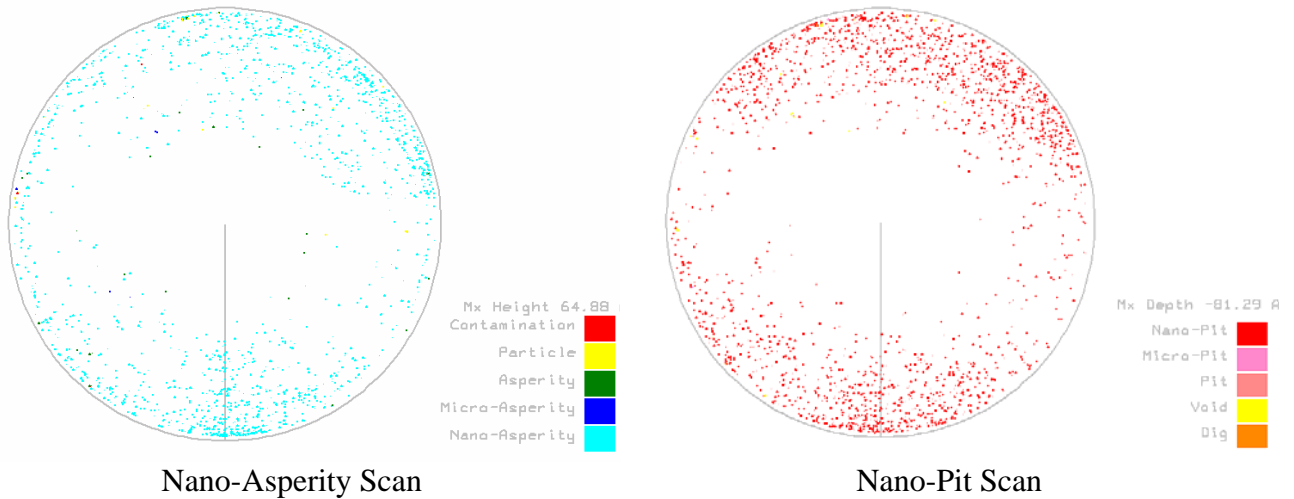


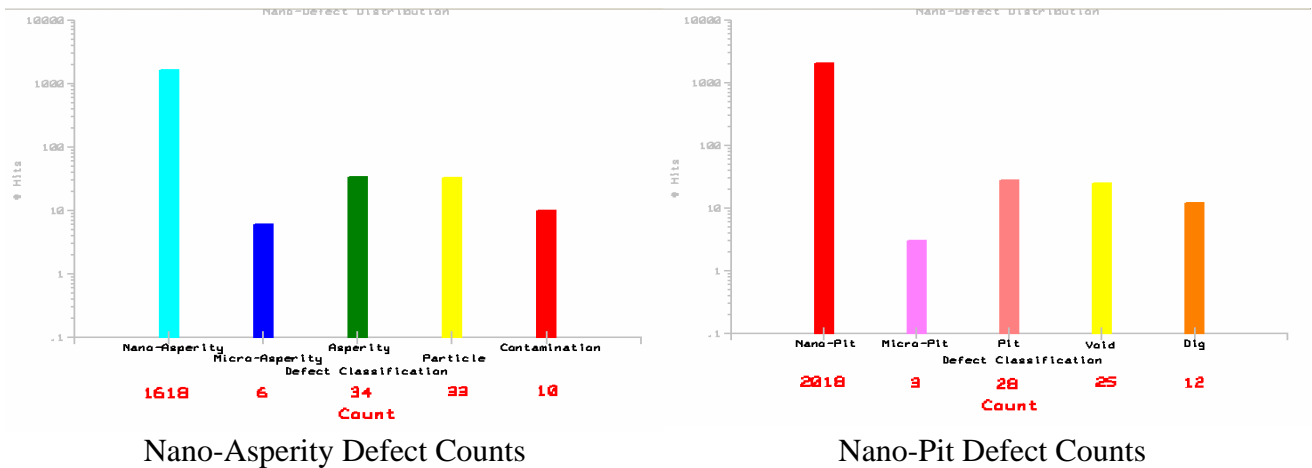
Nano-Scan™ Test Option

The Nano-Scan Test Option uses the Optical Glide™ and Optical Certification™ circuitry to detect high frequency deformities on the disk surface that are the optical signature for asperities, particles and contamination rising above the normal surface and pits, voids and scratches.

The tool is programmed to examine the defect in micro-slices and based on the number of defect slices seen, by a technique called deconvolution, determine the defect size. At the same time the height and depth are measured with the Optical Glide and Optical Certification and by a combination of the two, determine the severity of defects that are actually smaller than the optical limit.



