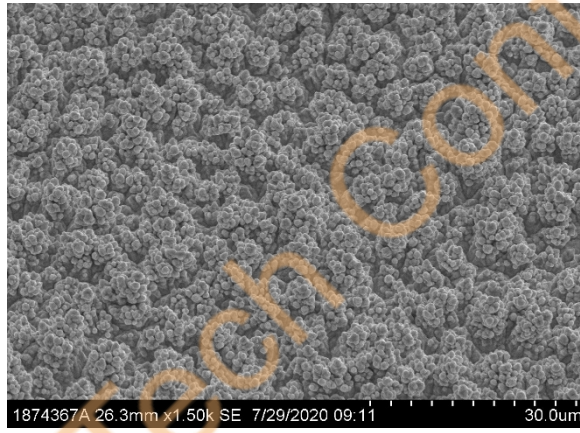


Drum speed controls the copper thickness:

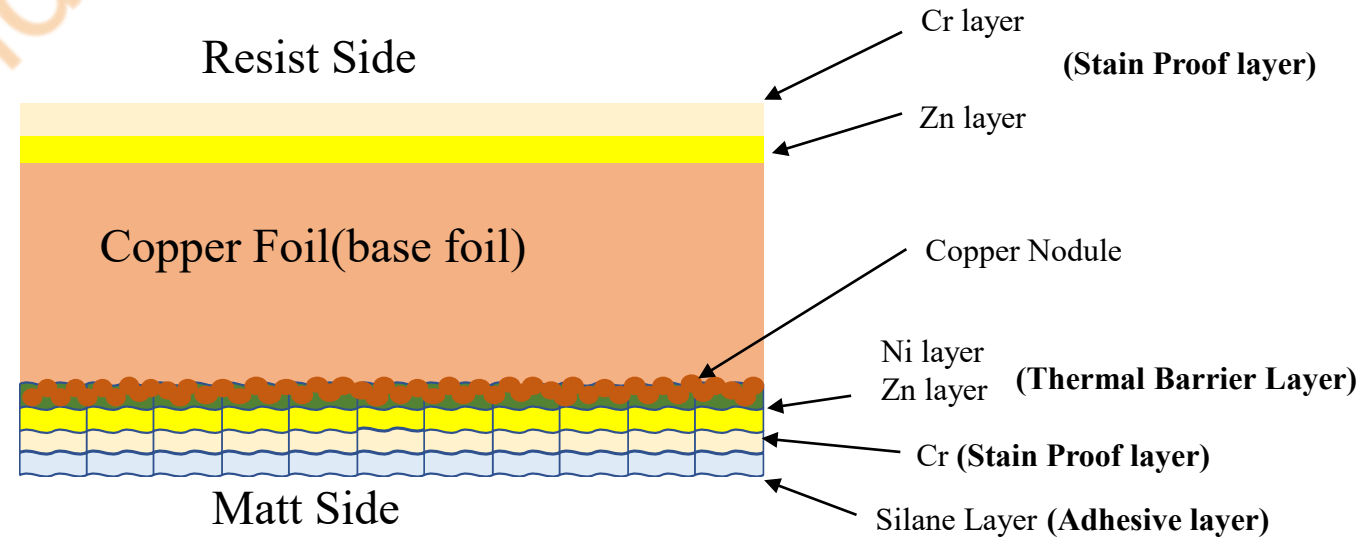
- Drum speed higher, the copper weight is thinner.
- Drum speed lower, the copper weight is thicker.



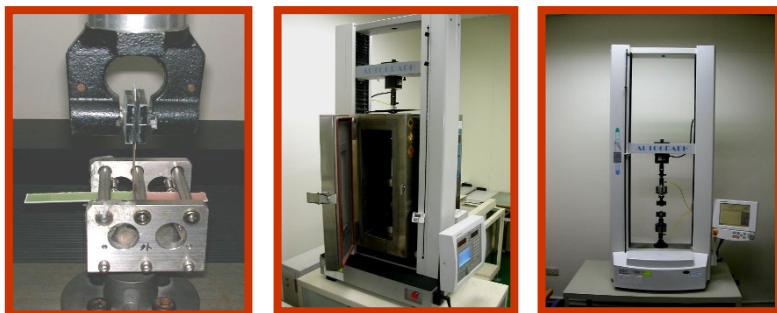
Matt Side (Before Treatment)



Matt Side (After Treatment)



Universal Testing Machine



Physical property Evaluation

Full inspection in both physical & chemical property

- 10000x crystal structure of deposition copper
- Cross section column structure
- Metal & alloy composition analysis

ICP



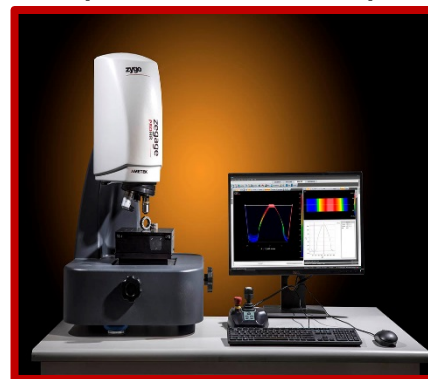
Metallurgical Microscope Tool Microscope



Metallurgical Microscope



Optical Microscope



SEM-EDX



AA



Physical property Analysis

ISO-14001 Certificate



ISO-9001 Certificate

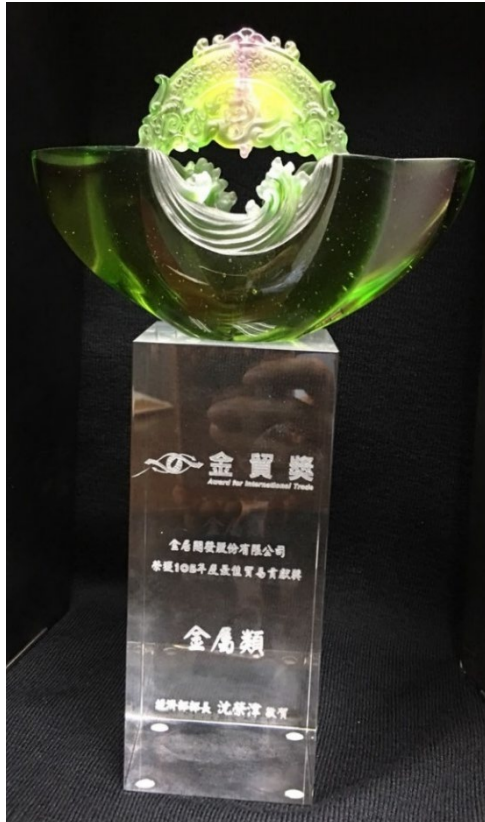


IATF 16949 Certificate



ISO-45001 Certificate





Ministry of Economic Affairs
2017 Golden Trade Award
" Best Trade Contribution" (Metal)



Tripod Excellent Supplier
Award(2018)



Founder PCB (2016)
Best Support Award



Unimicron PCB
2016 Gold Award

