Revision	Description	Date
B	Initial Release – Production (Edited by Kamaljit Singh & Pat McPhail)	12/09/2011

Subject: System Noise

System(s) Affected: Dimension Icon

Action Category:

Summary: System Noise Test

1. Verify that the air table is floating properly**.**
2. Start “tapping in air” experiment.
3. Place a clean bare Silicon wafer on the chuck & place the **Chuck Vacuum switch** to the **ON** position.
4. If using **HOPG** sample on small sample holder, place the chuck Vacuum Switch to the **OFF** position.
5. Place a new **TESPA or OTESPA** probe into a DAFM tip holder.
6. Install the holder onto the head.
7. Center the laser & photo detector to achieve max sum.
8. Tune the probe.
9. Set the following scan parms:

Scan	Channel 1	Channel 2	Feedback
Scan size = 1um	**Data Type** = Height Sensor	**Data Type** = Height	**Ig** = 0.2 **Pg** = 0.2
Aspect ratio = 1	**Data scale** = 1nm	**Data scale** = 1nm	

Scan angle = 0°	**Line direction** = Retrace	**Line direction** = Retrace	
Scan rate= 1.5hz	**Realtime planefit=** Line	**Realtime planefit=** Line	
Samples/Lines = 512	**Offline planefit=** Full	**Offline planefit=** Full	
Closed loop = ON			
Z range = 1 um			

10. Engage on the wafer & optimize scan parms to resolve silicon grains.

11. Capture an image named **OL Silicon.**

12. **DO NOT WITHDRAW.**

13. Set the following scan parms:

    Scan size = 0.1nm

    Scan rate = 2.44hz

    Sample/Lines = 256/256

14. Capture an image named **SYSTEM Noise on Silicion at 2.44hz.**

15. **Withdraw the head.**

16. Open the captured image & click on the **Flatten** icon in the top tool bar.

17. Conduct a **1st order Flatten** on the entire image.

18. Click on the Roughness icon & verify the **Image Rq result**

19. **ImageRq** should be less than or equal to **.03nm** to pass noise test. If it fails, do a section analysis.

20. Conduct a section analysis and draw a horizontal line.

21. Find the peak frequency by pulling the cursor from left side in the histogram.

22. If you see the peak frequency range from 15-40 Hz, it is most likely because of vibration issues. Check you air table and make sure it is floating properly. (40-60 psi).

23. Higher frequencies (100-300Hz) correspond to scanner noise issues. Consult Bruker Tech Support.