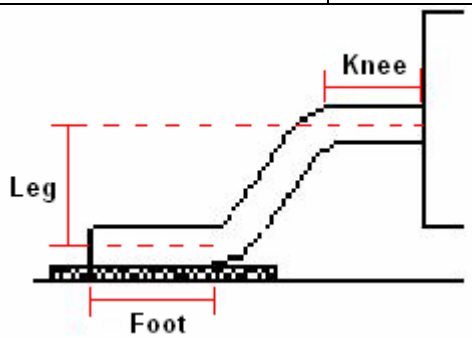
Package: CSP-100 SnPb

Feature	Value [mm] (in)
Package length Fig 6	10.07 (0.3964)
Package width Fig 6	10.07 (0.3964)
Package thickness Fig 6	1.023 (0.0403)
Pitch Fig 5,8	0.813 (0.0320)
Mass	0.25 g
CTE Strain Gauge Technique Temp range -50°C to 100°C Linear Correlation	5.018 ppm/°C (X - axis) 3.789 ppm/°C (Y- axis)
Die length Fig 6	5.608 (0.2208)
Die width Fig 6	5.608 (0.2208)
Die thickness Fig 6	0.2541 (0.0100)
Lead width	N/A
Lead thickness	N/A
Minimum lead gap	N/A
	
Lead foot length	N/A
Lead leg length	N/A
Lead knee length	N/A

Feature	Value
Lead/Termination Base Metal Alloy	Cu/25.40 [µm] Fig 7,11 (0.001000)
Lead/Termination Metallization / thickness	Ni/8.581[µm] Fig 7,12 (0.000338)
Plating 1 metallization / thickness	N/A
Plating 2 metallization / thickness	N/A
Plating 3 metallization / thickness	N/A
Over-plate to protect during cross section?	No
Diameter of solder balls	0.486 Fig 9 (0.019134)
Solder ball alloy (SEM or XRF estimate)	SnPb (Sn63) Fig 10,13
Width of solder ball in contact w/ component pad	0.4089 Fig 9 (0.016098)
Width of component pad	0.5540 Fig 9 (0.021811)
Thickness of component pad	33.901[µm] Fig 7 (0.001335)
Diameter of solder mask opening	0.4089 Fig 9 (0.016098)

