

APPENDIX A

KKLS FIELD STRENGTH MEASUREMENTS

Extracted from KKLS
1978 full proof of performance
(BL-14492)

APRIL 1978

EXHIBIT E-5.01

Radial 10°T

Page 1 of 2

K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 KHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

*MAP
Pnts*

FIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u>			<u>Time (MST)</u>	<u>Date (1978)</u>	<u>ND (mV/m)</u>	<u>DA (mV/m)</u>	<u>DA/ND Ratio</u>
<u>km</u>	<u>(mi)</u>						
1.69	(1.05)		1135	3/31	150	230	1.53
1.77	(1.1)		1137	"	145	228	1.57
3.89	(2.42)	1	1145	"	66	92	1.39
4.15	(2.58)	2	1150	"	59.5	87	1.46
4.22	(2.62)	3	1152	"	56	84	1.50
5.47	(3.4)	4	1155	"	44.5	74	1.66
7.16	(4.45)	5	1202	"	35.5	51	1.44
8.77	(5.45)	6	0830	4/1	27.5	44	1.60
10.41	(6.47)	7	0840	"	24.8	39.4	1.59
11.43	(7.1)	8	1220	3/31	23	34	1.48
12.71	(7.9)		1222	"	19.8	31.5	1.59
13.68	(8.5)	9	0848	4/1	18.4	29.5	1.60
15.30	(9.51)	10	0855	"	15.5	25	1.61
15.45*	(9.6)		0859	"	15.2	24.7	1.62
15.61*	(9.7)		0905	"	15.1	24.4	1.62
15.77*	(9.8)		0907	"	14.9	24.1	1.62
15.93*	(9.9)		0912	"	14.7	23.8	1.62
16.09	(10.0)		0915	"	14.5	23.5	1.62
16.25*	(10.1)		0920	"	14.3	23.2	1.62
16.42*	(10.2)		0922	"	14.1	22.9	1.62
16.58*	(10.3)		0927	"	13.9	22.6	1.62
16.74*	(10.4)		0932	"	13.7	22.3	1.63
16.90	(10.5)		0935	"	13.5	22.0	1.63
17.06*	(10.6)		0937	"	13.3	21.7	1.63
17.22*	(10.7)		0942	"	13.1	21.4	1.63
17.38*	(10.8)		0945	"	12.9	21.1	1.64
17.54*	(10.9)		0950	"	12.7	20.8	1.64
17.70	(11.0)		0952	"	12.5	22.6	1.81
17.86*	(11.1)		0955	"	12.3	20.2	1.64
18.02*	(11.2)		1002	"	12.1	19.9	1.64
18.18*	(11.3)		1005	"	11.9	19.6	1.65
18.35*	(11.4)		1007	"	11.7	19.3	1.65
18.51	(11.5)		1010	"	11.54	19.25	1.67

*Point not shown on Field Intensity vs. Distance Graph

APRIL 1978
 K K L S
 BLACK HILLS BROADCASTING COMPANY
 RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.01
 Radial 10°T
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FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u>		<u>Time</u>	<u>Date</u>	<u>ND</u>	<u>DA</u>	<u>DA/ND</u>
<u>km</u>	<u>(miles)</u>	<u>(MST)</u>	<u>(1978)</u>	<u>(mV/m)</u>	<u>(mV/m)</u>	<u>Ratio</u>
22 18.64*	(11.58)	1257	3/31	11.3	18.8	1.66
18.67*	(11.6)	1015	4/1	11.2	18.6	1.66
18.83*	(11.7)	1017	"	10.9	18.4	1.69
18.99*	(11.8)	1022	"	10.7	18.3	1.71
19.15*	(11.9)	1025	"	10.5	18.1	1.72
19.31	(12.0)	1030	"	10.28	17.9	1.74
19.47*	(12.1)	1035	"	10	17.8	1.78
19.63*	(12.2)	1037	"	9.84	17.65	1.79
19.79*	(12.3)	1040	"	9.6	17.5	1.82
19.96	(12.4)	1045	"	9.3	17.3	1.86
23.00	(14.29)	1317	3/31	9.5	16	1.68
26.88	(16.7)	1340	"	7.5	13.2	1.76
29.77	(18.5)	1410	"	6	11	1.83
Average Ratio						<u>1.64</u>

*Point not shown on Field Intensity vs. Distance Graph

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APRIL 1978

EXHIBIT E-5.02

Radial 73°T

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K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 kHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

FIELD STRENGTH MEASUREMENTS - DATA

Point No. and Distance		Time (MST)	Date (MST)	ND (mV/m)	DA (mV/m)	DA/ND Ratio
km	(mi)					
1.42*	(0.88)	0818	3/31	145	145	1.00
1.69	(1.05)	0822	"	150	152	1.01
1.77	(1.1)	0832	"	150	150	1.00
2.01	(1.25)	0837	"	130	125	0.96
2.22	(1.38)	0840	"	110	105	0.95
MP#1 2.33	(1.45)	0845	"	105	102	0.97 MP#1
2.49	(1.55)	0847	"	103	101	0.98
2.66	(1.65)	0850	"	101	100	0.99
2.82	(1.75)	0900	"	102	101.5	1.00
7.05	(4.38)	0915	"	34.5	34	0.98
7.08*	(4.4)	1122	4/1	33.6	33.2	0.99
7.24*	(4.5)	1127	"	32.5	32.3	0.99
7.40*	(4.6)	1130	"	31.7	31.5	0.99
7.56	(4.7)	1132	"	30.8	30.6	0.99
7.72*	(4.8)	1137	"	30	29.7	0.99
7.88*	(4.9)	1140	"	29	29	1.00
8.05	(5.0)	1142	"	28.3	28	0.99
8.21*	(5.1)	1147	"	27.6	27.3	0.99
8.37*	(5.2)	1150	"	26.5	26.1	0.98
8.53	(5.3)	1155	"	25.5	25.4	1.00
8.69*	(5.4)	1202	"	24.6	24.2	0.98
8.85*	(5.55)	0927	3/31	23.5	23.2	0.99
9.01	(5.6)	1210	4/1	23	22.9	1.00
12.58	(7.82)	1225	"	18	17.2	0.96
15.45	(9.6)	1245	"	14.2	13.9	0.98
17.14	(10.65)	0957	3/31	12	10.5	0.88
18.51	(11.5)	1307	4/1	11.5	10	0.87
18.86	(11.70)	1310	"	11.3	9.9	0.88
20.52	(12.75)	1015	3/31	11	9.5	0.86
21.24	(13.2)	1330	4/1	10.5	9.18	0.87

*Point not shown on Field Intensity vs. Distance Graph

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RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.02
Radial 73°T
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FIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u> <u>km (miles)</u>	<u>Time</u> <u>(MST)</u>	<u>Date</u> <u>(1978)</u>	<u>ND</u> <u>(mV/m)</u>	<u>DA</u> <u>(mV/m)</u>	<u>DA/ND</u> <u>Ratio</u>
21.40* (13.3)	1335	4/1	10.4	9.1	0.88
21.56* (13.4)	1337	"	10.3	9	0.87
21.73* (13.5)	1342	"	10.25	8.95	0.88
21.89 (13.6)	1345	"	10.1	8.84	0.88
22.05* (13.7)	1350	"	10	8.75	0.88
22.21* (13.8)	1353	"	9.8	8.7	0.89
22.37* (13.9)	1357	"	9.75	8.63	0.88
22.53 (14.0)	1402	"	9.62	8.52	0.88
22.69* (14.1)	1405	"	9.55	8.45	0.88
22.85* (14.2)	1407	"	9.4	8.36	0.89
23.01* (14.3)	1412	"	9.35	8.3	0.89
23.17* (14.4)	1415	"	9.22	8.2	0.89
23.34 (14.5)	1417	"	9.1	8.15	0.90
23.50* (14.6)	1420	"	9	8.1	0.90
23.66* (14.7)	1425	"	8.9	8	0.90
23.82* (14.8)	1027	3/31	8.8	7.9	0.90
23.98 (14.9)	1030	"	8.1	7.75	0.96
25.43 (15.8)	1037	"	7.8	6.8	0.87
27.12 (16.85)	1045	"	7.6	6.5	0.86
28.81 (17.9)	1052	"	7	6.4	0.91
Average Ratio					<u>0.936</u>

*Point not shown on Field Intensity vs. Distance Graph

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APRIL 1978

EXHIBIT E-5.03
Radial 116.5°T
Page 1 of 2K K L S
BLACK HILLS BROADCASTING COMPANY
920 kHz 5 kW-D 0.5 kW-PSA DA-D
RAPID CITY, SOUTH DAKOTAFIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u>			<u>Time</u>	<u>Date</u>	<u>ND</u>	<u>DA</u>	<u>DA/ND</u>
<u>km</u>	<u>(miles)</u>		<u>(MST)</u>	<u>(1978)</u>	<u>(mV/m)</u>	<u>(mV/m)</u>	<u>Ratio</u>
1.80	(1.12)		1300	3/30	122	140	1.15
2.28	(1.42)		1305	"	120	125	1.04
2.41	(1.5)		1510	4/1	114.5	118	1.03
3.22	(2.0)		1517	"	87.5	88	1.00
5- 3.93	(2.42)	1	1315	3/30	66	63	0.95
6- 4.42	(2.75)	2	1320	"	52	58	1.12
7- 4.83	(3.0)	3	1525	4/1	48.2	54	1.12
8- 5.71	(3.55)	4	1322	3/30	43	47	1.09
9- 5.95	(3.7)		1540	4/1	42	46.8	1.11
6.44	(4.0)		1547	"	39.4	43.5	1.10
11- 7.48	(4.65)	5	1327	3/30	30	33	1.10
8.05	(5.0)		1600	4/1	29.5	32.8	1.11
8.85	(5.5)		1610	"	25.8	27.7	1.07
14- 9.33	(5.8)	6	1335	3/30	23	24	1.04
9.66	(6.0)		1625	4/1	22.7	23.8	1.05
16- 10.46	(6.5)		1635	"	21.6	22.7	1.05
17- 11.10	(6.9)	7	1515	3/30	21.5	22.5	1.05
11.26	(7.0)		1642	4/1	21	21.8	1.04
19- 12.07	(7.5)	8	1650	"	19.6	20.6	1.05
12.87	(8.0)		1520	3/30	16	16	1.00
13.68	(8.5)		1702	4/1	17.6	18.6	1.06
14.48	(9.0)	9	1527	3/30	16	18.5	1.16
14.72	(9.15)		1705	4/1	15.8	18	1.14
16.09	(10.0)		1532	3/30	13.5	15.5	1.15
16.90	(10.5)	10	0845	4/2	12.4	14.8	1.19
17.54	(10.9)	11	1537	3/30	11.5	14	1.22
18.51	(11.5)		0857	4/2	11.75	15.1	1.28
19.22	(11.94)	12	1545	3/30	12	16	1.33
20.12	(12.5)		0905	4/2	11.2	12.8	1.14
20.92	(13.0)		0912	"	10.2	11.7	1.15

