TOTAL BODY DOSIMETRY

Patient No.	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R	Integral Dose Megagm-rad
1								
2								
3								
4	26.0	40.4	110	100	66	79.6	79.6	3.1
5								
6	35.0	76.7	113	100	54	74.00	74.0	5.5
7 37 –	31.0	58.6	187	167	100	76.5	128.0	7.3
8	36.0	80.3	211	185	100	73.4	136.0	10.6
9	29.0	59.0	27(2)	25(2)	16(2)	77.7	38.8	2.2
10 49 –	28.0	57.4	174	157	100	78.3	123.0	6.9
11	32.0	71.0	191	170	100	75.9	129.0	8.9
12								
13	32.0	84.0	95	85	50	75.9	64.5	5.3
14								
15	30.5	59.5	185	166	100	76.8	127.0	7.4
16								
17	25.5	57.4	163	149	100	79.8	119.0	6.6
18	29.5	64.0	362	325	200	77.4	251.0	15.6
19		59.0						
20	24.0	49.0	318	294	200	80.8	235.0	11.1
21 36 –	29.0	50.0	359	322	200	77.7	250.0	12.1
22 10 +	30.0	56.0	277	248	150	77.1	191.0	10.4
23	30.5	85.0	374	336	200	76.8	258.0	21.2
24	29.0	68.0	359	322	200	77.7	250.0	16.5
25 33 +	27.5	52.0	261	226	150	78.6	177.0	8.2
26	29.0	49	179	155	100	77.7	120.0	5.7
27	30.5	67	279	238	150	76.8	182.0	11.8
28	29.5	no Rx						
29	34.0	69	303	257	150	74.65	192.0	12.8
30	27.0	48	172	149	100	78.95	117.0	5.4
31	29.0	59	179	155	100	77.70	120.0	6.9
32								
33	28.0	64	176	152	100	78.35	119.0	7.4
34								
35	28.0	61	263	227	150	78.35	178.0	10.5
36	28.5	61	177	153	100	78.0	119.0	7.1
37 54 –	29.0	60	270	231	150	77.70	179.0	10.4
38	32.0	79	48	41	25	75.85	31.0	2.4
39								
40	28.0	62	176	152	100	78.35	119.0	7.2
41 9 –	29.0	71	90	77	50	77.70	59.8	4.1
42	25.5	53	249	216	150	79.80	172.0	8.8
44	26.5	50	172	149	100	79.25	118.0	5.7
45 25 –	33.0	57	296	250	150	75.30	188.0	10.4
51	25.0	43	244	212	150	80.15	170.0	7.1
53 28 +	30.0	59	369	316	200	77.10	243.0	13.9

#112

DUCAL BONE DENSITY

Patient No.	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R	Integral Dose Engaged rad
1								
2								
3								
4	26.0	60.4	110 115	100	66 68	70.6 71.7	70.6 71.7	53.1
5								
6	25.0	76.7	118 119	100	54 56	64.9	64.9	35.5
7	21.0	58.6	187 196	167	100 104	67.5	112.5	57.3
8	26.0	80.3	211 >211	185	100 104	64.3	118.5	10.6
9	29.0	59.8	>9 27(2)	25(2)	16(2)	68.9	34.5	2.2
10	28.0	57.4	194 183	157	100 104	69.7	109.0	06.9
11	32.0	71.0	201 >201	170	100 104	66.9	113.5	8.9
12								
13	32.0	84.0	96 100(3)	85 (3)	80 57(3)	66.9(3)	57.0	5.3
14								
15	30.5	59.5	185 194	166	100 104	67.8	112.5	7.4
16								
17	25.5	57.4	169 177	149	100 104	71.6	106.5	6.6
1	29.5	64.0	362 380	325	200 >208	68.5	221.0	15.6
19		59.0						
20	24.0	49.0	318 334	294	200 >208	77.7	228.0	11.1
21	29.0	50.0	359 377	322	200 >208	68.9	221.5	12.1
22	30.0	56.0	277 291	248	100 156	68.1	169.0	10.4
23	30.5	85.0	374 392	336	200 >208	67.8	227.6	21.2
24	29.0	68.0	359 377	322	200 >208	68.9	221.5	16.5
25	27.5	52.0	261	226	150	70.1	158.5	8.2
26	29.0	49	179	155	100	68.9	106.5	5.7
27	30.5	67	279	238	150	67.8	161.0	11.8
28	29.5	no Rx						
29	34.0	69	303	257	150	65.5	168.0	12.8
30 * dude	27.0	48	172	149	100	70.4	105.0	5.4
31	29.0	59	179	155	100	68.9	106.5	6.9
32								
33	28.0	64	176	152	100	69.7	105.5	7.4
34								
35	28.0	61	263	227	150	69.7	158.0	10.5
36	28.5	61	177	153	100	69.3	106.0	7.1
37	29.0	60	270	231	150	68.9	159.0	10.4
38	32.0	79	48	41	25	66.9	27.5	2.4
39								
40	28.0	62	176	152	100	69.7	105.5	7.2
41	29.0	71	90	77	50	68.9	53.0	4.1
42	25.5	53	249	216	150	71.6	154.5	8.8
43	26.5	50	172	149	100	70.8	106.6	5.7
44	33.0	97	286	250	150	66.9	165.5	10.4
51	25.0	43	264	212	150	77.0	152.5	7.1
53	30.0	89	259	246	200	68.1	245.0	13.9

TOTAL BODY DOSIMETRY

Patient No.	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R	Integral Dose Megagm-rad
1								
2								
3								
4	26.0	40.4	110	100	66	79.6	79.6	3.1
5								
6	35.0	76.7	113	100	54	74.00	74.0	5.5
7	31.0	58.6	187	167	100	76.5	128.0	7.3
8	36.0	80.3	211	185	100	73.4	136.0	10.6
9	29.0	59.0	27(2)	25(2)	16(2)	77.7	38.8	2.2
10	28.0	57.4	174	157	100	78.3	123.0	6.9
11	32.0	71.0	191	170	100	75.9	129.0	8.9
12								
13	32.0	84.0	95	85	50	75.9	64.5	5.3
14								
15	30.5	59.5	185	166	100	76.8	127.0	7.4
16								
1	25.5	57.4	163	149	100	79.8	119.0	6.6
18	29.5	64.0	362	325	200	77.4	251.0	15.6
19		59.0						
20	24.0	49.0	318	294	200	80.8	235.0	11.1
21	29.0	50.0	359	322	200	77.7	250.0	12.1
22	30.0	56.0	277	248	150	77.1	191.0	10.4
23	30.5	85.0	374	336	200	76.8	258.0	21.2
24	29.0	68.0	359	322	200	77.7	250.0	16.5
25	27.5	52.0	261	226	150	78.6	177.0	8.2
26	29.0	49	179	155	100	77.7	120.0	5.7
27	30.5	67	279	238	150	76.8	182.0	11.8
28	29.5	no Rx						
29	34.0	69	303	257	150	74.65	192.0	12.8
30	27.0	48	172	149	100	78.95	117.0	5.4
31	29.0	59	179	155	100	77.70	120.0	6.9
32								
33	28.0	64	176	152	100	78.35	119.0	7.4
34								
35	28.0	61	263	227	150	78.35	178.0	10.5
36	28.5	61	177	153	100	78.0	119.0	7.1
37	29.0	60	270	231	150	77.70	179.0	10.4
38	32.0	79	48	41	25	75.85	31.0	2.4
39								
40	28.0	62	176	152	100	78.35	119.0	7.2
41	29.0	71	90	77	50	77.70	59.8	4.1
42	25.5	53	249	216	150	79.80	172.0	8.8
4	26.5	50	172	149	100	79.25	118.0	5.7
45	33.0	57	296	250	150	75.30	188.0	10.4
51	25.0	43	244	212	150	80.15	170.0	7.1
53	30.0	59	369	316	200	77.10	243.0	13.9

