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Nanospec 3000 SOP



1. Scope

1.1 This document provides procedures for measuring film thickness with the Nanospec 3000.

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3. Reference Documents

3.1 Referenced within this Document

- 3.1.1 None
- **3.2 External Documents**
 - 3.2.1 None

4. Equipment and/or Materials

- 4.1 Nanospec
- 4.2 Wafer/Sample
- 4.3 Calibration Wafer

5. Safety

5.1 Follow all Nanofab safety procedures.

6. Setup Procedures

6.1 Load Sample

- 6.1.1 Slide out microscope stage.
- 6.1.2 Place sample in the center of the stage, polished side up.
- 6.1.3 Slide in the stage.
- 6.1.4 Focus on the sample. See *Figure 2*.

6.2 Select Program

- 6.2.1 If in the measurement screen, check the top to see which program is selected.
 - 6.2.1.1 If it is the program you need;
 - 6.2.1.1.1 Press <u>N</u>ew Test. See *Figure 1, Measurement Screen*.
 - 6.2.1.1.2 Enter your sample number.
 - 6.2.1.1.3 Skip to section 7
 - 6.2.1.2 If you need a different program proceed to step 6.2.2
- 6.2.2 Click <u>C</u>alib. See *Figure 1*.

- 6.2.3 Select a program from the list. See *Figure 3, Programs List.*
- 6.2.4 When prompted by the yellow filter warning, turn the yellow filter on or off. See *Figure 2*.
 - 6.2.4.1 If the warning says "Yellow filter", turn on the yellow filter.
 - 6.2.4.2 If the warning says "No filter", turn off the yellow filter.

6.3 Calibration

- 6.3.1 If prompted to "Measure New Reference?", click Yes.
- 6.3.2 When prompted by the dark reference measurement,
 - 6.3.2.1 Move the sample out of the way of the microscope reticule.
 - 6.3.2.2 Click Ok.
- 6.3.3 When prompted to focus on reference sample,
 - 6.3.3.1 Place calibration wafer on top of your wafer, polished side up.
 - 6.3.3.2 Move calibration wafer under the microscope reticule.
 - 6.3.3.3 Focus on the calibration wafer.
 - 6.3.3.4 Click Ok.

	(• Nanospec/A	FT	Elapsed Time	: 00:00:00
Program	n: 002 Nitride on Silicon	[103]			Sample ID:
NO.	Thickness	Fit			Print
002	1348.8 A	0.00711			Re-Meas.
004	1341.5 A	0.00552			
006	1371.9 A	0.00533			
					C. C. Stars
Thic	Minimum kness 1 1321.2 A	Maximum F 1371.9 A	Range	Mean 1348.067 A	S.D. 17.135 A
List	Graph				
Help	p Stat Ref	Meas New	v Test	2alib <u>Y</u> ide	0
1				-	
		Der L			
-					
			<u></u>		







7. Measurement Procedures

7.1 Film Thickness Measurement

- 7.1.1 Use X and Y knob to move sample to measurement point. See *Figure 2*.
- 7.1.2 Focus on the sample.
- 7.1.3 Click the <u>Meas button to take a measurement</u>. See *Figure 1, Measurement Screen*.
- 7.1.4 Repeat as necessary.



• Nanospec/AFT Model3000 Edit Maintenance Data About Epit(Shutdown)					
000000000000000000000000000000000000	022 SU8 2015 on Si 023 Sio2 on Silicon on 4000A sio2 024 poly Silicon on 350nm SiO2 025 crystal Silicon on 350nm SiO2 026 poly Silicon on 350nm Jev4 sin 027 LPCVD Si Rich SiN on Si (10X) 028 LPCVD Si Rich SiN on Si (10X) 029 poly on Ipev4 sin on 350 nm SiO2 030 poly Silicon on 700nm SiO2 031 poly Silicon on 500nm Ipev4 sin 032 Oxide on Silicon (10X) 033 unused 034 unused 035 unused 039 unused 039 unused 041 unused 042 unused				
F1:Help F2:Yideo F3:Log On	F4:Gain F5:A.F. F8:Manual				
Figure 0, Programs List					

8. Revision History									
Rev	Date	Originator	Description of Changes						
1	17 June 2010	Sam Bell							