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RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.03
Radial 116.5°T
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FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u>		<u>Time</u>	<u>Date</u>	<u>ND</u>	<u>DA</u>	<u>DA/ND</u>
<u>km</u>	<u>(miles)</u>	<u>(MST)</u>	<u>(1978)</u>	<u>(mV/m)</u>	<u>(mV/m)</u>	<u>Ratio</u>
21.08	(13.1)	1550	3/30	10	12	1.20
21.73	(13.5)	0917	4/2	9.92	11.86	1.20
22.53	(14.0)	0922	"	9.82	11.68	1.19
22.88	(14.22)	1557	3/30	9.8	11.5	1.17
23.79	(14.78)	1602	"	9.6	11	1.14
24.14	(15.0)	0937	4/2	9.4	10.7	1.14
24.94	(15.5)	0942	"	8.92	10	1.12
25.83	(16.05)	1607	3/30	8.4	9.4	1.12
26.23	(16.3)	1612	"	8.18	8.92	1.09
26.55	(16.5)	0957	4/2	7.92	8.57	1.08
27.36	(17.0)	1005	"	7.1	7.32	1.03
28.24	(17.55)	1617	3/30	6.4	6.2	0.97
30.01	(18.65)	1020	4/2	6.25	6.1	0.98
30.58	(19.0)	1622	3/30	6	5.8	0.97
31.90	(19.82)	1627	"	5.6	5.5	0.98
Average Ratio						<u>1.10</u>

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APRIL 1978

EXHIBIT E-5.04

Radial 185°T

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K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 kHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

FIELD STRENGTH MEASUREMENTS - DATA

Point No. and Distance			Time (MST)	Date (1978)	ND (mV/m)	DA (mV/m)	DA/ND Ratio
km	(miles)						
1.61	(1.0)		1320	3/31	180	560	3.11
2.41	(15.)		1047	4/2	140	420	3.00
3.22	(2.0)		1055	"	102	285	2.79
3.54	(2.2)		1335	3/31	86	230	2.67
4.02	(2.5)		1110	4/2	78	210	2.69
4.83	(3.0)		1115	"	65	178	2.74
7-	5.81	(3.61) 1	1122	"	49	140	2.86
8-	6.28	(3.9) 2	1345	3/31	41	120	2.93
9-	6.44	(4.0) 3	1135	4/2	40	118	2.95
10-	7.24	(4.5) 1	1142	"	37.8	111	2.94
	8.05	(5.0) 4	1155	"	35	103	2.94
	9.01	(5.6) 4	1207	"	32	93	2.91
13-	10.46	(6.5)	1220	"	27.5	78	2.84
14-	11.26	(7.0)	1230	"	24.5	70	2.86
15-	11.59	(7.2) 5	1245	"	23.5	68	2.89
16-	11.91	(7.4) 6	1250	"	22	62	2.82
17-	12.55	(7.8) 7	1355	3/31	20	55	2.75
18-	12.87	(8.0) 8	1300	4/2	18.5	50	2.70
	13.68	(8.5)	1307	"	17.5	47.5	2.71
	14.48	(9.0)	1315	"	16.5	45	2.73
	15.29	(9.5)	1327	"	15.5	43	2.77
	16.09	(10.0)	1340	"	14.5	40	2.76
	16.58*	(10.3)	1347	"	14.2	39.5	2.78
	16.74*	(10.4)	1350	"	13.8	38.6	2.80
	16.90	(10.5)	1355	"	13.5	38	2.81
	17.06*	(10.6)	1400	"	13.3	37	2.78
	17.22*	(10.7)	1402	"	13	36	2.77
	17.38*	(10.8)	1407	"	12.95	34.5	2.66
	17.54*	(10.9)	1410	"	12.8	33.5	2.62
	17.70	(11.0)	1415	"	12.5	35.5	2.84

*Point not shown on Field Intensity vs. Distance Graph

FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u> <u>km (miles)</u>	<u>Time</u> <u>(MST)</u>	<u>Date</u> <u>(1978)</u>	<u>ND</u> <u>(mV/m)</u>	<u>DA</u> <u>(mV/m)</u>	<u>DA-ND</u> <u>Ratio</u>
17.86* (11.1)	1417	4/2	12.2	34.8	2.85
18.02* (11.2)	1420	"	12	34.3	2.86
18.18* (11.3)	1422	"	11.8	33.5	2.84
18.25* (11.34)	1405	3/31	11.5	33	2.87
18.35* (11.4)	1427	4/2	11.4	32.8	2.88
18.51 (11.5) 9	1430	"	11.38	32.5	2.86
18.67* (11.6)	1432	"	11.25	32.3	2.87
18.83* (11.7)	1442	"	11.22	32	2.85
18.99* (11.8)	1445	"	11.1	31.8	2.86
19.15* (11.9)	1450	"	11.1	31.5	2.84
19.31 (12.0)	1452	"	11	31.2	2.84
19.47* (12.1)	1455	"	10.9	31	2.84
19.63* (12.2)	1457	"	10.8	30.6	2.83
19.79* (12.3)	1505	"	10.78	30.5	2.83
19.96 (12.4)	1507	"	10.75	30.2	2.81
20.92 (13.0)	1515	"	10.3	28.7	2.79
21.73 (13.5)	1527	"	9.95	27.5	2.76
22.53 (14.0)	1532	"	9.6	26.2	2.73
23.34 (14.5)	1415	3/31	9	25	2.78
24.14 (15.0)	1547	4/2	8.3	23.5	2.83
24.75 (15.38)	1422	3/31	7.7	22	2.86
25.10 (15.6)	1600	4/2	7.3	21.5	2.94
26.31 (16.35)	1425	3/31	6.8	21	3.09
27.36 (17.0)	1430	"	7.8	21	2.69
31.14 (19.35)	1437	"	5.8	16	2.76
Average Ratio					<u>2.82</u>

*Point not shown on Field Intensity vs. Distance Graph

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APRIL 1978

EXHIBIT E-5.05

Radial 225°T

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K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 kHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

FIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u>		<u>Time</u>	<u>Date</u>	<u>ND</u>	<u>DA</u>	<u>DA/ND</u>
<u>km</u>	<u>(miles)</u>	<u>(MST)</u>	<u>(1978)</u>	<u>(mV/m)</u>	<u>(mV/m)</u>	<u>Ratio</u>
1.61	(1.0)	0850	4/1	175	520	2.97
1.77	(1.1)	0900	"	180	530	2.94
1.93	(1.2)	0905	"	145	410	2.83
2.09	(1.3)	0907	"	138	392	2.84
2.25	(1.4)	0912	"	130	378	2.91
2.41	(1.5)	0917	"	120	360	3.00
2.49	(1.55)	1522	3/31	115	345	3.00
2.57	(1.6)	0925	4/1	110	330	3.00
2.74	(1.7)	0930	"	105	320	3.05
2.90	(1.8)	0937	"	102	305	2.99
3.06	(1.9)	0942	"	100	292	2.92
3.22	(2.0)	0945	"	95	278	2.93
3.38	(2.1)	0957	"	90	265	2.94
2.54	(2.2)	1002	"	85	255	3.00
3.70	(2.3)	1007	"	82	240	2.93
3.86	(2.4)	1010	"	77	230	2.99
17 4.02	(2.5)	1017	"	72	212	2.94
18 4.18	(2.6)	1555	3/31	70	200	2.86
19 4.34	(2.7)	1020	4/1	68	195	2.87
4.51	(2.8)	1027	"	66	191	2.89
4.67	(2.9)	1030	"	65	186	2.86
4.83	(3.0)	1035	"	64	184	2.88
4.99	(3.1)	1038	"	63	180	2.86
5.15	(3.2)	1042	"	62.5	178	2.85
25- 5.31	(3.3)	1047	"	60	172	2.87
26- 5.47	(3.4)	1052	"	58.5	170	2.90
5.63	(3.5)	1100	"	58	165	2.84
5.79	(3.6)	1105	"	57	162	2.84
5.95	(3.7)	1112	"	56	158	2.82
30- 7.56	(4.7)	1625	3/31	42	125	2.98

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RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.05
Radial 225°T
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FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

	<u>Point No. and Distance</u>			<u>Time</u>	<u>Date</u>	<u>ND</u>	<u>DA</u>	<u>DA/ND</u>
	<u>km</u>	<u>(miles)</u>		<u>(MST)</u>	<u>(1978)</u>	<u>(mV/m)</u>	<u>(mV/m)</u>	<u>Ratio</u>
31-	8.29	(5.15)	3	1617	3/31	37	110	2.97
32-	8.77	(5.45)	4	1640	"	31.5	88	2.79
33-	11.18	(6.95)	5	1647	"	19	56	2.95
34	13.52	(8.4)	6	1655	"	18	52	2.89
	23.36	(14.50)	7	1130	4/1	3	8.6	2.87
	25.54	(15.87)	8	1650	3/30	1.2	3.35	2.79
	27.81	(17.28)		1640	"	0.96	2.68	2.79
	29.85	(18.55)		1625	"	1.15	2.65	2.30
	30.01	(18.65)		1430	"	1.25	3.5	2.80
	30.18	(18.75)		1425	"	1.35	3.45	2.56
	30.90	(19.2)		1635	"	1.42	4.1	2.89
	34.68	(21.55)		1545	"	0.76	2.1	2.76
	36.77	(22.85)		1518	"	0.69	1.92	2.78
Average Ratio								<u>2.94</u>