Patient No.	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R	Integral Dose Megagm-rad
57	35.0	83	208	175	100	74.0	129.5	10.4
58	31.5	75	95	81	50	76.2	61.7	4.5
59 PD 3Y +	30.5	-	279	238	150	76.8	182.5	-
60 PD 30 +	29.0	83	270	231	150	77.7	179.5	14.4
61	28.5	56	88	76	50	78.0	59.2	3.2
62	29.0	74	270	231	150	77.7	179.5	12.9
PARTIAL BODY (UPPER) DOSIMETRY								
50	34.5	78	415	348	200	31.3	78.0	8.3
55	34.0	88	405	341	200	31.4	88.0	9.1
56 D 38 —	28.0	63	175	151	100	32.7	63.0	3.0
PARTIAL BODY (LOWER) DOSIMETRY								
43 D 15 —	27.5	42	174	150	100	46.3	69.6	2.8
47	29.5	60	272	233	150	45.6	106.2	6.2
49	28.0	47	352	304	200	45.9	139.5	6.4
52	26.5	59	342	296	200	46.4	137.5	7.9
[illegible]	26.0	40	503	436	300	46.6	203.5	8.0
64	27.0	58	515	444	300	46.4	206.0	11.7
65	29.0	68	360	310	200	45.6	141.5	9.3
66	29.0	60	360	310	200	45.6	141.5	8.3
67	26.0	54	168	145	100	46.6	67.7	3.6
68	28.0	53	263	226	150	45.9	103.8	5.4

Patient	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R at base	Integral Dose Aggregate rad
57	25.0	83	288	175	100	~~34.0~~ 64.9	~~229.5~~ 113.8	10.4
58	21.5	75	95	81	50	~~78.2~~ 67.7	~~81.7~~ 54.5	4.3
59	20.5	-	279	236	150	~~78.8~~ 67.8	~~182.5~~ 161.0	-
60	23.0	83	270	231	150	~~77.7~~ 68.9	~~179.5~~ 159.0	14.4
61	18.5	56	88	76	50	~~78.8~~ 69.3	~~80.2~~ 57.5	3.2
62	23.0	74	270	231	150	~~77.7~~ 68.9	~~179.5~~ 159.0	12.9
			PARTIAL BODY (UPPER) DOSIMETRY					
10	24.5	78	415	348	200	~~21.3~~ 65.2	~~70.0~~ 227.0	8.3
15	24.0	88	405	341	200	~~21.4~~ 65.5	~~68.8~~ 223.0	9.1
16	28.0	63	175	151	100	32.7 69.7	~~63.0~~ 105.0	300
			PARTIAL BODY (LOWER) DOSIMETRY					
	27.5	42	174	150	100	~~46.3~~ 70.0	~~69.6~~ 105.0	2.8
	29.5	60	272	233	150	~~45.6~~ 68.5	~~106.2~~ 159.5	6.2
	28.0	47	252	204	200	~~45.9~~ 69.7	~~139.5~~ 211.5	6.4
	26.5	39	242	296	200	~~46.4~~ 70.8	~~137.5~~ 209.0	7.9
	26.0	40	303	436	300	~~46.6~~ 71.7	~~203.5~~ 310.0	8.0
	27.0	58	515	444	300	~~46.4~~ 70.4	~~206.8~~ 317.0	11.7
	29.0	68	360	310	200	~~45.6~~ 68.9	~~141.5~~ 213.5	9.3
	29.0	60	360	310	200	~~45.6~~ 68.9	~~141.5~~ 213.5	8.3
	26.0	34	168	145	100	~~46.6~~ 71.7	~~67.7~~ 103.0	3.6
	28.0	53	263	226	150	~~45.9~~ 69.7	~~103.8~~ 157.5	5.4

Patient	Lateral Dimension cm	Body Weight kg	Surface Dose R	Midline Air Exposure R	Midline Absorbed Dose rad	Average Dose R per 100 R in air at midline	Average Dose R	Integral Dose Megagm-rad
57	35.0	83	208	175	100	74.0	129.5	10.4
58	31.5	75	95	81	50	76.2	61.7	4.5
59	30.5	-	279	238	150	76.8	182.5	-
60	29.0	83	270	231	150	77.7	179.5	14.4
61	28.5	56	88	76	50	78.0	59.2	3.2
62	29.0	74	270	231	150	77.7	179.5	12.9
			PARTIAL BODY (UPPER) DOSIMETRY					
50	34.5	78	415	348	200	31.3	78.0	8.3
55	34.0	88	405	341	200	31.4	88.0	9.1
56	28.0	63	175	151	100	32.7	63.0	3.0
			PARTIAL BODY (LOWER) DOSIMETRY					
43	27.5	42	174	150	100	46.3	69.6	2.8
47	29.5	60	272	233	150	45.6	106.2	6.2
49	28.0	47	352	304	200	45.9	139.5	6.4
52	26.5	59	342	296	200	46.4	137.5	7.9
63	26.0	40	503	436	300	46.6	203.5	8.0
64	27.0	58	515	444	300	46.4	206.0	11.7
65	29.0	68	360	310	200	45.6	141.5	9.3
66	29.0	60	360	310	200	45.6	141.5	8.3
67	26.0	54	168	145	100	46.6	67.7	3.6
68	28.0	53	263	226	150	45.9	103.8	5.4