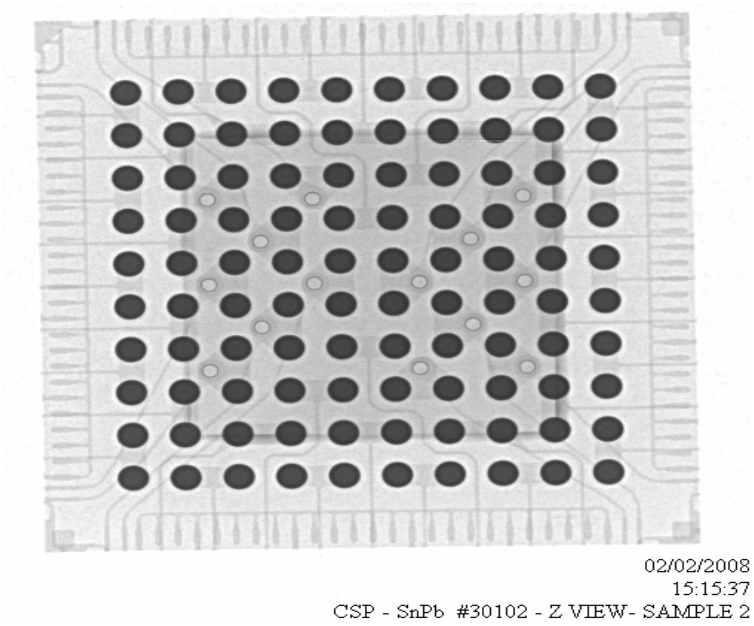


Fig.No.1 CSP-100 SnPb, X-ray, View Z

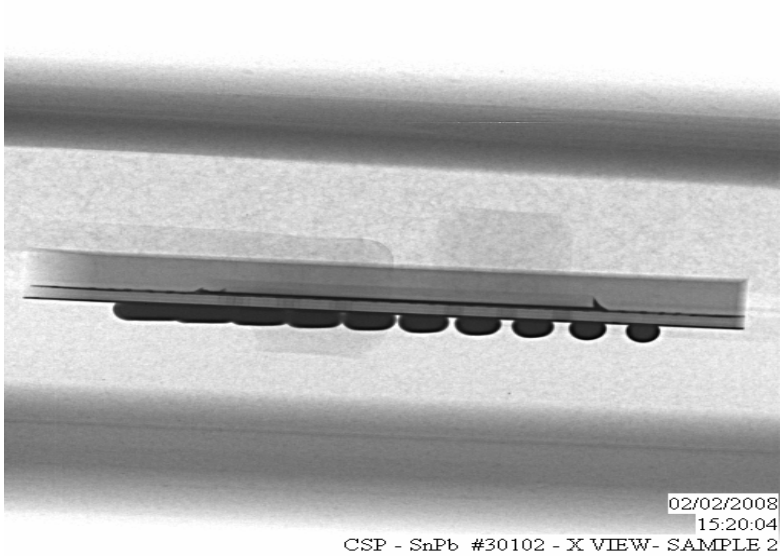


Fig.No.2 CSP-100 SnPb, X-ray, Inclined X-axis View

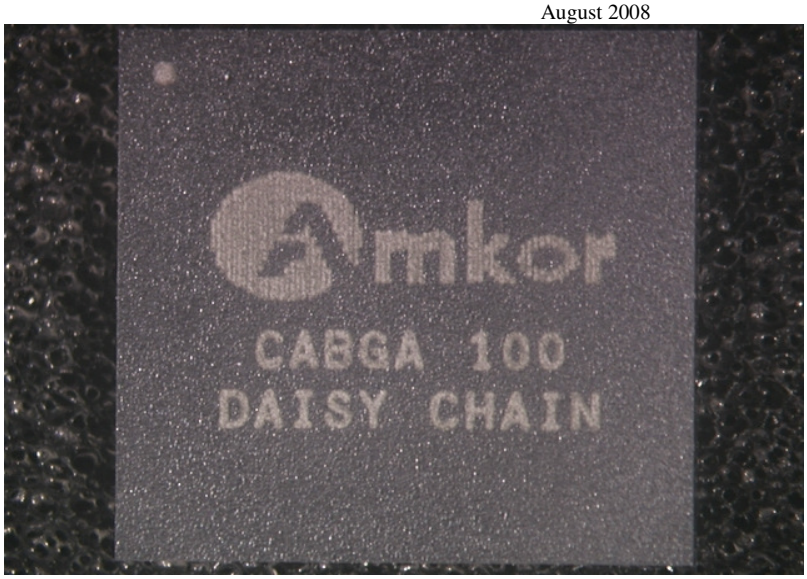


Fig No3. CSP-100SnPb, Top View M~14X

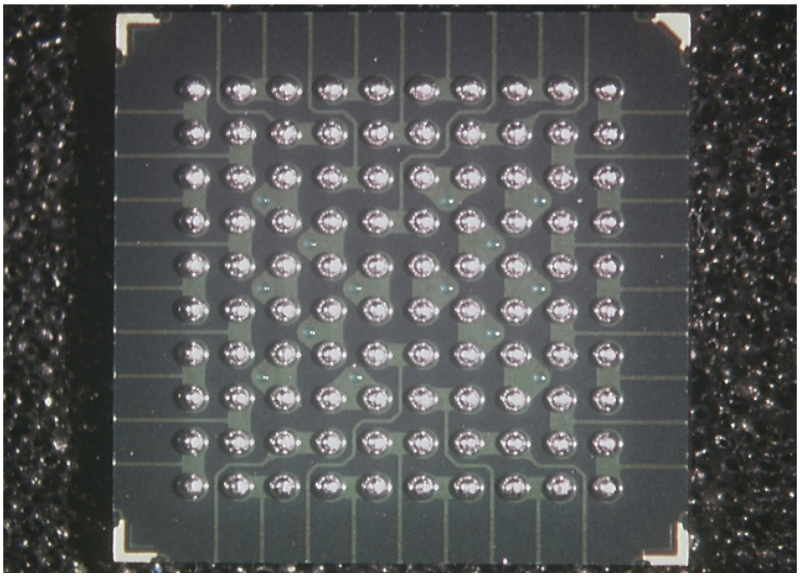