* * * * *

APRIL 1978

EXHIBIT E-5.06
Radial 252.5°T
Page 1 of 2K K L S
BLACK HILLS BROADCASTING COMPANY
920 kHz 5 kW-D 0.5 kW-PSA DA-D
RAPID CITY, SOUTH DAKOTAFIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u>		<u>Time</u> (MST)	<u>Date</u> (1978)	<u>ND</u> (mV/m)	<u>DA</u> (mV/m)	<u>DA/ND</u> Ratio
<u>km</u>	<u>(miles)</u>					
1.45	(0.9)	1010	3/30	250	690	2.76
1.61	(1.0)	1015	"	220	610	2.77
2.49*	(1.55)	1035	"	228	355	†
2.82	(1.75)	1625	4/2	115	315	2.74
2.99	(1.86)	1630	"	105	280	2.67
3.14	(1.95)	1040	3/30	100	265	2.65
7 3.22	(2.0) 1	1635	4/2	98	260	2.65
8 3.23*	(2.01) 2	1637	"	95	250	2.63
3.33*	(2.07)	1640	"	90	230	2.56
3.38	(2.1)	1642	"	88	225	2.56
MP#2 3.46	(2.15) 3	1045	3/30	87	240	2.55 MP#2
3.54	(2.2)	1645	4/2	86.5	220	2.54
13 3.70	(2.3)	1647	"	85.2	218	2.56
14 3.86	(2.4)	1652	"	84	216	2.57
15 4.02	(2.5)	1655	"	82.7	215	2.60
4.18	(2.6)	1700	"	81.5	210	2.58
19 5.74	(3.57) 4	1056	3/30	78	188	2.41
18 5.95	(3.7) 5	1102	"	67	181	2.70
6.28	(3.9)	0905	4/3	60	165	2.75
6.36	(3.95)	0910	"	59	160	2.71
7.64	(4.75)	1120	3/30	35	96	2.74
22 8.18	(5.08) 6	0927	4/3	27	72	2.67
23 8.29	(5.15) 7	1125	3/30	24	65	2.71
8.53	(5.3) 8	0935	4/3	23	61	2.65
8.67	(5.39) 9	1130	3/30	28	74	2.64
9.09	(5.65) 10	0947	4/3	19	54.5	2.87
11.91	(7.4)	1010	"	17	47.5	2.79
12.07*	(7.5)	1012	"	16.6	44.8	2.70
12.23*	(7.6)	1017	"	16.2	42	2.59
12.39	(7.7)	1020	"	15.8	39.5	2.50

*Point not shown on Field Intensity vs. Distance Graph

†Not included in analysis

APRIL 1978
K K L S
BLACK HILLS BROADCASTING COMPANY
RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.06
Radial 252.5°T
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FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u> <u>km (miles)</u>	<u>Time</u> <u>(MST)</u>	<u>Date</u> <u>(1978)</u>	<u>ND</u> <u>(mV/m)</u>	<u>DA</u> <u>(mV/m)</u>	<u>DA/ND</u> <u>Ratio</u>
12.55* (7.8)	1025	4/3	15.5	36.5	2.35
12.71* (7.9)	1030	"	15.4	34	+
12.87 (8.0)	1032	"	15.25	31.5	+
13.04* (8.1)	1035	"	15	28.8	+
16.17 (10.05)	1055	"	11.5	25	+
17.48 (10.86)	1107	"	8	21.4	2.68
23.14 (14.38)	1225	3/30	1.75	4.6	2.63
24.19 (15.03)	1142	4/3	1.53	4.1	2.68
26.38 (16.39)	1245	3/30	0.98	2.52	2.57
26.52 (16.48)	1210	4/3	1.48	3.9	2.64
26.55* (16.5)	1215	"	1.45	3.84	2.65
26.72* (16.6)	1220	"	1.42	3.7	2.60
29.45 (18.3)	1245	"	1.22	3.18	2.61
32.99 (20.5)	1315	"	0.94	2.30	2.45
35.89 (22.3)	1322	3/30	0.51	1.28	2.51
Average Ratio					<u>2.63</u>

*Point not shown on Field Intensity vs. Distance Graph

†Not included in analysis

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APRIL 1978

EXHIBIT E-5.07

Radial 300°T

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K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 kHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

FIELD STRENGTH MEASUREMENTS - DATA

<u>Point No. and Distance</u>		<u>Time</u> (MST)	<u>Date</u> (1978)	<u>ND</u> (mV/m)	<u>DA</u> (mV/m)	<u>DA/ND</u> Ratio
<u>km</u>	<u>(miles)</u>					
1.61	(1.0)	1700	3/31	168	475	2.83
1.74	(1.08)	1527	4/3	145	400	2.76
1.93	(1.2)	1522	"	120	330	2.75
2.09	(1.3)	1520	"	98	270	2.76
2.38	(1.48)	1515	"	97	266	2.74
2.57	(1.6)	1510	"	95	264	2.78
2.70	(1.68)	1505	"	93.5	260	2.78
3.14	(1.95)	1502	"	90	252	2.80
9 3.25	(2.02) 1	1457	"	84	235	2.80
10 3.38	(2.1) 2	1455	"	78	218	2.79
11 3.54	(2.2) 3	1452	"	71	200	2.82
12 3.70	(2.3) 4	1450	"	64	181	2.83
13 4.02	(2.5) 5	1445	"	50	145	2.90
4.52	(2.81)	1440	"	38	110	2.89
4.83	(3.0)	1435	"	37	105	2.84
16 4.99	(3.1) 6	1432	"	47	135	2.87
5.15	(3.2)	1430	"	35.5	100	2.82
18 5.31	(3.3) 7	1425	"	34.9	99	2.84
5.94	(3.69)	1440	"	43	125	2.91
7.27	(4.52)	1415	"	25.3	72	2.84
7.48	(4.65)	1410	"	24.5	69	2.82
7.80	(4.85)	1548	3/31	26	76	2.92
23 7.97	(4.95) 8	1542	"	25.5	72	2.82
24 8.71	(5.41) 9	1540	"	24	67	2.79
9.28	(5.77)	1402	4/3	22.5	58	2.58
26 10.78	(6.70) 10	1530	3/31	16.2	44.5	2.75
11.26	(7.0)	1357	4/3	15.5	43	2.77
12.31	(7.65)	1350	"	14.5	39	2.69
20.52	(12.75)	1445	3/31	2.8	7.9	2.82
21.37	(13.28)	1450	"	2.65	7.6	2.87

APRIL 1978
K K L S
BLACK HILLS BROADCASTING COMPANY
RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.07
Radial 300°T
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FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u> <u>km</u> <u>(miles)</u>	<u>Time</u> <u>(MST)</u>	<u>Date</u> <u>(1978)</u>	<u>ND</u> <u>(mV/m)</u>	<u>DA</u> <u>(mV/m)</u>	<u>DA/ND</u> <u>Ratio</u>
21.89 (13.6)	1500	3/31	2.5	7.2	2.88
22.37 (13.9)	1510	"	2.3	6.9	3.00
25.60 (15.91)	1515	"	2.1	5.7	2.71
30.16 (18.74)	1330	"	1.2	3.35	2.79
30.32 (18.84)	1325	"	1.05	2.95	2.81
34.47 (21.42)	1300	"	0.7	1.90	2.71
34.76 (21.6)	1305	"	0.52	1.52	2.92
35.08 (21.8)	1310	"	0.47	1.35	2.87
35.47 (22.04)	1315	"	0.44	1.25	2.84
36.53 (22.7)	1318	"	0.43	1.2	2.79
36.84 (22.89)	1312	"	0.45	1.28	2.84
Average Ratio					<u>2.81</u>

* * * * *

APRIL 1978

EXHIBIT E-5.08

Radial 335°T

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K K L S
 BLACK HILLS BROADCASTING COMPANY
 920 kHz 5 kW-D 0.5 kW-PSA DA-D
 RAPID CITY, SOUTH DAKOTA

FIELD STRENGTH MEASUREMENTS - DATA

Point No. and Distance		Time	Date	ND	DA	DA/ND
km	(miles)	(MST)	(1978)	(mV/m)	(mV/m)	Ratio
1.61	(1.0)	0815	3/31	165	410	2.48
1.90	(1.18)	1535	4/3	158	390	2.47
2.09	(1.3)	0820	3/31	150	360	2.40
3.06	(1.9)	0825	"	100	210	+
5- 3.57	(2.22) 1	1545	4/3	87.5	193	+
4.02	(2.5)	1547	"	76	178	+
4.75*	(2.95)	1552	"	57	153	2.68
8- 4.83	(3.0) 2	0835	3/31	55	150	2.73
9- 4.99	(3.1) 3	1557	4/3	53	144	2.72
10- 5.18	(3.22) 4	1602	"	50	136	2.72
11- 5.28*	(3.28) 5	1607	"	48	131	2.73
12- 5.34	(3.32) 6	1612	"	47.8	128	2.68
5.99	(3.72)	0845	3/31	39	102	2.62
14- 6.10	(3.79) 7	0850	"	38	99	2.60
6.44	(4.0)	0855	"	37	85	+
16- 7.85	(4.88) 8	0900	"	31	77	2.48
7.88*	(4.9)	1625	4/3	30.8	76	2.47
8.05*	(5.0)	1627	"	30.4	75	2.47
8.21	(5.1)	1630	"	30	74.2	2.47
8.37*	(5.2)	1632	"	29.5	73	2.47
8.53	(5.3)	1637	"	29.3	72.5	2.47
8.69*	(5.4)	1640	"	28.8	71.8	2.49
8.85	(5.5)	1645	"	28.5	71	2.49
9.01*	(5.6)	1647	"	28.2	70.5	2.50
9.08*	(5.64)	1650	"	28	70	2.50
9.17	(5.7)	1655	"	27.8	69	2.48
21- 10.06	(6.25) 9	1705	"	22.5	59	2.62
28- 10.54	(6.55) 10	1712	"	22	57	2.59
11.59	(7.2)	0840	4/4	20.5	51	2.49
16.82	(10.45)	0857	"	11.5	30.5	2.65

