

Note on Precision Dicing Test

Background

Alenia bumped FE-B wafer fragment sent to MTI for precision dicing. They used 4 mil blade. They screwed up and cut through some die but most were recoverable.

Results

Measured die size with SmartScope, single measurement at each corner. In some cases there is significant chipping along edges and at corners. Nominal as cut size is 7.4 by 11.0 mm. Results of measuring 10 die are shown below.

Die	x	y	x	y	x	y	x	y
1	-0.001	0	10.9984	0	11.0054	7.3999	0	7.3968
2	0	0.003	10.9983	0	10.9959	7.4011	0.0026	7.3951
3	0.0001	0.001	10.9989	0	11.007	7.3988	0.0016	7.3978
4	-0.0019	0.0031	11.0025	0	11.0055	7.3983	0.0092	7.405
5	-0.001	0.001	10.9944	0	11.0039	7.3963	0.0065	7.3962
6	-0.001	0.001	11.0022	0	11.0007	7.3998	0.0025	7.4017
7	0	-0.001	11.0066	0	11.0078	7.3988	0.0113	7.4024
8	-0.001	0.001	11.001	0	10.9966	7.4036	-0.0034	7.4006
9	0.0008	0.004	10.9921	0	10.991	7.4031	0.0051	7.4019
10	0.001	0.002	10.9971	0	11.0004	7.3976	0.0062	7.3987
Average	-0.0004	0.00151	10.9992	0	11.0014	7.39973	0.00416	7.39962
Spread	0.0029	0.0050	0.0145	0.0000	0.0168	0.0073	0.0147	0.0099
RMS	0.0009	0.0015	0.0042	0.0000	0.0055	0.0023	0.0044	0.0032

First x-y column shows remeasurement of 0,0 coordinate and gives indication of repeatability of measurement. The spread is the maximum extent - the maximum window. Conclusions are: (1) as cut size on average is dead on desired value; (2) rms is generally within expectations(5 microns); and (3) spread is < 20 microns, probably better. In short, this is precision dicing.