TOTAL BODY DOSIMETRY

Patient No.	Patient Wt. Kg	Lateral Dimension Cm	Surface Exposure R	Midline Air Exposure R	Midline Absorbed Dose rad	Midline Dose Midline Exposure rad/R
TOTAL BODY						
38	79	32.0	48	41	25	0.61
9	59	29.0	58(2)	50(2)	32(2)	0.64
41	71	29.0	90	77	50	0.65
58	75	31.5	95	81	50	0.62
61	56	28.5	88	76	50	0.66
6	77	35.0	120	100	57	0.57
4	40	26.0	115	100	68	0.68
7	59	31.0	196	167	104	0.62
8	80	36.0	221	185	104	0.56
10	57	28.0	183	157	104	0.66
11	71	32.0	201	170	104	0.61
15	60	30.5	194	166	104	0.63
17	57	25.5	172	149	104	0.70
26	49	29.0	179	155	100	0.65
30	48	27.0	172	149	100	0.67
31	59	29.0	179	155	100	0.65
33	64	28.0	176	152	100	0.66
36	61	28.5	177	153	100	0.66
40	62	28.0	176	152	100	0.66
44	50	26.5	172	149	100	0.67
57	83	35.0	208	175	100	0.57
79	61	24.0	159	139	100	0.72
81	43	24.0	159	139	100	0.72
83	45	26.0	168	144	100	0.69
86	35	25.0	163	142	100	0.70
96	96	35.0	206	172	100	0.58
97	51	27.0	172	148	100	0.68
105	58	29.0	180	154	100	0.65
112	59	27.0	174	149	100	0.67
113	63	29.0	183	155	100	0.65
22	56	30.0	291	248	150	0.61
25	52	27.5	261	226	150	0.67
27	67	30.5	279	238	150	0.63
29	69	34.0	303	257	150	0.58
35	61	28.0	263	227	150	0.67
37	60	29.0	270	231	150	0.65
42	53	25.5	249	216	150	0.70
45	57	33.0	296	250	150	0.60

TOTAL BODY DOSIMETRY

Patient No.	Patient Wt. Kg	Lateral Dimension Cm	Surface Exposure R	Midline Air Exposure R	Midline Absorbed Dose rad	Midline Dose Midline Exposure rad/R
TOTAL BODY continued						
51	43	25.0	244	212	150	0.71
59	68	30.5	279	238	150	0.63
60	83	29.0	270	231	150	0.65
62	74	29.0	270	231	150	0.65
70	74	28.0	263	226	150	0.67
88	66	32.0	288	244	150	0.62
90	59	28.0	264	226	150	0.67
93	32	24.0	238	208	150	0.72
18	64	29.5	380	325	208	0.64
20	49	24.0	334	294	208	0.71
21	50	29.0	377	322	208	0.65
23	85	30.5	392	336	208	0.62
24	68	29.0	377	322	208	0.65
53	59	30.0	369	316	200	0.63
77	52	26.0	335	290	200	0.69
78	52	28.0	351	302	200	0.66
87	54	24.0	318	278	200	0.72
91	50	27.0	344	295	200	0.68
95	52	27.0	344	295	200	0.68
98	64	32.0	385	324	200	0.62
107	45	29.0	360	307	200	0.65
111	54	29.0	365	309	200	0.65
99	45	26.0	386	332	230	0.69
PARTIAL BODY (UPPER)						
56	63	28.0	175	151	100	0.66
50	78	34.5	415	348	200	0.58
55	88	34.0	405	341	200	0.59
84	60	30.0	540	471	300	0.64
108	71	32.0	576	485	300	0.62
110	64	33.0	612	510	300	0.59
PARTIAL BODY (LOWER)						
43	42	27.5	174	150	100	0.67
67	54	26.0	168	145	100	0.69
47	60	29.5	272	233	150	0.64
68	53	28.0	263	226	150	0.66

TOTAL BODY DOSIMETRY

Patient No.	Patient Wt. Kg	Lateral Dimension Cm	Surface Exposure R	Midline Air Exposure R	Midline Absorbed Dose rad	Midline Dose Midline Exposure rad/R
PARTIAL BODY (LOWER) continued						
49	47	28.0	352	304	200	0.66
52	59	26.5	342	296	200	0.68
65	68	29.0	360	310	200	0.65
66	60	29.0	360	310	200	0.65
75	61	26.0	335	290	200	0.69
101	73	33.0	508	426	257	0.60
63	40	26.0	503	436	300	0.69
64	58	27.0	515	444	300	0.68
72	74	33.0	592	500	300	0.60
82	58	26.0	503	435	300	0.68
100	95	31.0	566	479	300	0.63
103	64	31.0	566	479	300	0.63
104	51	31.0	566	479	300	0.63
106	47	29.0	542	461	300	0.65
109	74	35.0	625	524	300	0.57
TRUNK (BASE OF NECK TO PUBIS)						
92	48	25.0	245	212	150	0.71
94	87	30.0	277	237	150	0.63
89	66	35.0	417	347	200	0.58
102	58	29.0	360	307	200	0.65

LOWER HALF

375

316

#49 LOWER HALF

Lat 28.0 wt = 47 kg M.T. = 200 M.A. = 304

Trunk = .669 × 4/7 × 1/2 = .191

Limbs = .809 × 3/7 × .68 = .238

.429 × .93 × 115.7 = 45.9

45.9 × 3.04 = 139.5 × 47 = 6.6 megagm·rad

= 6.4 megagm·rad

#52 LOWER HALF

Lat 26.5 wt = 59 kg M.T. = 200 M.A. = 296

Trunk = .684 × 4/7 × 1/2 = .195

.817 × 3/7 × .68 = .238

.433 × .93 × 115.1 = 46.4

46.4 × 2.96 = 137.5 × 59 = 8.1 megagm·rad

= 7.96 megagm·rad

TOTAL BODY DOSIMETRY

Patient No.	Lateral Dimension cm	Body weight kg	Surface Dose R	midline Air Exposure R	midline Absorbed Dose rad	Average Dose R per min at midline	Average Dose R	Integral Dose megagram-rad
50	34.5	78	415	348	208	31.3	78.0	8.1
55	34.0	88	405	341	200	31.4	88.0	9.1
56	28.0	63	175	151	100	32.7	63.0	3.9

PARTIAL BODY (UPPER) DOSIMETRY

PARTIAL BODY (LOWER) DOSIMETRY

43	27.5	42	174	150	100	46.3	69.6	2.8
47	29.5	60	272	233	150	45.6	106.2	6.2
49	28.0	47	352	304	200	45.9	139.5	6.4
52	26.5	59	342	296	200	46.4	137.5	7.9
63	26.0	40	503	436	300	46.6	203.5	8.0
64	27.0	58	515	444	300	46.4	206.0	11.7
65	29.0	68	360	310	200	45.6	141.5	9.3
66	29.0	60	360	310	200	45.6	141.5	8.3
67	26.0	54	168	145	100	46.6	67.7	3.6
68	28.0	53	263	226	150	45.9	103.8	5.4