*Point not shown on Field Intensity vs. Distance Graph

†Not included in analysis

APRIL 1978
K K L S
BLACK HILLS BROADCASTING COMPANY
RAPID CITY, SOUTH DAKOTA

EXHIBIT E-5.08
Radial 335°T
Page 2 of 2

FIELD STRENGTH MEASUREMENTS - DATA - Cont'd

<u>Point No. and Distance</u> <u>km (miles)</u>	<u>Time</u> <u>(MST)</u>	<u>Date</u> <u>(1978)</u>	<u>ND</u> <u>(mV/m)</u>	<u>DA</u> <u>(mV/m)</u>	<u>DA/ND</u> <u>Ratio</u>
18.35 (11.4)	1005	3/31	10.5	27	2.57
18.51* (11.5)	0905	4/4	10.44	26.8	2.57
18.67* (11.6)	0907	"	10.37	26.6	2.56
18.83* (11.7)	0912	"	10.31	26.5	2.57
18.99* (11.8)	0917	"	10.26	26.4	2.57
19.15* (11.9)	0922	"	10.2	26.3	2.58
19.30 (12.0)	0925	"	10.18	26.1	2.56
19.47* (12.1)	0927	"	10.1	25.9	2.56
19.63* (12.2)	0932	"	10	25.8	2.58
19.79* (12.3)	0935	"	9.96	25.6	2.57
19.96* (12.4)	0940	"	9.9	25.5	2.58
20.12 (12.5)	0942	"	9.85	25.3	2.57
20.28* (12.6)	0947	"	9.74	25.2	2.59
20.44 (12.7)	1011	3/31	9.7	25	2.58
21.81 (13.55)	1017	"	7.8	20.5	2.63
22.13* (13.75)	1020	"	8.2	21.5	2.62
29.29 (18.20)	1045	"	6.3	16.5	2.62
33.96 (21.10)	1115	"	5.4	14.2	2.63
36.18 (22.48)	1130	"	5.2	13.8	2.65
Average Ratio					<u>2.569</u>

*Point not shown on Field Intensity vs. Distance Graph

* * * * *

MILES FROM ANTENNA

EXHIBIT E-9.00

GROUND WAVE FIELD INTENSITY
VERSUS
DISTANCE
920-960 kc

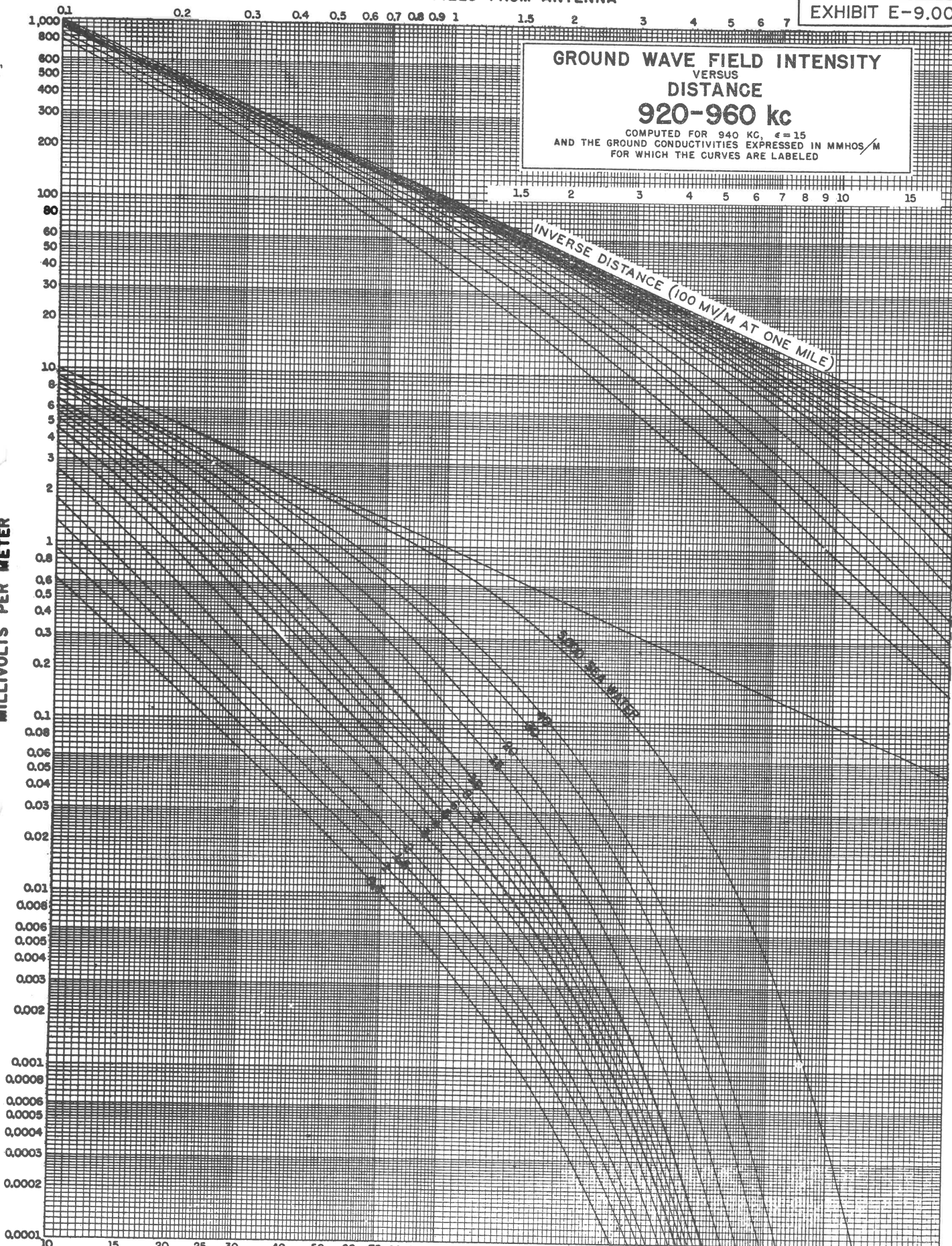
COMPUTED FOR 940 KC, $\epsilon = 15$
AND THE GROUND CONDUCTIVITIES EXPRESSED IN MMHOS/M
FOR WHICH THE CURVES ARE LABELED

MILLIVOLTS PER METER

INVERSE DISTANCE (100 MV/M AT ONE MILE)

300 SEA WATER

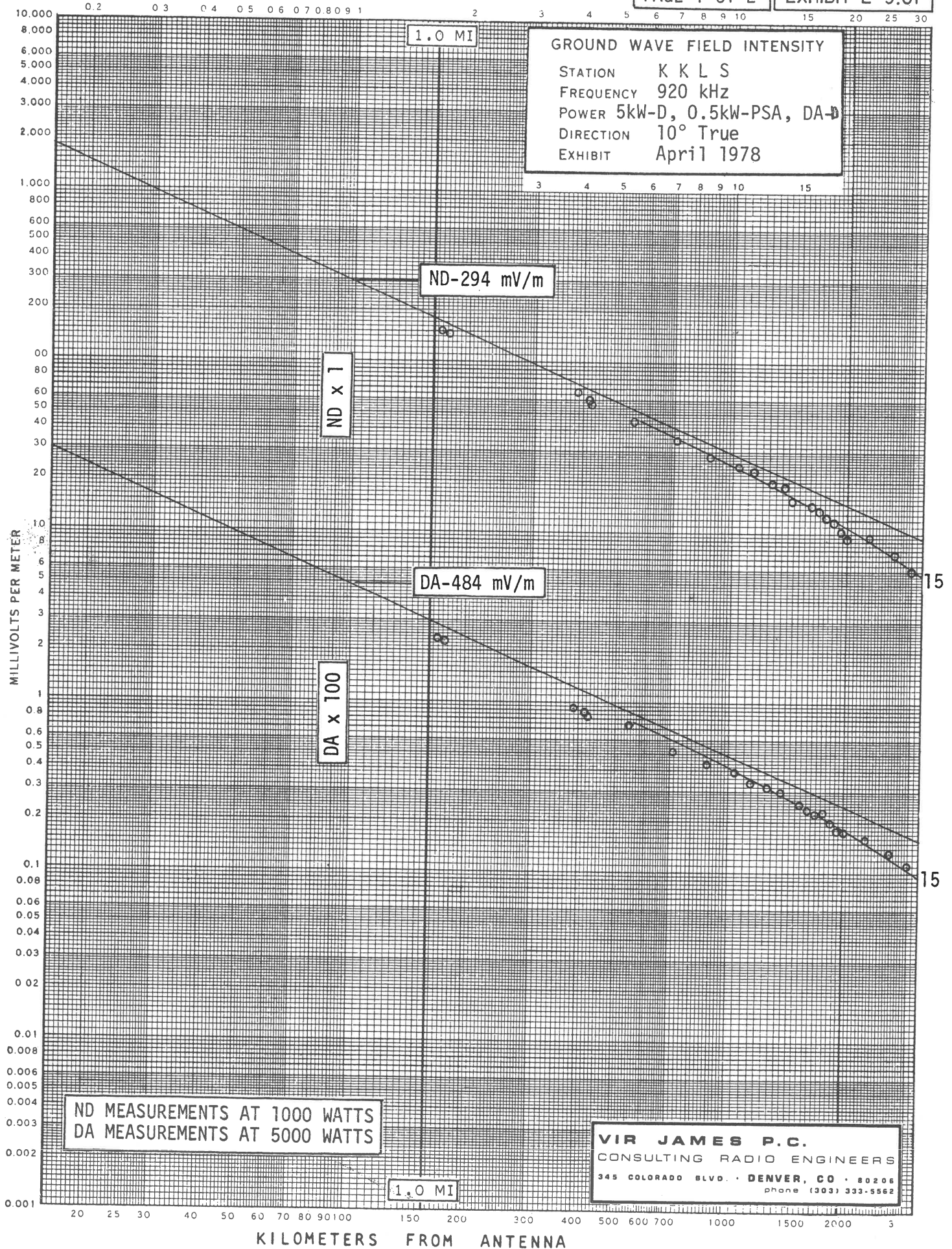
5,000
40
30
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8
7
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5
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3
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1.5
1
0.5