Fig No .4 CSP-100 SnPb, Bottom View M~14X

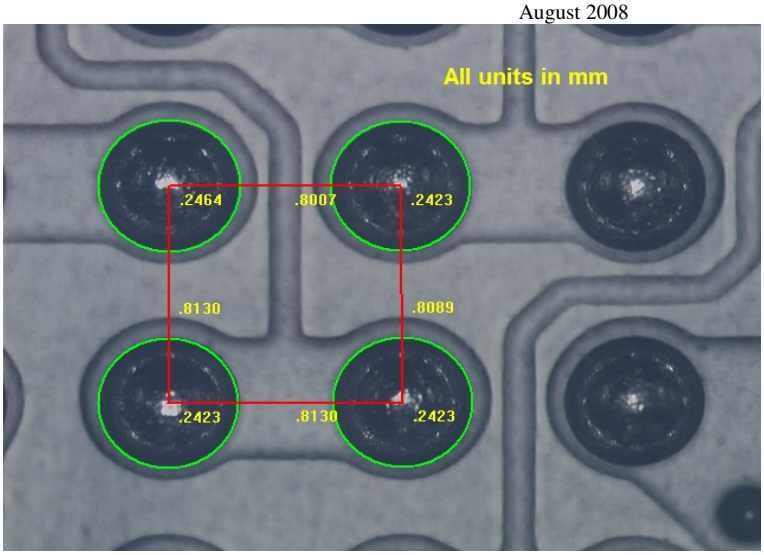


Fig No .5 CSP-100SnPb, Bottom View M~64X

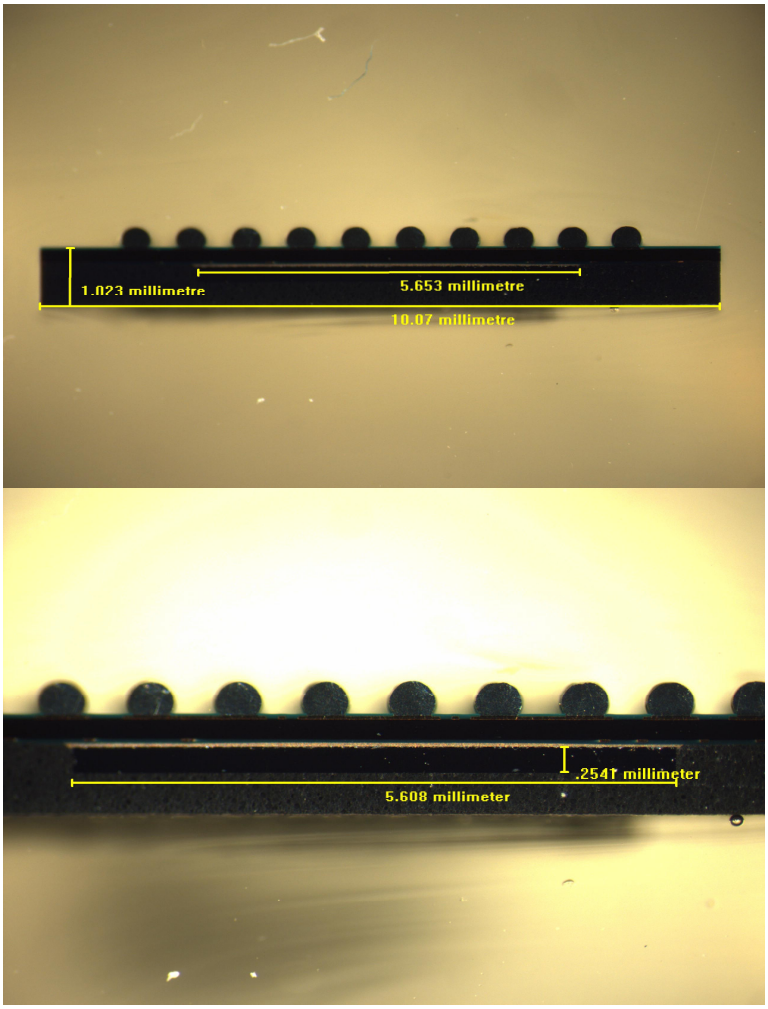


Fig No .6 CSP-100 SnPb, Cross section, Overall M~15X and M~24X Typical View; adopted from SAC405 Component

