Table 5.2: Comparison of absorption level of diamond sample positioned in an edge-on geometry with the absorption level in a flat-on geometry for exposure measurements, for a 25 nominal kVp x-ray spectrum.

Diamond exposure Geometry	Absorption depth (cm)	Absorption area (cm^2)	% Incident photon flux in energy interval 1.5-8 keV	% Incident photon flux in energy interval In 8.5-15 keV	% Incident photon flux in energy interval In 15.5-25 keV	% photon flux absorbed by diamond in energy interval In 1.5-8 keV	% photon flux absorbed by diamond in energy interval In 8.5-15 keV	% photon flux absorbed by diamond in energy interval In 15.5-25 keV	% photon flux absorbed by diamond in the Entire spectrum
EDGE-ON	1	0.05	21.96	13.39	64.65	100	98.2	85.0	94.4
EDGE-ON	1	0.1	21.96	13.39	64.65	100	98.2	85.0	94.4
FLAT-ON	0.05	1	21.96	13.39	64.65	93.5	31.4	14.7	46.5
FLAT-ON	0.1	1	21.96	13.39	64.65	97.8	47.4	22.6	55.9

Table 5.3: Comparison of absorption level of diamond sample positioned in an edge on geometry with the absorption level in a flat on geometry for exposure measurements, for a 30 nominal kVp x-ray spectrum.

Diamond exposure Geometry	Absorption depth (cm)	Absorption area (cm^2)	% Incident photon flux in energy interval In 1.5-8 keV	% Incident photon flux in energy interval In 8.5-15 keV	% Incident photon flux in energy interval In 15.5-30 keV	% photon flux absorbed by diamond in energy interval In 1.5-8 keV	% photon flux absorbed by diamond in energy interval In 8.5-15 keV	% photon flux absorbed by diamond in energy interval In 15.5-30 keV	% photon flux absorbed by diamond in the Entire spectrum
EDGE-ON	1	0.05	19.36	11.62	69.02	100	98.1	80.4	92.9
EDGE-ON	1	0.1	19.36	11.62	69.02	100	98.1	80.4	92.9
FLAT-ON	0.05	1	19.36	11.62	69.02	92.9	31.5	12.8	45.7
FLAT-ON	0.1	1	19.36	11.62	69.02	97.6	47.3	20.0	55.0

No.	Description	Material	No.	Description	Material
1	Triaxial connector	Steel	7	Insulated holders	Rubber
2	Probe	Perspex	8	Detector holder	Perspex
3	Detector outer housing	Perspex	9	Detector cover	Perspex
4	Insulated wires	Copper	10	Active sensing material	CVD Diamond
5	Rod conductors	Copper	11	Split halves holding ring	Perspex
6	Electrodes	Carbon fibre rods			