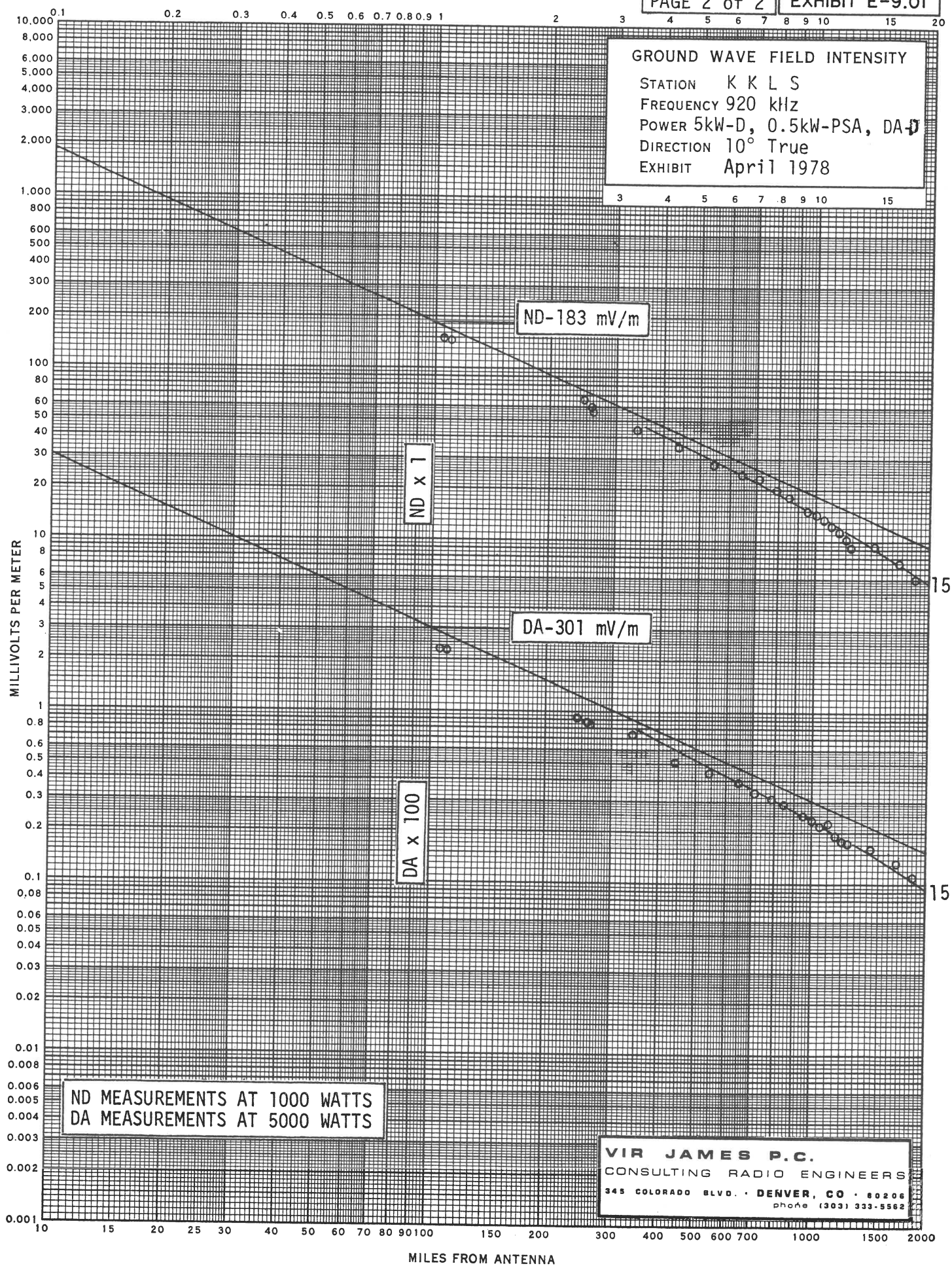


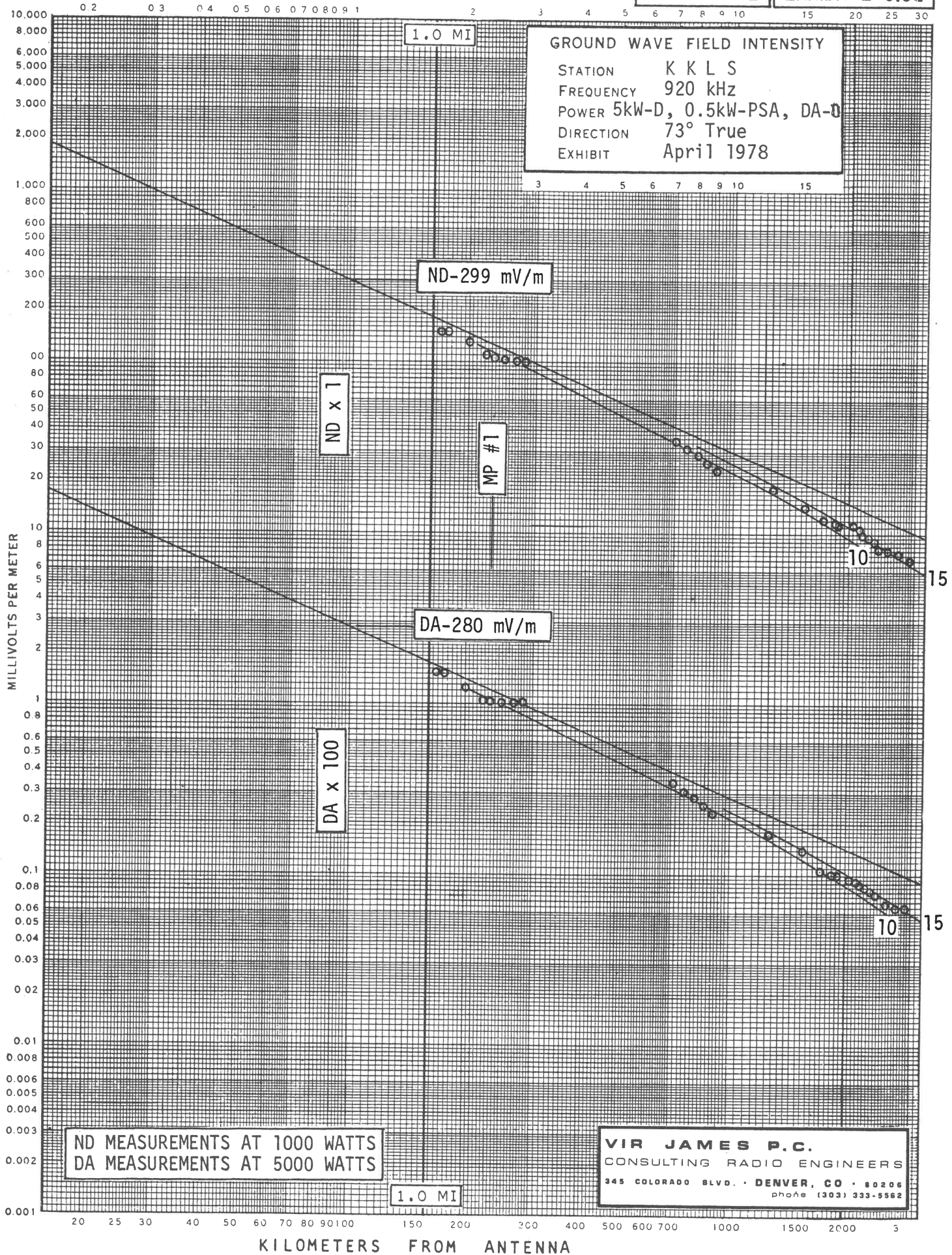
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GRAPH 11