LOWER HALF

#43 LOWER HALF

Lat 27.5 Body weight 42 kg Midline Tissue 100 rad
Midline Air 150 r

TRUNK = 23.1 kg

average dose per 100 r air at midline = 78.6

TRUNK $.674 \times \frac{4}{7} \times \frac{1}{2} = .193$

LIMBS $.910 \times \frac{3}{7} \times .68 = .186$

$.429 \times .93 \times 115.5 = 46.3$ r average dose per 100 r air at midline

$46.3 \times 1.5 = 69.4$ r average dose

$\times 42$

$= 2.9$ megagm · r $= 7.8$ megagm · rad

#47 LOWER HALF

Lat 29.5 Body wt 60 kg Midline Tissue 150 rad
Midline Air 233 r

TRUNK $.657 \times \frac{4}{7} \times \frac{1}{2} = .187$

LIMBS $.799 \times \frac{3}{7} \times .68 = .235$

$.422 \times .93 \times 116.3 = 45.6$

$45.6 \times 2.33 = 106.2$

$\frac{10}{}$

$= 6.4$ megagm · r

$= 6.2$ megagm · rad

LOWER HALF

Patient	Lateral dimension cm	Body weight kg	Surface Dose r	Midline Air r	Midline Tissue rad
43	27.5	47	174	150	100
47	29.5	60	272	233	150
49	28.0	47	352	304	200
57	26.5	59	342	296	200

LOWER HALF

375

316

#49 LOWER HALF

Lat 28.0 wt = 47 kg M.T. = 200 M.A. = 304

Trunk = .684 × $\frac{4}{7}$ × $\frac{1}{2}$ = .195

Limbs = .801 × $\frac{3}{7}$ × .68 = .233

.428 × .93 × 067 = 45.9

45.9 × 3.04 = 139.5 × 47 = 6.6 megagm · rad

7

= 6.4 megagm · rad

#52 LOWER HALF

Lat 26.5 wt = 59 kg M.T. = 200 M.A. = 296

Trunk = .684 × $\frac{4}{7}$ × $\frac{1}{2}$ = .195

.817 × $\frac{3}{7}$ × .68 = .238

.433 × .93 × 115.1 = 46.4

46.4 × .96 = 137.5 × 59 = 8.1 megagm · rad

7

= 7.9 megagm · rad

LOWER HALF

#63 LOWER HALF

Lat 26 cm Body weight 40.4 kg Midline Tissue 300 rad
Midline Air 436 r

Trunk $.689 \times \frac{4}{7} \times \frac{1}{2} =$ .197

Limbs $.195 \times \frac{3}{7} \times .68 =$ .039

$.436 \times .93 \times 114.9 = 46.6$ r average dose per 100 r in air at midline

$46.6 \times 4.36 = \frac{203.5}{40.4}$ average dose

8.2 megagm r = 8.0 megagm rad

#64 LOWER HALF

Lat 27 Body weight 58.1 kg Midline Tissue 300 rad
Midline Air 444 r

Trunk $.6795 \times \frac{4}{7} \times \frac{1}{2} =$ .1945

Limbs $.814 \times \frac{3}{7} \times .68 =$ .038

$.4345 \times .93 \times 115.3 = 46.35$ r average dose per 100 r in air at midline

$46.35 \times 4.44 = \frac{206.0}{58.1}$ average dose

11.0 megagm r = 11.7 megagm rad

#65 LOWER HALF

Lat 29 cm Body weight 67.7 kg Midline Tissue 200 rad
Midline Air 310 r

Trunk $.661 \times \frac{4}{7} \times \frac{1}{2} =$ .189

Limbs $.807 \times \frac{3}{7} \times .68 =$ .034

$.473 \times .93 \times 116.1 = 45.6$ r average dose per 100 r in air at midline

$45.6 \times 3.10 = \frac{141.5}{67.7}$ average dose

9.6 megagm r = 9.3 megagm rad

LOWER HALF

#66 Lower Half

Lat 29 cm Body weight 60.0 kg

Midline Tissue 200 rad
midline Air 310 r

Trunk .661 × 4/7 × 1/2 = .189
Limbs .807 × 3/7 × .68 = .234

.423 × .93 × 116.1 = 45.6 r average dose per 100 r in air at midline

45.6 × 3.1 = 141.5 r average dose

141.5 / 60.0

8.5 megagm r = 8.3 megagm rad

#67 Lower Half

Lat 26 cm Body weight 54.4 kg

Midline Tissue 100 rad
Midline Air 145 r

Trunk .689 × 4/7 × 1/2 = .197
Limbs .8195 × 3/7 × .68 = .239

.436 × .93 × 114.9 = 46.6 r average dose per 100 r in air at midline

46.6 × 1.45 = 67.7 r average dose

67.7 / 54.4

3.7 megagm r = 3.6 megagm rad

#68 Lower Half

Lat 28 cm Body weight 53.3 kg

Midline Tissue 150 rad
midline Air 216 r

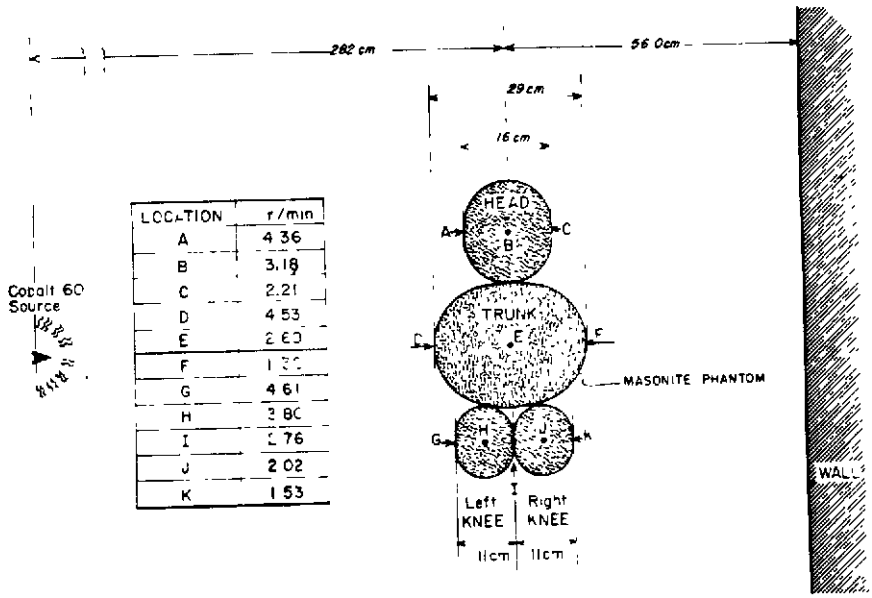
Trunk .669 × 4/7 × 1/2 = .191
Limbs .808 × 3/7 × .68 = .235