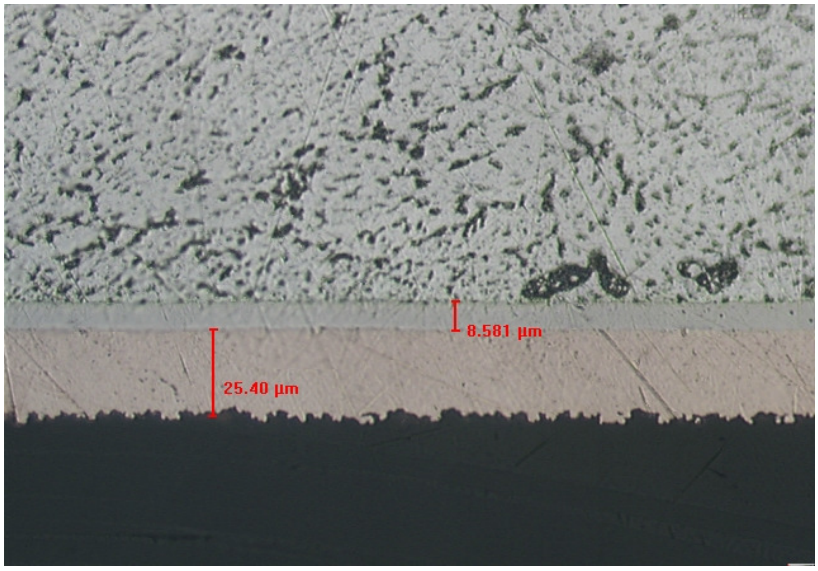


Fig No .7 CSP-100 SnPb, Cross section, Pad/Plating/Solder M~768X

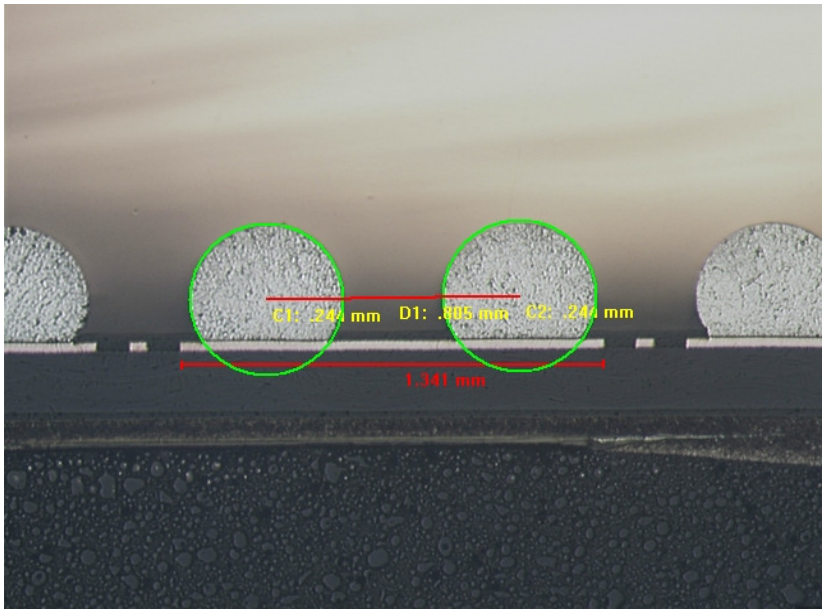


Fig No .8 CSP-100 SNPB, Cross section, Ball to PCB Structure M~64X

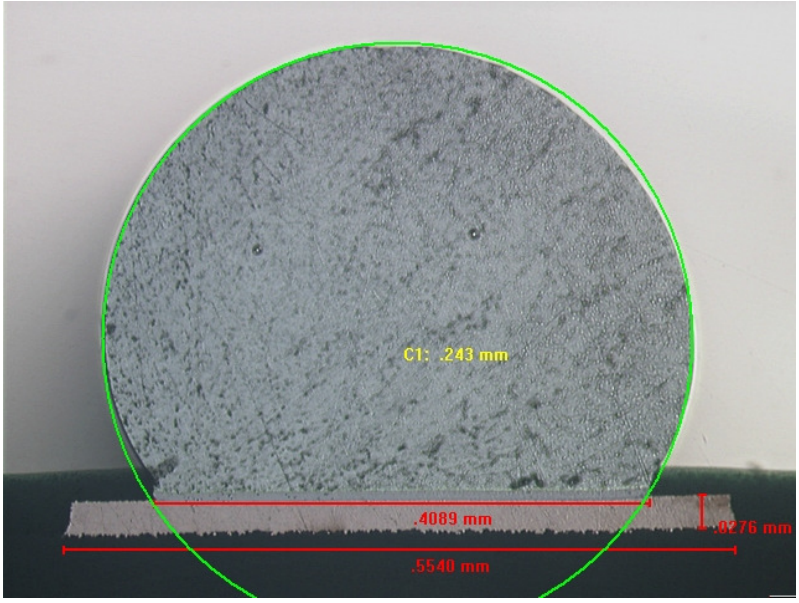
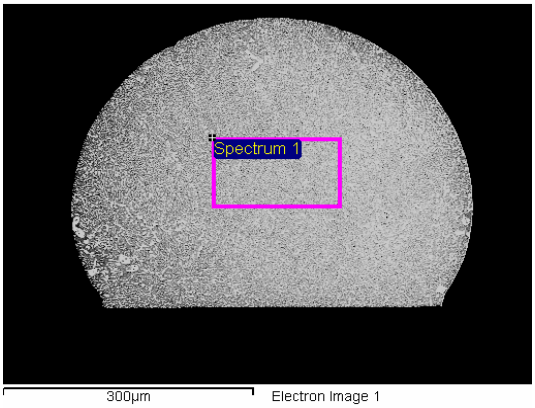
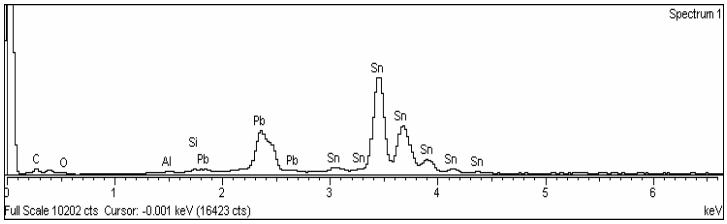


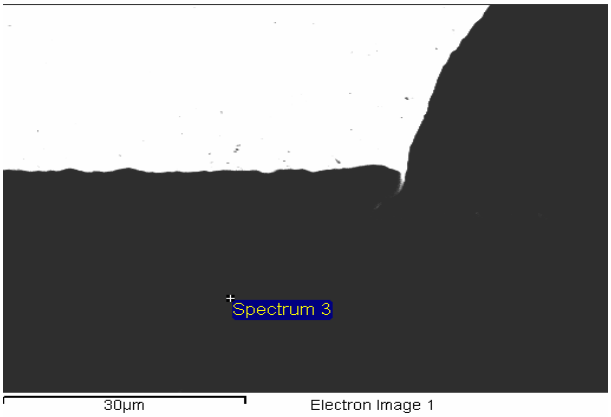
Fig No .9 CSP-100 SnPb, Cross section, Ball, Pad, Solder Mask Opening Widths M~256X

