Coating and thin film thickness analyzer (TFM-200)

■ TFM-200 Series

TFM-200 Series is a non-contact coating and thin film thickness analyzer. It is sometimes called as reflectometer.
TFM has a user friendly interface which helps anybody can get results easily.

■ Specifications at a glance

*Measurement range: 0.5 ㎛ to 400 ㎛ (depending on film type)

*Measurement spot size: 40 ㎛, 80 ㎛ (8 ㎛ optional)

*Stage size: 140 x 132 mm (X-Y movement 75 x 50 mm)
*Dimensions: 22 x 22 x 7 cm (microscope: 15cm x 20 cm x 50 cm)

■ Specifications

	TFM-200	TFM-200N

Thickness range	0.5 μm – 100 μm	1 μm – 400 μm
Wavelength range	350 nm – 1,050 nm	750 nm – 1,100 nm
Spot size	40 μm, 80 μm (8 μm optional)	
Repeatability	<± 0.001 μm at 1 μm SiO2 on Si wafer	
Light source	Tungsten halogen 35 W	
Sample stage	140 mm x 132 mm (X-Y movement 75 x 50 mm)	
Dimensions	Detector: 22 cm × 22 cm × 7 cm (H) Microscope: 15 cm x 20 cm x 50 cm (H)	
Weight	Approximately 20 kg	
Power	110 or 220 V / 0.5 A	

Principle

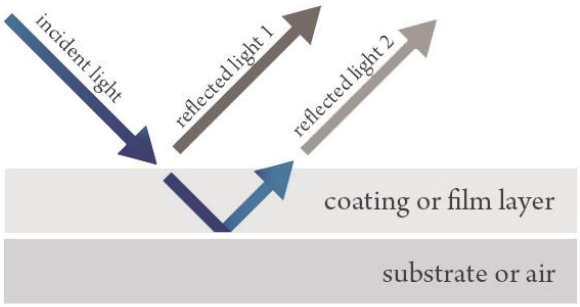


Fig 1. Principle

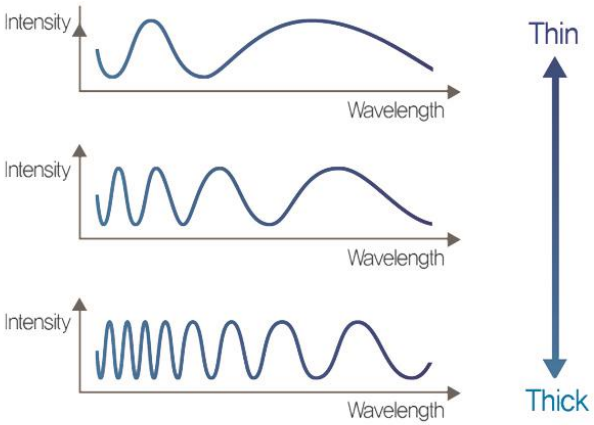
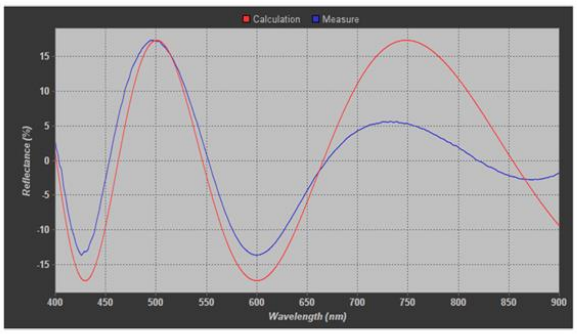


Fig. 2. Principle 2

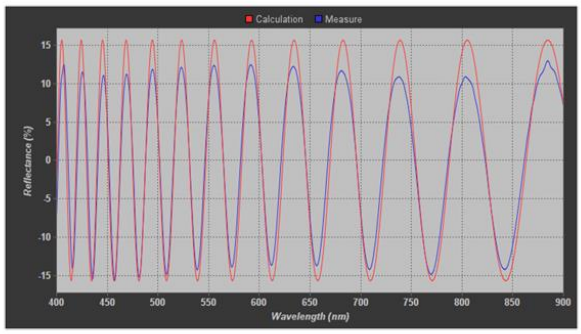
When the incident light directs light into the sample, some part of the light is reflected back from the film's surface (reflected light 1) and some part transmits the film and is reflected back from the substrate (reflected light 2) (Fig. 1).

There are interference phenomena between the two reflected lights as shown in Fig. 2. Fig. 2 indicates that the more the sine curves in the graph, the thicker the film.

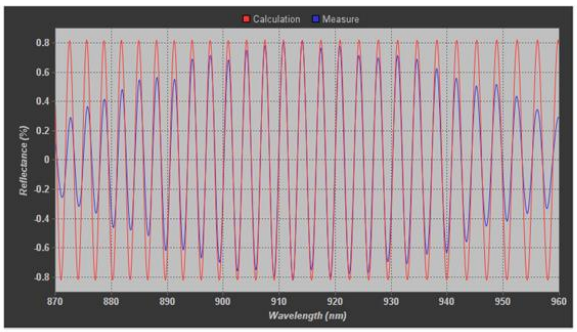
Thickness Results



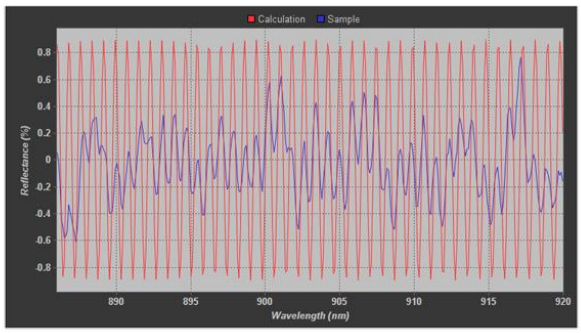
0.5 ㎛



3 ㎛



78 ㎛



343 ㎛

Fig. 3. Thickness results

No	Thickness
1	0.5124
2	0.5124
3	0.5124
4	0.5125
5	0.5124
6	0.5124
7	0.5124
8	0.5124
9	0.5124
10	0.5124

500 nm

No	Thickness
1	77.98
2	77.98
3	77.98
4	77.98
5	77.98
6	77.98
7	77.98
8	77.99
9	77.99
10	77.98

78 ㎛

Fig. 4. Repeatability (10 times)

■ Applications

- Semiconductor
- Display
- Conductive oxides
- Protective coatings
- PCB coating process
- Parylene coatings
- Hard coatings
- Lens coatings
- Bio medical applications
- Adhesive coatings
- Polymer films (ex. PET)
- Thick photo-resists (ex. SU-8)