.426 × .93 × 115.7 = 45.9 r average dose per 100 r in air at midline

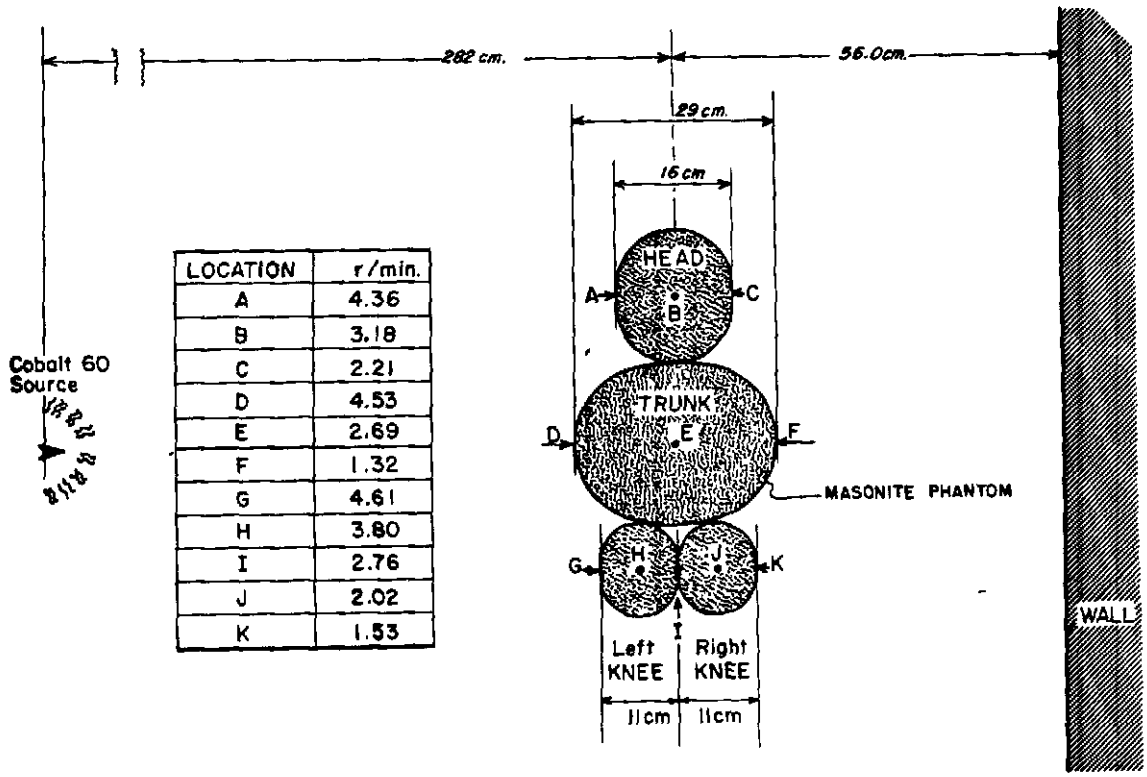
45.9 × 2.26 = 103.8 r average dose

103.8 / 53.3

5.5 megagm r = 5.4 megagm rad



LOCATION	r/min
A	4 36
B	3.18
C	2.21
D	4 53
E	2 60
F	1 30
G	4 61
H	3 80
I	2 76
J	2 02
K	1 53



LOCATION	r/min.
A	4.36
B	3.18
C	2.21
D	4.53
E	2.69
F	1.32
G	4.61
H	3.80
I	2.76
J	2.02
K	1.53

15 more Packard

$\mu d_{\frac{1}{2}} = .693$ 0577

$\mu = \frac{.693}{12.5}$ 053 $\times \left(\frac{205}{192.5}\right)^2 =$ .053 —— .063

$\mu = \frac{.693}{17} = .0407 = .041$ .03

$.041 \times \left(\frac{282}{265}\right)^2 = .046$ .035 → .046

$\mu \frac{174}{1.05} = 166 \times \left(\frac{268}{282}\right)^2 = 166 \times .905 = 150$

$\frac{100}{150} = .67$ $\frac{100}{157} = .64$

$100R \times \left(\frac{282}{267}\right)^2 = 111.2 \times 1.05 = 116.8$

$100R \times \left(\frac{282}{260}\right)^2 = 116 \times 1.05 = 121.5$

$100R \times \left(\frac{282}{270}\right)^2 = 114.5 \rightarrow 114.2$ ✓

$100R \times \left(\frac{282}{264}\right)^2 = 119.8 \rightarrow 119$

$100R \times \left(\frac{282}{265.5}\right)$ 118.4

$100R \times \frac{282}{268.5}$ 115 ✓ ✓

$\frac{78-71}{78} = \frac{7}{78}$

30 cm $\frac{D_{AV}}{D_S} = .608 \times .935 = .569$

$D_{AV} = .569 \times 116.5 = 66.3\ R \times .97 \frac{rad}{R}$

$= 64.5$ rad

28 cm $\frac{D_{AV}}{D_S} = .63 \times .935 = .59$

$D_{AV} = .59 \times 115.7 = 68.3\ R \times .97 = 66.5$ rad

36 cm $\frac{D_{AV}}{D_S} = .555 \times .935 = .518$

$D_{AV} = .518 \times 118.9 = .617$

24 cm $\frac{D_{AV}}{D_S} = .669 \times .935 = .625$

$D_{AV} = .625 \times 114.1 = .715$

Dr Wyckoff

14 Dec 1966

Hammersmith

Hornsley, Shirley - Hammersmith - dose rate effect

Clinical Dosimetry
Radiobiological Dosimetry

Shonka
air - equivalent chamber
tissue - " "

Memorandum

24	.669	114.4	606	69.4	.709	114.4	635	73.7
25	.659	114.7	596	68.4	.691	114.7	617	71.0
26	.649	115	588	67.6	.681	115	611	71.✓
27	.639	115.3	579	66.8	.67✓	115.3	610	70.4
28	.629	115.7	570	66.0	.663	115.7	60✓	69.7
29	.619	116.1	561	65.✓	.654	116.1	593	68.9
30	.609	116.6	55✓	64.4	.644	116.6	584	68.1
31	.600	117.1	544	63.6	.63✓	117.1	576	67.5
3✓	.591	117.6	536	63.0	.6✓6	117.6	568	66.9
33	.58✓	118.1	528	6✓.4	.618	118.1	560	66.✓
34	.573	118.6	.52✓	61.7	.609	118.6	55✓	65.5
35	.56✓	119.0	51✓	161.0	.601	119.0	545	64.9
36	.557	119.4	505	60.3	.594	119.4	538	64.3

.97 x .935 = .907

22 $\frac{4}{7} \times .660 + \frac{3}{7} \times .798$ → .377 + .343 = .720

26 $\frac{4}{7} \times .615 + \frac{3}{7} \times .767$ → .35✓ + .3✓9 = .681

30 $\frac{4}{7} \times .573 + \frac{3}{7} \times .739$ → .3✓7 + .3.7 = .644

35 ~~36~~ $\frac{4}{7} \times .5✓8 + \frac{3}{7} \times .704$ → .301 + .301 = .60✓

