Material calculation for the KEK End-tap module (Kapton hybrid)

Module area [mm^2] 8140.8 (width 63.6 mm length 128 mm)

Item	Material	Xo [mm]	t [mm]	point RL [%Xo]	#piece	width [mm]	length [mm]	Average RL [%Xo]
Detector	Silicon	93.6	0.3	0.321	2	63.6	128	0.641
FEE&Electrical parts								
Bipolar chip	Silicon	93.6	0.5	0.534	12	7	5	0.028
CMOS chip	Silicon	93.6	0.5	0.534	12	7	5	0.028
HAC chip	Silicon	93.6	0.5	0.534	2	2	2	0.001
Electric parts								0.111
Sub-total								0.166
Hybrid								
Hybrid (base&traces)	Cu-Kapton		0.3	0.300	2	23	76	0.129
Glue (PG-Hyb)	Epoxy	250	0.05	0.020	2	23	76	0.009
Glue (Hyb-Bchip)	Silver-epoxy	9	0.025	0.278	12	7	5	0.014
Glue (Hyb-Cchip)	Silver-epoxy	9	0.025	0.278	12	7	5	0.014
Pitch-adaptor	Quartz	270.5	0.3	0.111	2	4.5	63.6	0.008
Glue (PG-Pitch)	Epoxy	250	0.05	0.020	2	4.5	63.6	0.001
Sub-total								0.175
Cabling								
Kapton	Cu-Kapton		0.15	0.15	2	23	8	0.007
Kapton	Cu-Kapton		0.15	0.15	1	12	44	0.010
Connector								
Sub-total								0.017
Mechanical parts								
PG baseboard	PG1300	190	0.5	0.263	1	62.8769	143	0.291
BeO facing	BeO	144	0.25	0.174	2	10.2	70	0.030
Glue (det-PG)	Epoxy	250	0.05	0.020	2	52	108	0.028
Glue (PG-BeO facing	Epoxy	250	0.05	0.020	2	10.2	70	0.004
Wire-bonds	Al	89	0.025	0.028	6604.8	0.025	2	0.001
Sub-total								0.353
Support/Cooling								
Grand total								1.352