MILES FROM ANTENNA







GROUND WAVE FIELD INTENSITY

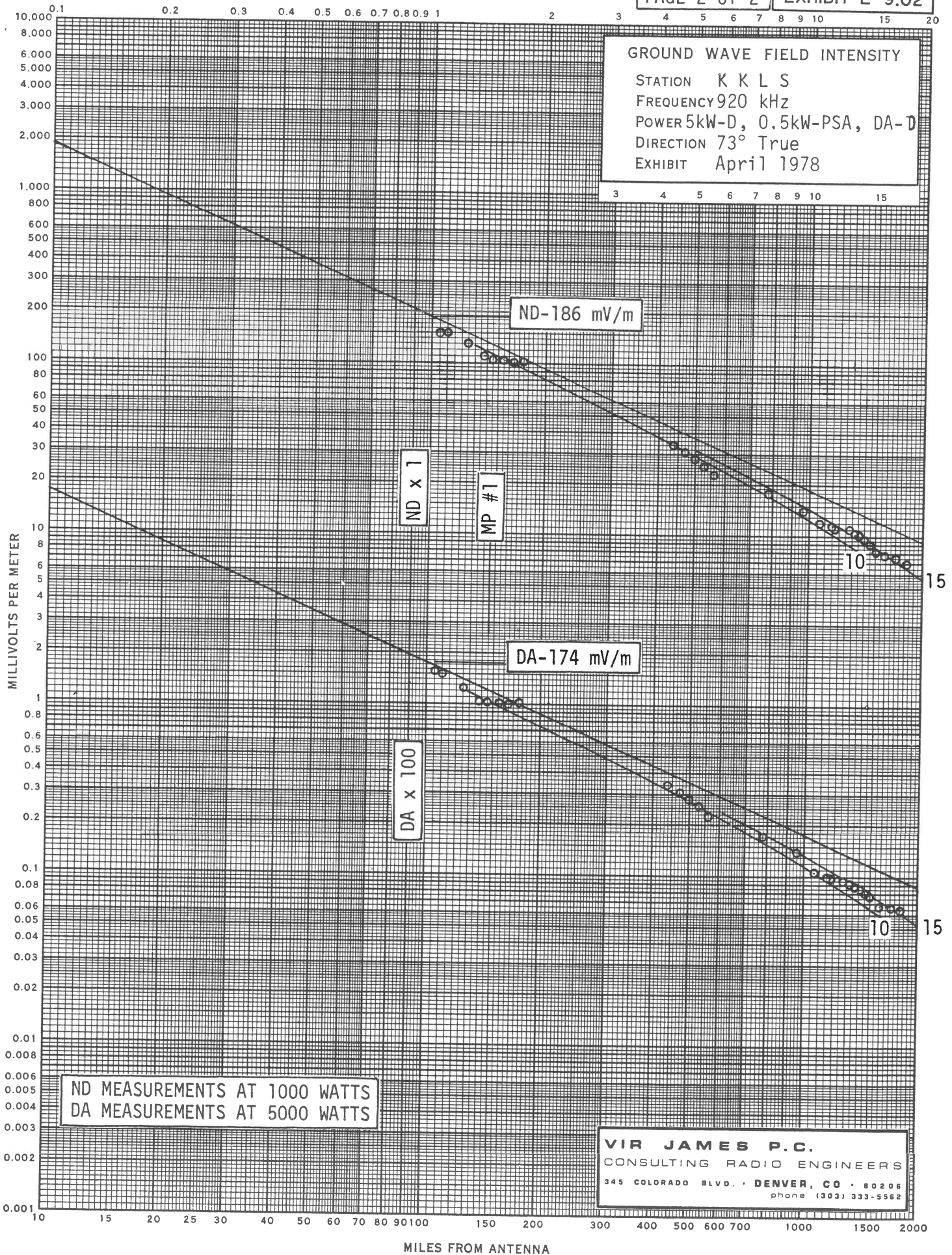
STATION K K L S

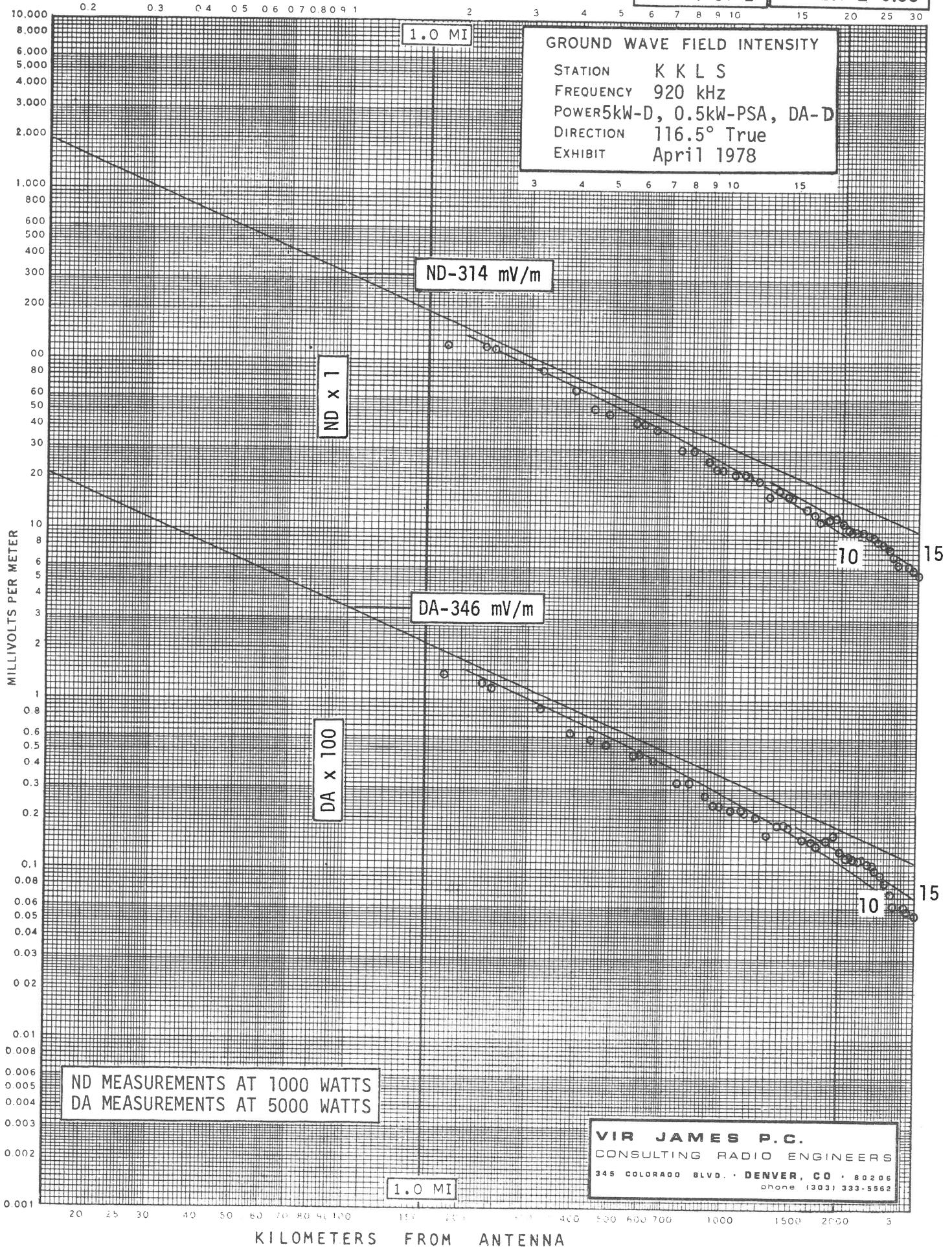
FREQUENCY 920 kHz

POWER 5kW-D, 0.5kW-PSA, DA-D

DIRECTION 73° True

EXHIBIT April 1978





GROUND WAVE FIELD INTENSITY

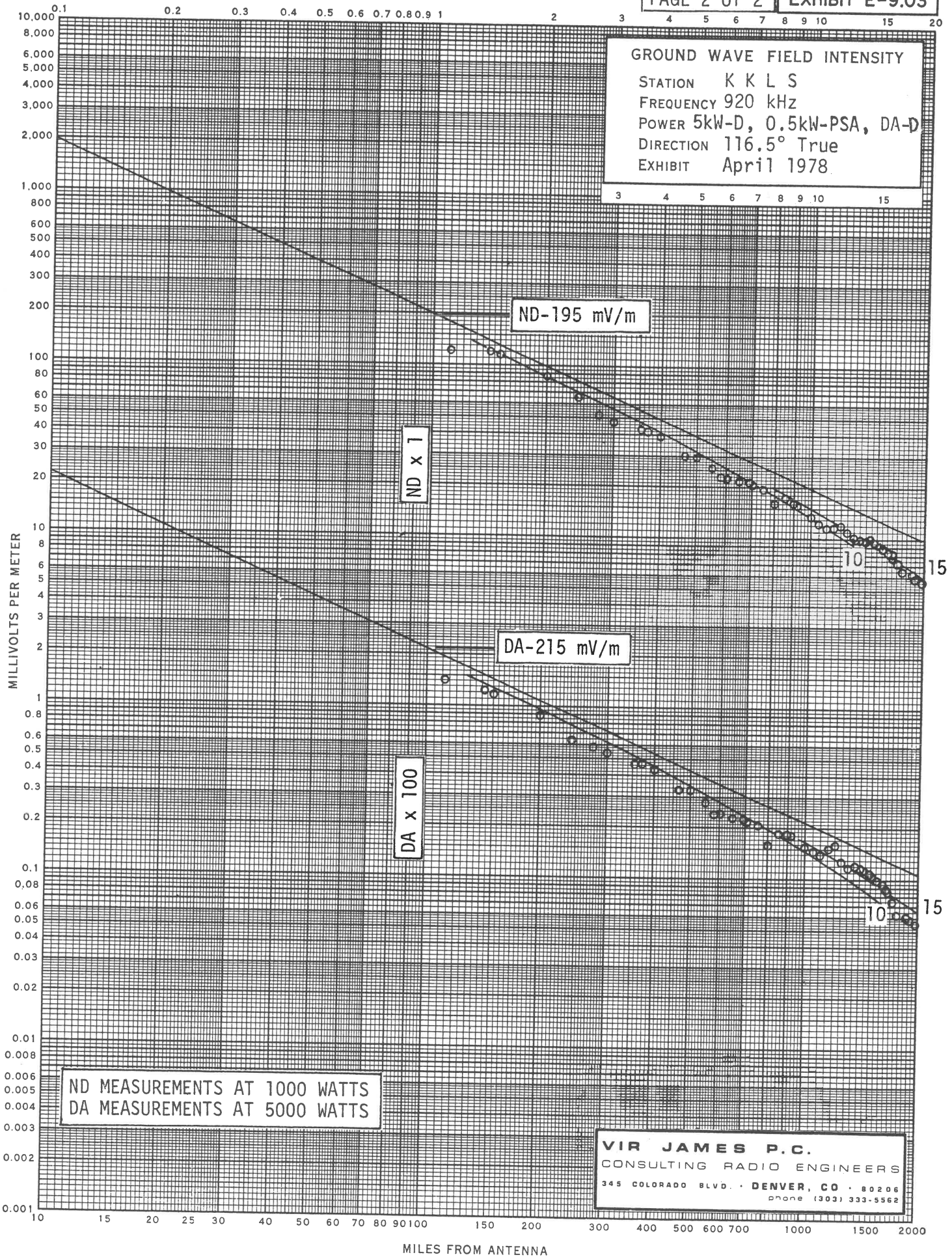