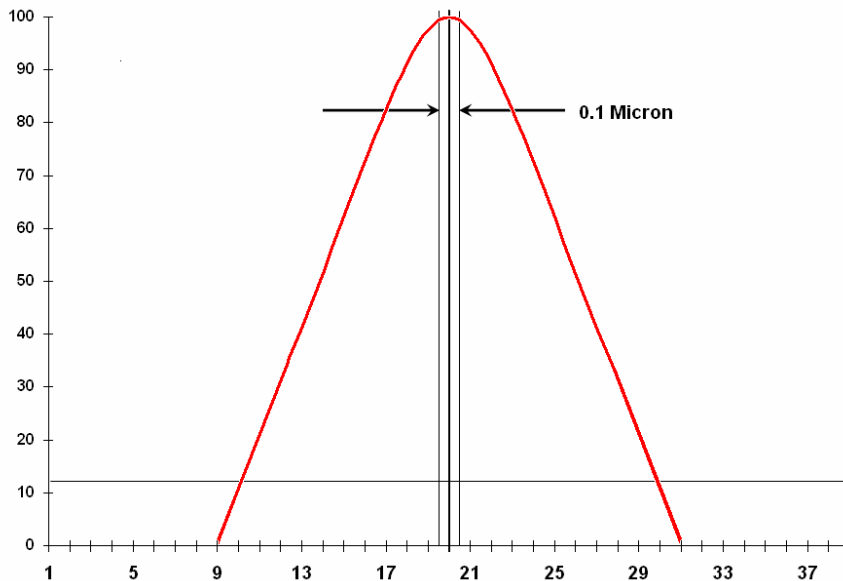
The two defect plots above show a single surface with both data sets acquired simultaneously. The differences in the defect patterns are obvious and the simultaneous acquisition means that not only can pits and asperities be identified but a pit and asperity occurring at the same time provides a better than 95% probability of an embedded particle.



The two bar graphs above show the defect count by type, asperities on the left, pits on the right. The scales shown are log but can be user set to log or normal count. The defect thresholds are user programmable and independent for nano-asperities and for nano-pits.

The table below is a partial list of the asperity defects from a Nano-Scan test. Defects are listed by location (radius and angle from index), height for asperities or depth for pits, size and classification. Classifications are base on size and can be set by the user.

Defect#	Radius(mm)	Angle(deg)	Height(A)	Size(um)	Classification	Defect#	Radius(mm)	Angle(deg)	Height(A)	Size(um)	Classification
1	18.7652	328.1	36.41635	0.2	Nano-Asperity	60	37.2176	33.31	36.17235	0.2	Nano-Asperity
2	19.647	41.31	47.54746	4.8	Asperity	61	37.2252	1.14	40.50327	0.2	Nano-Asperity
3	20.1384	198.02	35.80636	0.2	Nano-Asperity	62	37.2494	213.49	36.26662	3	Asperity
4	21.3628	190.99	36.47734	0.2	Nano-Asperity	63	37.2516	53.88	40.39764	0.6	Nano-Asperity
5	21.3748	166.9	64.88065	9.2	Particle	64	37.2612	34.28	36.78234	0.2	Nano-Asperity
6	21.3822	181.14	36.72134	0.2	Nano-Asperity	65	37.2766	1.76	64.88065	37.4	Contamination
7	21.4731	173.41	37.69257	2.6	Asperity	66	37.278	236.34	50.2631	0.2	Nano-Asperity
8	21.5554	144.67	36.05035	0.2	Nano-Asperity	67	37.279	3.43	39.2833	0.2	Nano-Asperity
9	21.6508	353.06	35.98935	0.2	Nano-Asperity	68	37.2918	359.21	64.88065	4.6	Asperity
10	22.1501	132.28	42.57248	2.2	Asperity	69	37.2926	346.03	64.88065	37	Contamination
11	22.203	276.06	53.23541	5.2	Particle	70	37.3312	144.23	35.01337	0.2	Nano-Asperity
12	22.2046	307.44	40.19828	0.2	Nano-Asperity	71	37.3346	6.24	35.19637	0.2	Nano-Asperity
13	22.9328	153.72	36.35535	0.2	Nano-Asperity	72	37.3384	172.44	39.0393	0.2	Nano-Asperity
14	22.959	229.83	39.69673	1.8	Micro-Asperity	73	37.3434	226.85	39.89328	0.2	Nano-Asperity
15	23.0846	35.33	39.1003	0.2	Nano-Asperity	74	37.344	17.14	64.88065	32.8	Contamination
16	23.4216	62.67	44.94089	1.8	Micro-Asperity	75	37.3522	121.2	35.62336	0.2	Nano-Asperity
17	23.4856	188.17	36.59934	0.2	Nano-Asperity	76	37.356	32.26	64.88065	6	Particle
18	25.0669	143.35	64.88065	13.8	Particle	77	37.3566	200.13	41.17822	6.8	Particle
19	25.1106	239.85	36.72134	0.2	Nano-Asperity	78	37.3662	330.38	44.80647	2	Asperity
20	25.1476	187.65	40.86927	0.2	Nano-Asperity	79	37.3704	57.92	36.17235	0.2	Nano-Asperity



Unlike a scatterometer which requires an illuminator approximating a collimated beam, the Nano-Scan takes advantage of the Gaussian shape of the beam. The fact that it is at normal incidence (perpendicular) to the surface rather than oblique, which causes wavelength elongation and distortion, the LDV beam provides excellent characteristics for beam deconvolution and accurate measurement of nano defects.

Note: The Nano-Scan option requires that the tool be equipped with the Optical Glide / Optical Certification (OG/OC) option. The OG/OC option is standard on the Model 42010 ODS, the Model 42030 ODS and the Model 42040 DAS systems and available for addition to the other models.



THoT Technologies, Inc

271 East Hacienda Avenue, Campbell, California 95008
 Tel: +1-408-370-4600 / Fax: +1-408-370-4609 / www.thot-tech.com