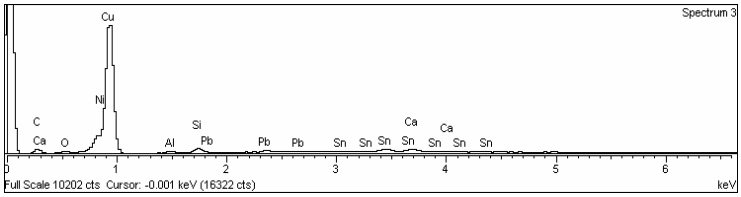




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	39.00	0.7663	6.22	0.54	33.91
O K	10.35	0.2424	5.22	0.91	21.35
Al K	1.24	0.4517	0.34	0.10	0.82
Si K	3.19	0.5668	0.69	0.10	1.61
Sn L	406.23	0.7973	62.29	0.83	34.35
Pb L	196.75	0.9527	25.25	0.56	7.98
Totals			100.00		

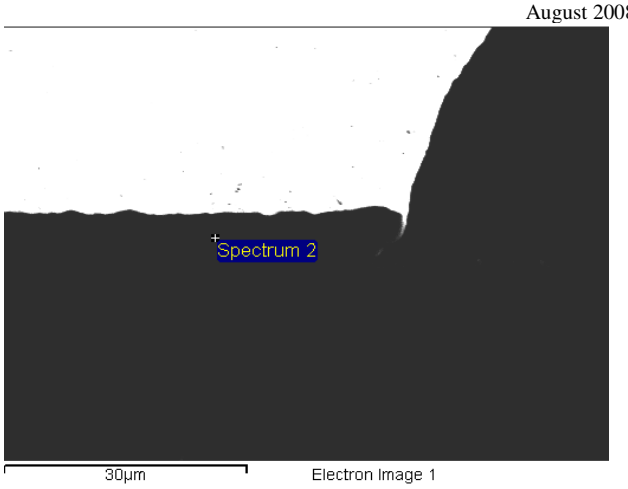
Fig No .10 CSP-100 SnPb, Ball Material Analysis