36 $\frac{4}{7} \times .5✓0 + \frac{3}{7} \times .698$

.97 x .99 = 596

77.1

13 cm

.693 = μd

$\mu = \frac{.693}{13} = .0533 = .0555$

$\frac{4}{7} \times .6 + \frac{3}{7} \times .76$

$\frac{203}{190} = 1145 = .061$

.693

12.5

$\frac{30}{} = 15$

$\mu a = 15$

$a = \frac{15}{.03}$

$\mu = \frac{.693}{17} = .0409$

.0550 Sinclair

$\frac{28}{26.5} = \frac{795}{70} \times 1.18 = .0461$ Kovacks

30 cm $\frac{4}{7} .65 + \frac{3}{7}$

	μa	Air Dose
	0.8	.676
	μ = .63	
	a = 17 → 34	

$\frac{4}{7} \times .534 + \frac{3}{7} .708$

$\frac{4}{7} \times .441 + \frac{3}{7} .636$

$\frac{4}{7} \times .65 + \frac{3}{7} \times .79$

	μa
	.3
	.749

June 29, 1965

Mr. Samuel Alderson
Alderson Research Laboratories
Long Island City, New York

Dear Sam:

Enclosed is a simple schematic of the blocks required for the study I mentioned on the phone; namely, to get some experimental checks of a theoretical calculation (Monte Carlo techniques) for certain inhomogeneities. This would be done by using Lithium Fluoride. We would need approximately 72 blocks (each as shown in diagram) 72 blocks of the tissue equivalent material and 36 blocks each of the lung and fat equivalent material. As you indicated, one of the large blocks given in your catalogue could be cut up to give the blocks shown in the schematic.

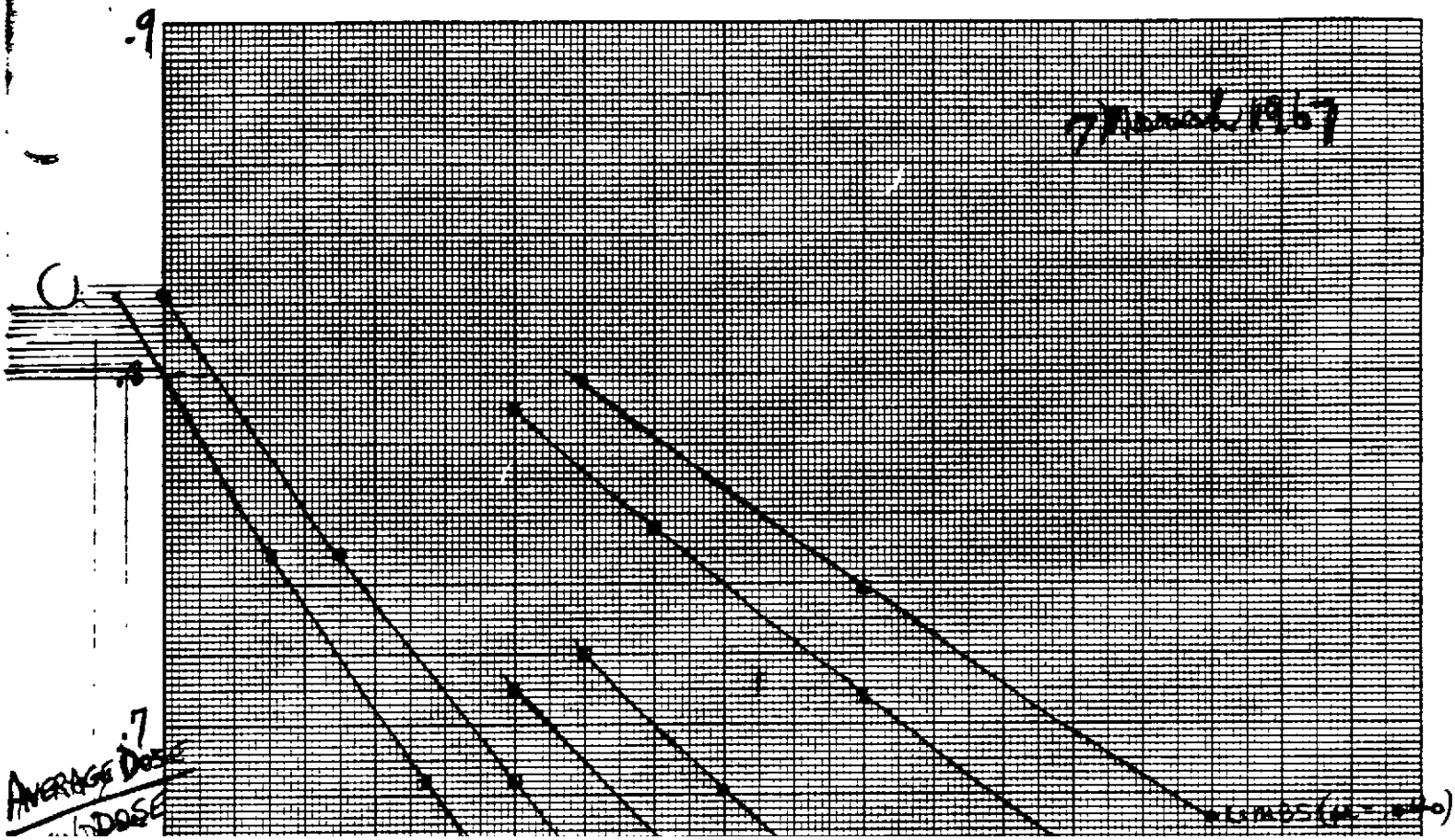
Would you please send me the quote on this as soon as possible. We would like to have this material as soon as possible, as we have some graduate students here who could carry out this work within the next month.