STATION K K L S

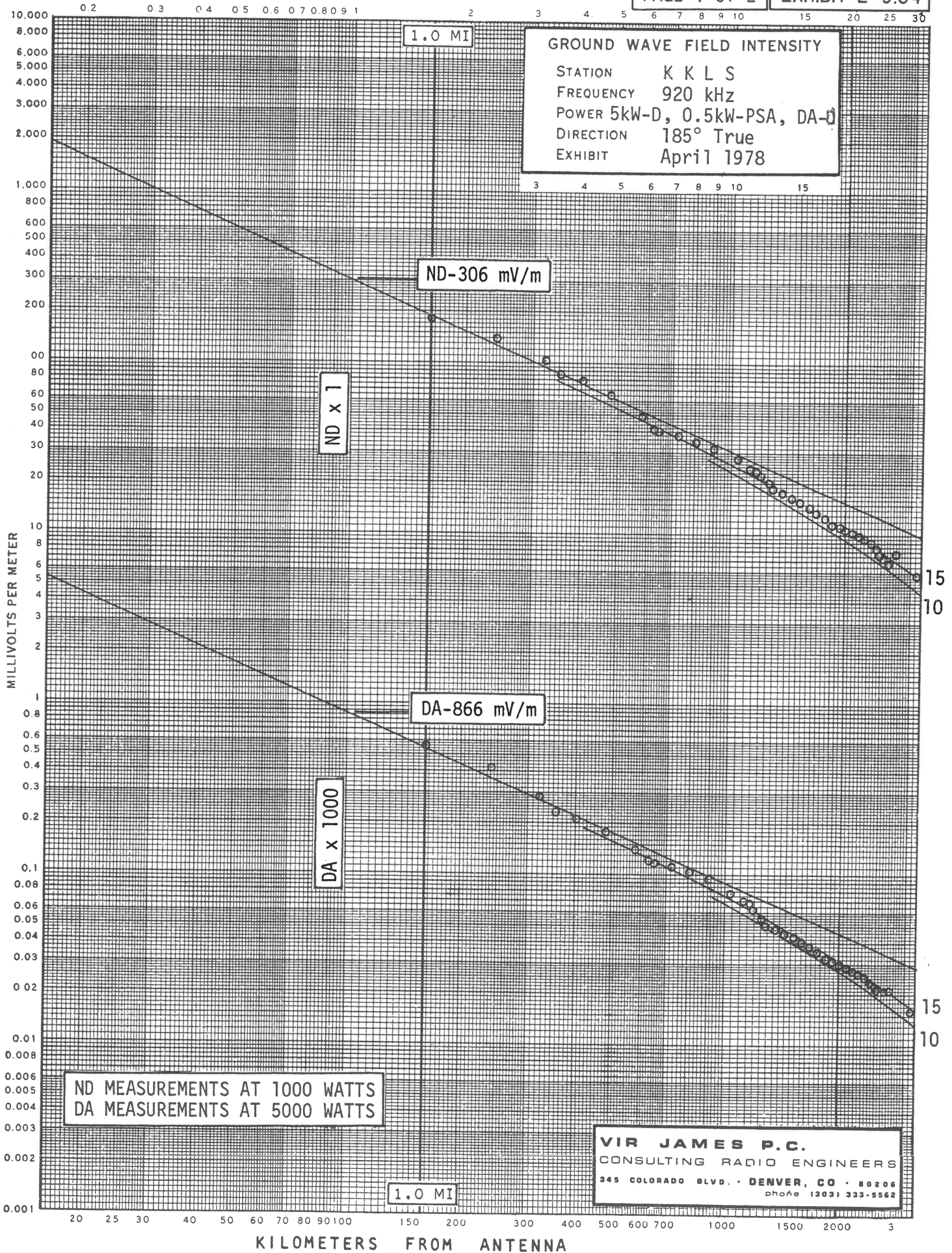
FREQUENCY 920 kHz

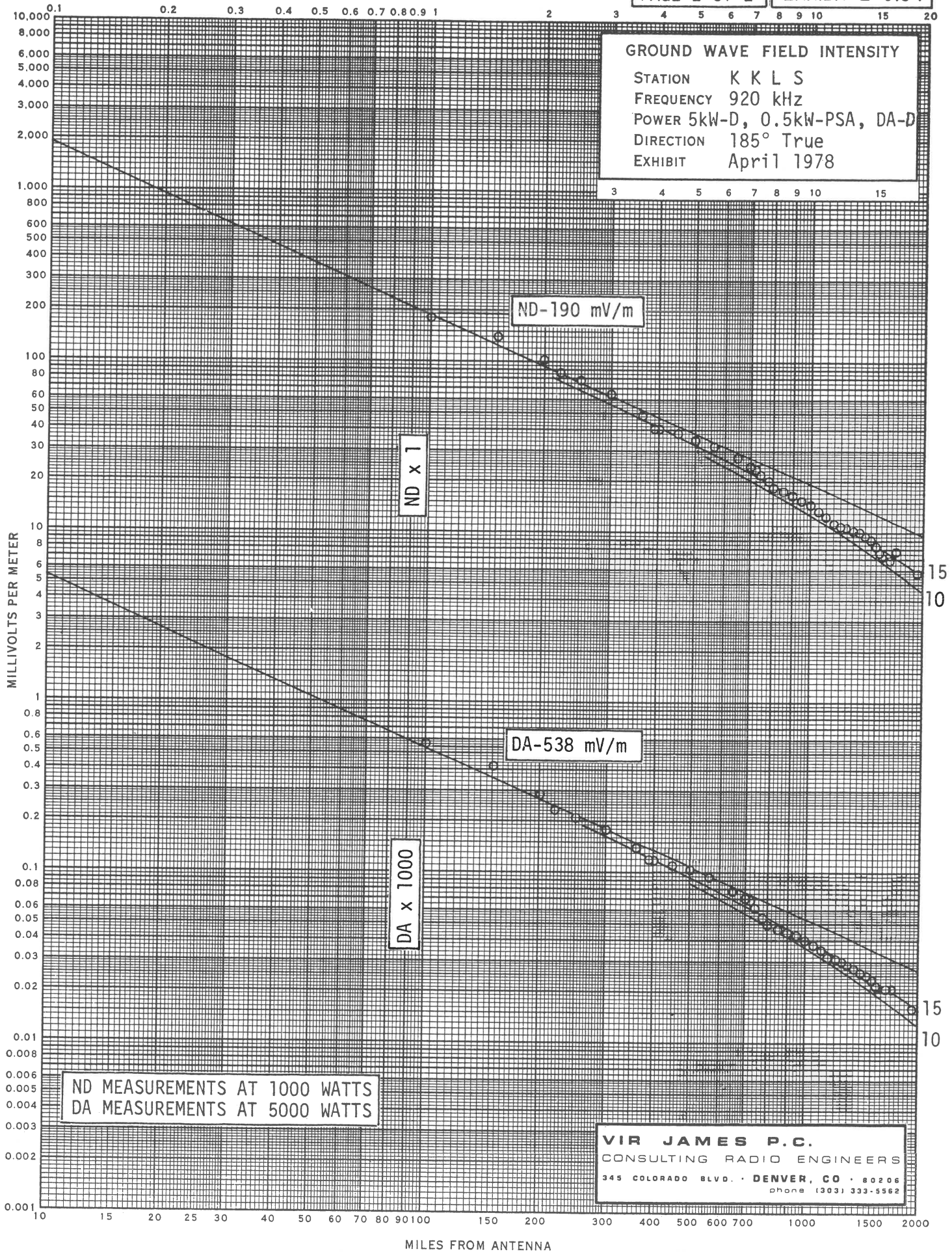
POWER 5kW-D, 0.5kW-PSA, DA-D

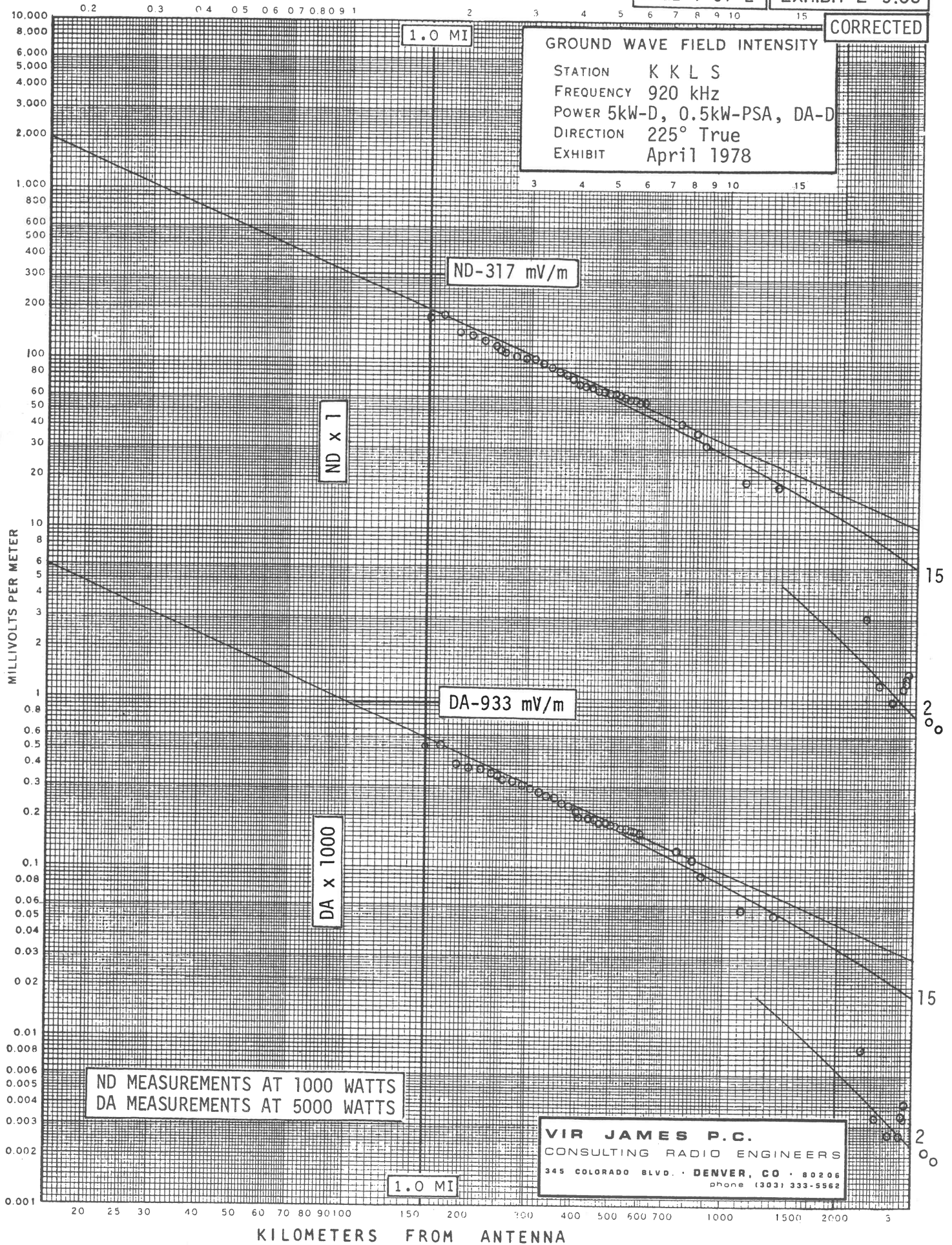
DIRECTION 116.5° True

EXHIBIT April 1978





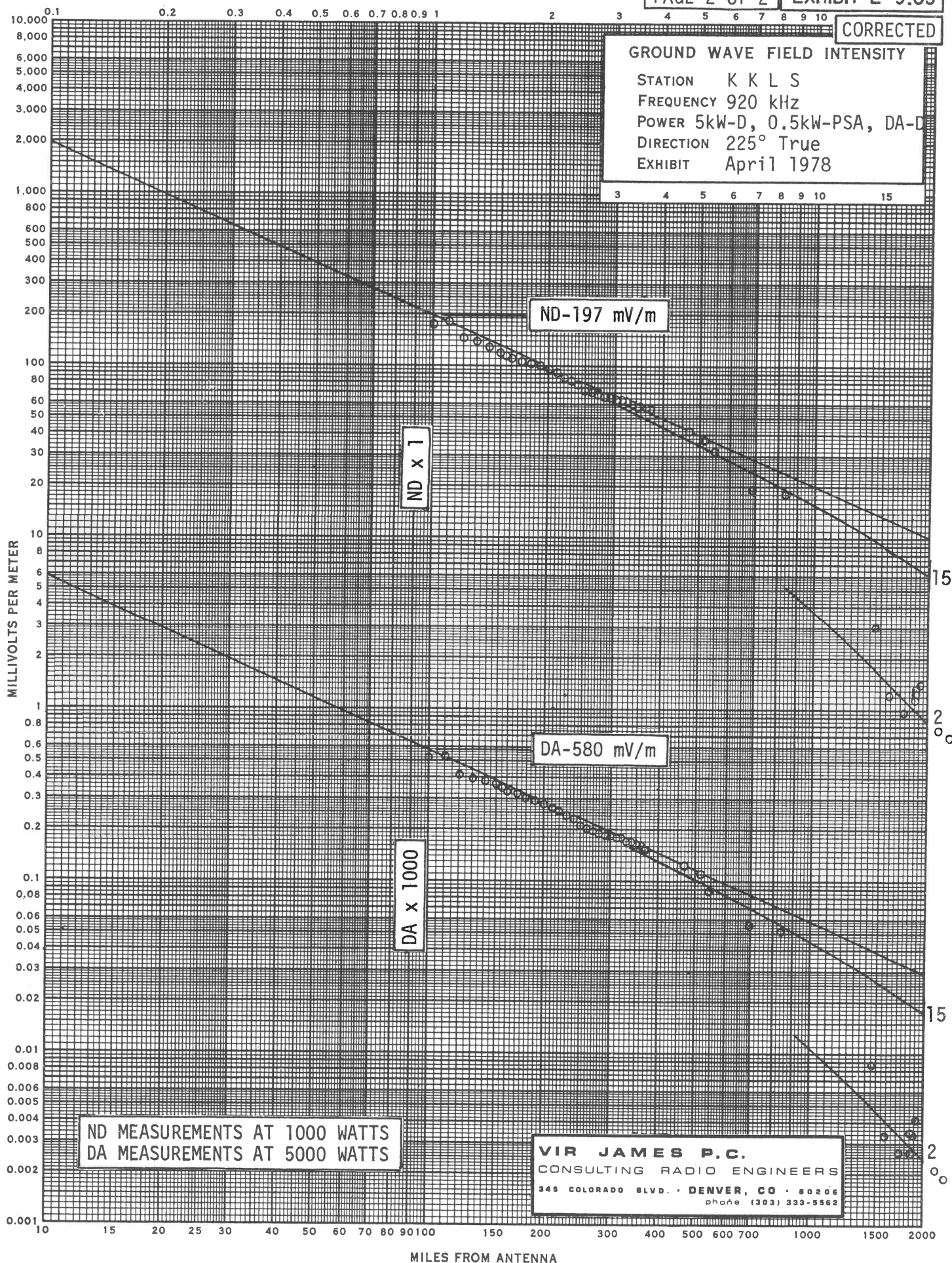