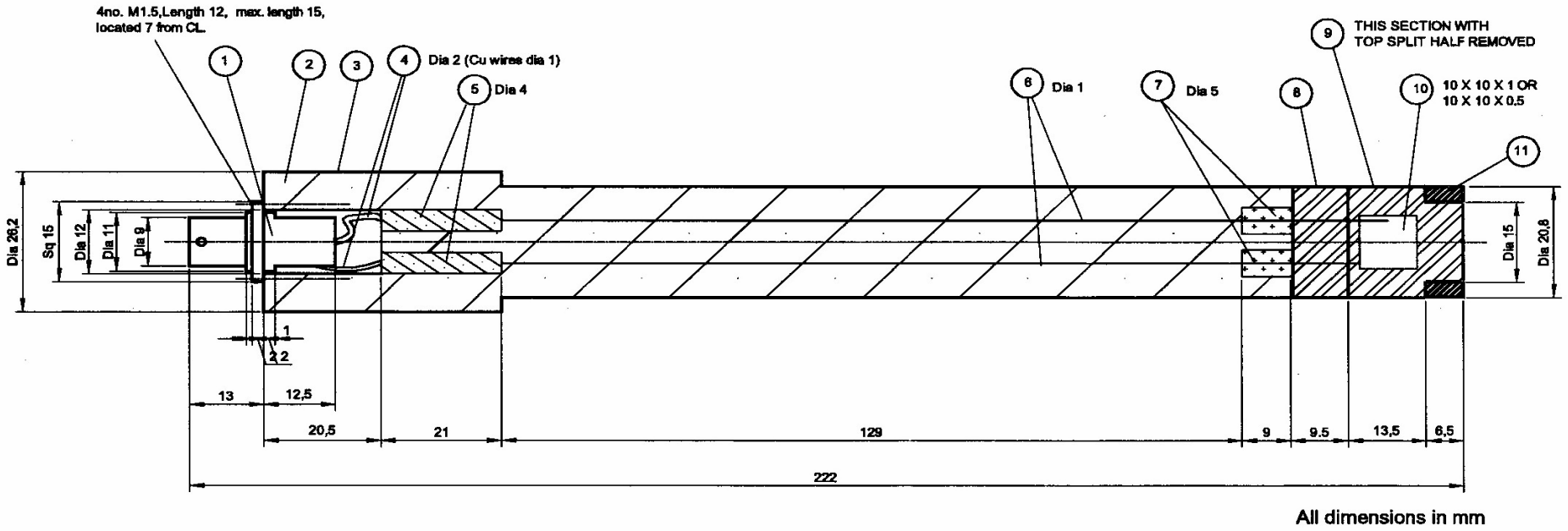

Figure 5.20: CVD diamond probe with Perspex casing, Mark IIA.

No.	Description	Material	No.	Description	Material
1	Triaxial connector	Steel	7	Insulated holders	Rubber
2	Probe	Perspex	8	Detector holder	Perspex
3	Detector outer housing	Perspex	9	Detector cover	Perspex
4	Insulated wires	Copper	10	Active sensing material	CVD Diamond
5	Rod conductors	Copper	11	Split halves holding ring	Perspex
6	Electrodes	Carbon fibre rods			

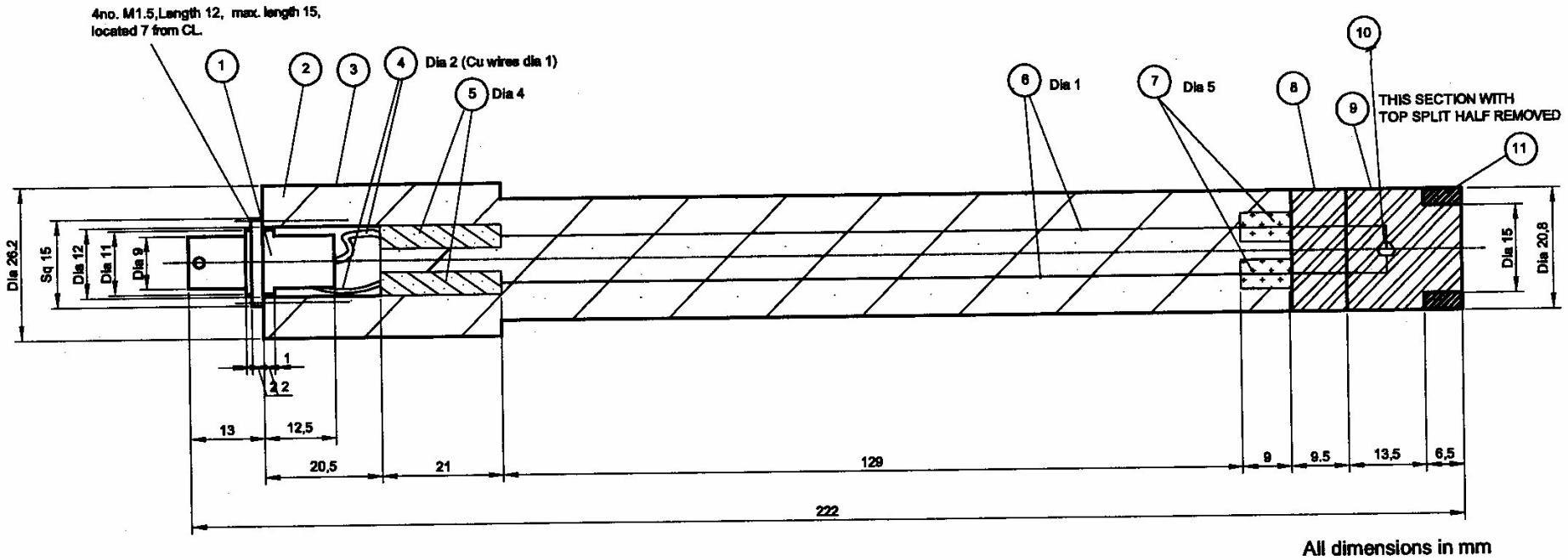

Figure 5.21: CVD diamond probe with Perspex casing, Mark IIB.