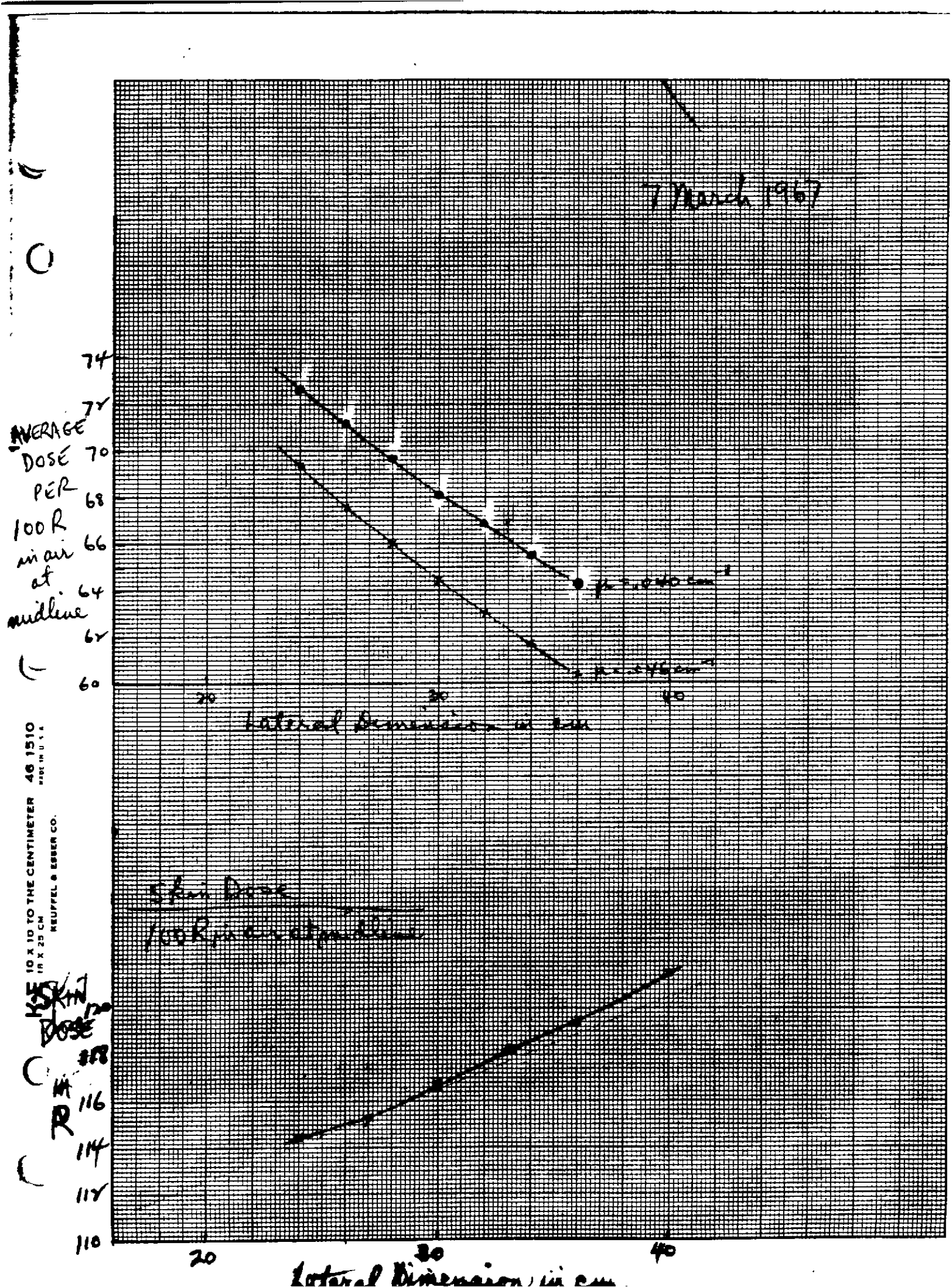
Thank you for your help in this matter.

