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:

<table>
<thead>
<tr>
<th>Scan</th>
<th>Channel 1</th>
<th>Channel 2</th>
<th>Feedback</th>
</tr>
</thead>
</table>
| 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 |
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).


<table>
<thead>
<tr>
<th>Revision</th>
<th>Description</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>Initial Release – Production (Edited by Kamaljit Singh &amp; Pat McPhail)</td>
<td>12/09/2011</td>
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</tbody>
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