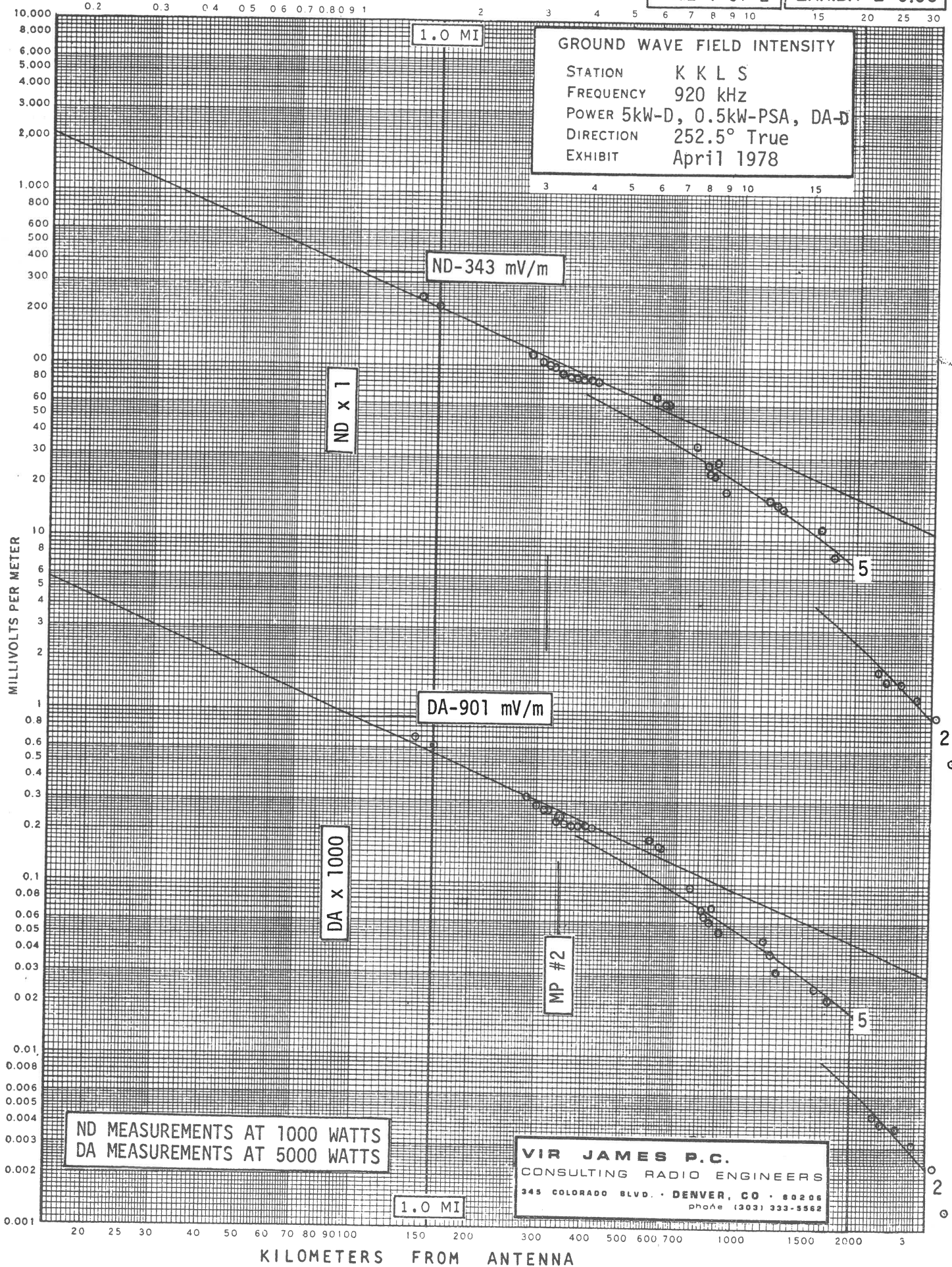


CORRECTED

GROUND WAVE FIELD INTENSITY

STATION K K L S
 FREQUENCY 920 kHz
 POWER 5kW-D, 0.5kW-PSA, DA-D
 DIRECTION 225° True
 EXHIBIT April 1978





GROUND WAVE FIELD INTENSITY

STATION K K L S
FREQUENCY 920 kHz
POWER 5kW-D, 0.5kW-PSA, DA-D
DIRECTION 252.5° True
EXHIBIT April 1978