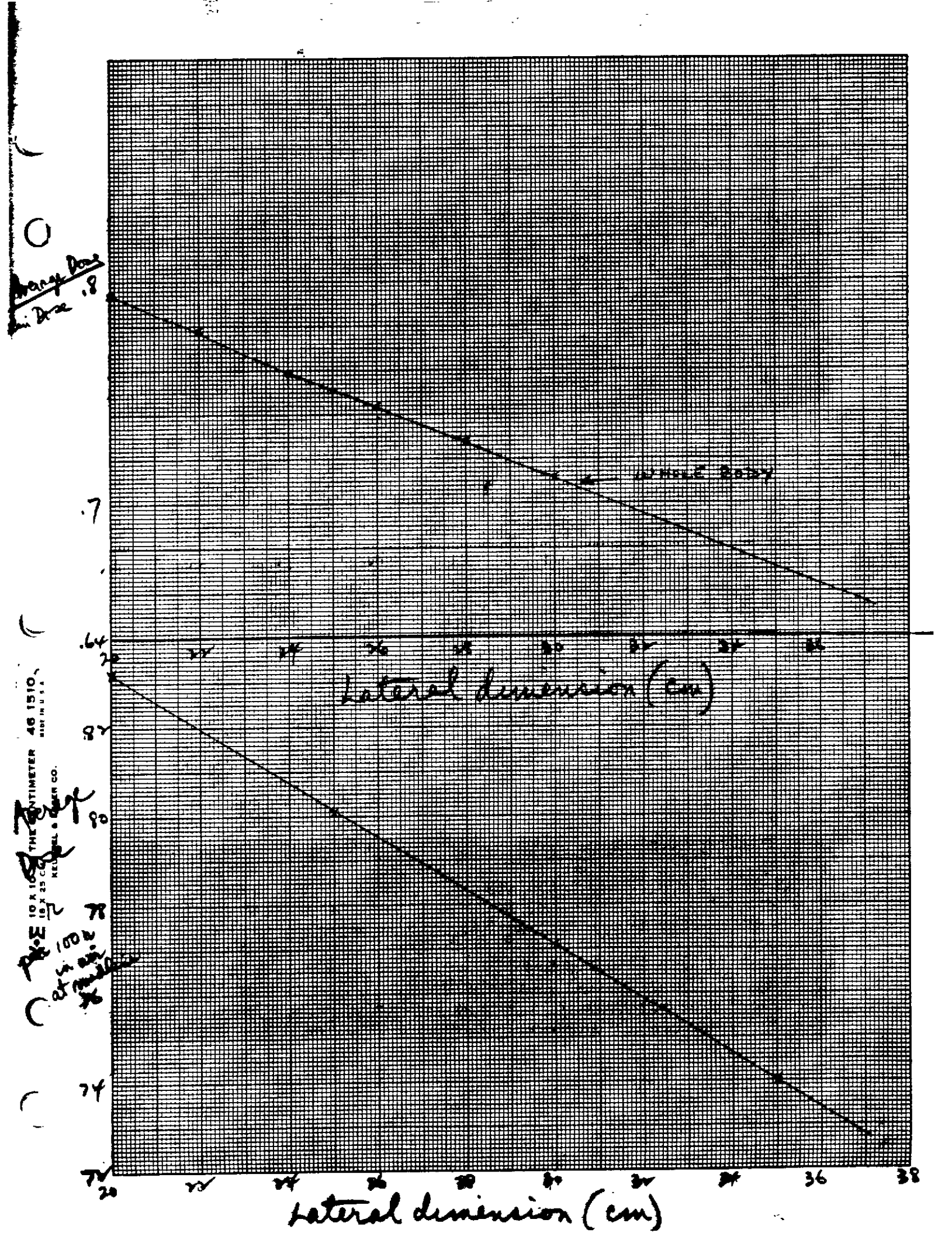
Sincerely,

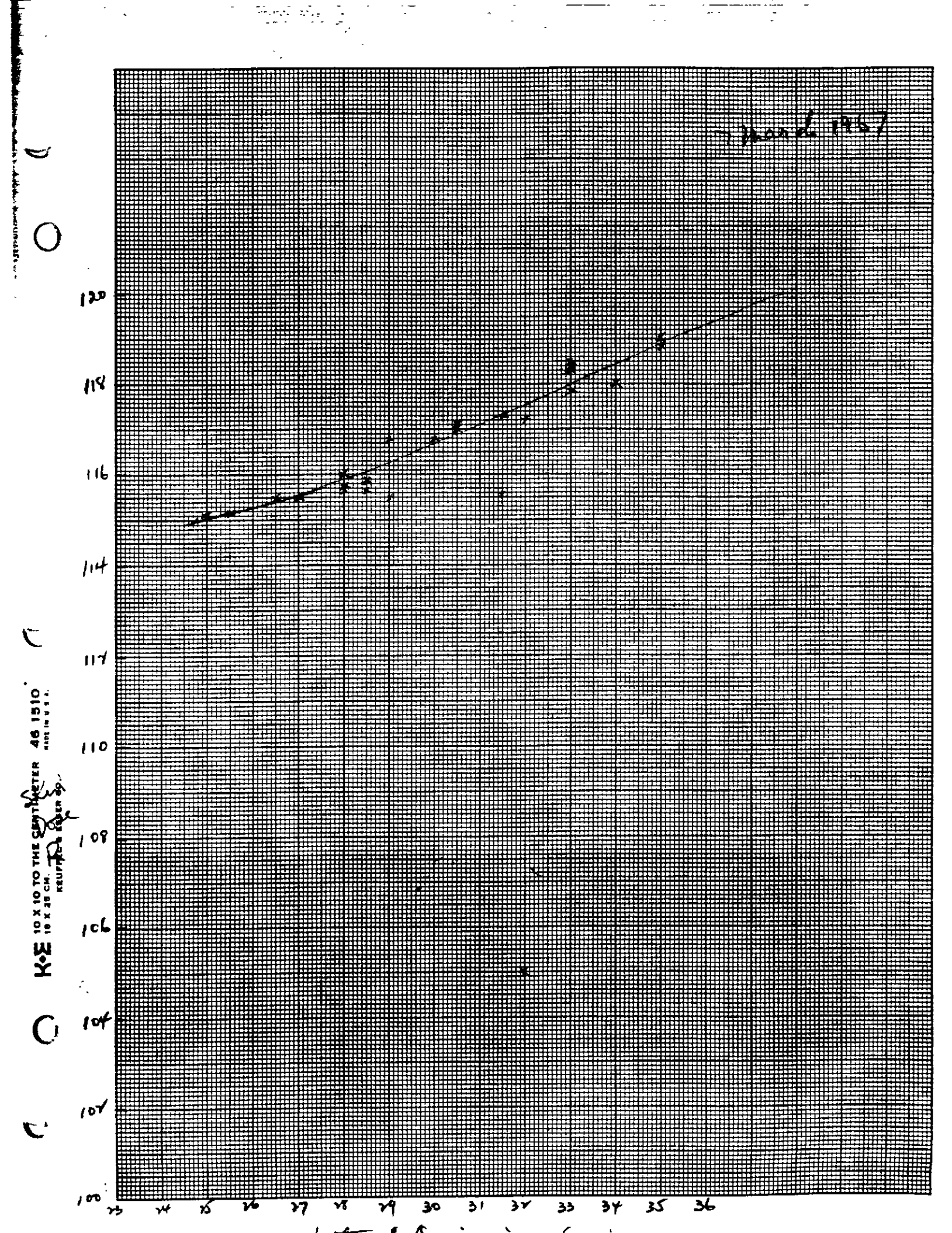
James G. Kereiakes, Ph.D.

JGK, sjt


.9
.7
AVERAGE DOSE


7 March 1967
AVERAGE DOSE PER 100 R in air at midline
74
72
70
68
66
64
62
60
20
30
40
lateral dimension in cm
Skin Dose / 100 R in air at midline
SKIN DOSE
120
118
116
114
112
110
20
30
40
lateral dimension in cm
10 X 10 TO THE CENTIMETER 46 1510
25 X 25 CM KEUFFEL & ESSER CO.


Lateral dimension (cm)
Lateral dimension (cm)


March 1967
120
118
116
114
112
110
108
106
104
102
100
25
26
27
28
29
30
31
32
33
34
35
36

upper half

50
55
56

lower half

43
47
49
52
✓ 63
✓ 64
✓ 65 $M = 57kg$
✓ 66
✓ 67 $= .55M$
✓ 68

$\pi(a_2 b_2 - a_1 b_1) l \rho_b + \pi a_1 b_1 l \rho_t$

$\left[\pi(14\times10 - 9\times5)1.8 + \pi(9\times5)\right] l = .55$

TBR ≤ 5x

6.9	100	7@100Ω
6.9	100	4@150Ω
7.1	100	2@200Ω
7.2	100	
7.3	100	
7.4	100	
Median 8.2	150	
10.4	100	
10.4	150	
11.1	200	
12.1	200	
12.8	150	
12.9	150	

TBR		PB(L)	PB(U)
6.6	(1)	12.8, 13.2 (2)	
6.9-7.4	(8)	5.4, 6.2, 6.4 (3)	
8.2	(1)	7.9, 8.0, 8.3 (3)	
8.8 + 8.9	(2)	9.3 + 11.7 (2)	
10.4 - 10.6	(6)	11.7	
11.1	(1)		
11.8 + 12.1	(2)		
12.8 + 12.9	(2)		
13.9 - 14.4	(2)		
15.6 + 16.5	(2)		
16.5			
21.2	(1)		

Comments

100 rad: {2@200 rad but 11.1 + 12.1 megagy rad (no symptoms)
4@100 rad but 13.9, 15.6, 16.5 + 16.5 megagy rad (symptoms)

150 rad: [illegible] 8.2, 10.4, 12.8 + 12.9 megagy rad (no symptoms)
[illegible] 150 rad with [illegible] 10.5, 11.8 + 11.8 megagy rad (symptoms)

100 rad: 6.9, 6.9, 7.1, 7.2, 7.3, 7.4 and 10.4 megagy rad (no symptoms)

100 rad: [illegible] 6.6, 7.1, 7.8, 8.9 + [illegible] megagy rad (symptoms)

60 day fatality

400 rad			450 rad			500 rad		
7.3	1×32 = 32			1×10 = 10		1×36 = 36		
6.9	1×49 = 49		10.4	1×33 = 33		1×28 = 28		
	1×60 = 720			1×54 = 54		1×60 = 720		
	24 | 801 | 57.2 days			1×25 = 25		24 | 304 | 50.7 days		
	70			1×32 = 32		30		
	101			1×30 = 30				
	96			6×60 = 360				
	5			18 | 538 | 48.5 days				
	121			72				
				54				
				50				
	P	B		P	B		P	B
7.3	1×32	0	10.4	1×10	+	53 12.9	1×28	+ +
6.9	1×49	3/4 0	10.4	1×25	+		1×36	1/2 0
			14.4	1×30	+	11.1	1×60	0
5.4	1×60	0	17.0	1×32	3/4 +	7.86	1×60	+
5.7		0	8.2	1×03	+	9.65	1×60	3/4 +
5.7		0	10.4	1×54	0	12.2	1×60	+
6.6		+						
6.9		1/2 0	7.1	1×60	+			
6.9		0	8.8		+			
7.1		0	10.6		+			
7.2		0	11.8		1/2 +			
7.4		0	12.8		0			
7.4		+	12.9		0			
8.9		+						
10.4		0						
10.6		+						

no deaths below 6.9 roentgen rad

no survivors below 6.6 roentgen rad