Surface Profiliometer and Thin Film Measurement Systems

No.	Systems	Measurement range	Scan Range	Measurement type	Parameters measured	Allowed material type	Sample size
1	Ellipsometer	1 nm to 100 um	nil	Non Contact	Thickness, R. I., Uniformity of films & layer stacks.	Si substrate or transparent substrate like Glass etc	Min 1 cm*1 cm, Max 6 inch wafer
2	Dektak profilometer	6nm to 200nm	upto 30 mm	Contact	Step height/Roughness	No sticky and soft sample allowed. Density should be greater than 1.001g/cc	Small 1 cm* 1 cm, Max 8'' wafer
3	Ambios profilometer	25nm to 300 um	50mm Maximum	Contact	Step height/Roughness	No sticky and soft sample allowed.	Small 1 cm* 1 cm, Max 8'' wafer
4	AFM	50nm to mm sizes	10um x 10um / 100um x 100um	Contact/Non-Contact (AC Mode)	Surface Scan,Surface Roughness, Surface profile, topography	Preferably anything solid/ No powdery samples allowed	Around 1cm*1cm
5	Filmetrics	4nm to 20um	Bigger than 5mm x 5mm	Non-contact	N & K value , Thickness	All	
6	EVO SEM	Min- 50-100nm (depending on the sample),Max- more than 100um	Surface: 10 mm x10mm, to 2 in x 2in sample [one sample only] Cross sectional-10mm x 8mm to 10mm x 10mm	Non-contact	Primarily for imaging, dimensions of the feature size	All Materials allowed. Powdered materials allowed on case by case basis	
7	EBL SEM	10nm to mm range	10nm to mm range	Non-contact	Primarily for imaging, dimensions of the feature size	All Materials allowed. Powdered materials allowed on case by case basis	Up to 8 inch wafers
	Note: These are system specifications and general guidelines. Lower limit of measurement ranges are based on ideal conditions and may not be realized in every measurement. Please talk to system owner/operator for further details and confirmations for more special cases. There is one more AFM in Char Lab 2 managed via Institute, which is not listed above.						