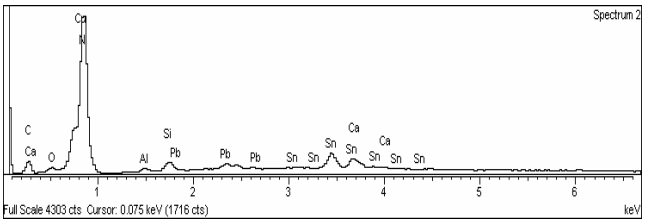




Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	45.21	0.3034	16.81	0.91	49.07
O K	12.53	0.5725	2.47	0.36	5.41
Al K	1.97	0.2804	0.79	0.12	1.03
Si K	5.20	0.3758	1.56	0.12	1.95
Ca K	2.41	0.9835	0.28	0.07	0.24
Ni K	6.82	0.9856	0.78	0.10	0.47
Cu K	624.00	0.9445	74.54	0.91	41.13
Sn L	13.65	0.8367	1.84	0.17	0.54
Pb L	6.33	0.7777	0.92	0.30	0.16
Totals			100.00		

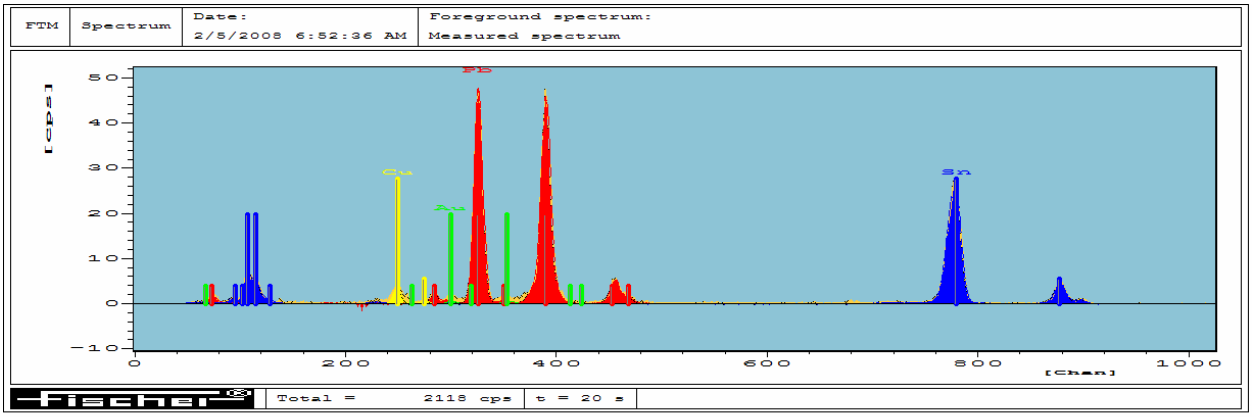
Fig No .11 CSP-100SnPb, Pad Material Analysis





Element	App	Intensity	Weight%	Weight%	Atomic%
	Conc.	Corrn.		Sigma	
C K	50.14	0.3324	17.30	0.84	49.31
O K	10.08	0.5632	2.05	0.37	4.39
Al K	1.51	0.2971	0.58	0.11	0.74
Si K	4.27	0.3969	1.23	0.11	1.50
Ca K	1.96	0.9790	0.23	0.08	0.20
Ni K	590.03	0.9587	70.59	0.83	41.16
Cu K	19.91	0.9192	2.48	0.18	1.34
Sn L	26.44	0.8352	3.63	0.20	1.05
Pb L	12.65	0.7636	1.90	0.33	0.31
Totals			100.00		

Fig No .12 CSP-100 SnPb, Pad Plating Material Analysis



Foreground: Measured spectrum
Meas. para. (foreground spectrum):
High voltage = 50 kV (875) Prim. Filter = Ni
Collimator 2 = 0.30 Dm. Anode current 1000 uA
Meas. distance = 0.003 inch

Results of analysis: (%)

82	Pb	=	35.11
50	Sn	=	62.89
79	Au	=	0.49
29	Cu	=	1.51

Fig No .13 CSP-100 SnPb, Ball Material Analysis by XRF