

## APPENDIX G

### WBTK FIELD STRENGTH MEASUREMENTS

(Extracted from WBTK (formerly WTVR) 1979  
full proof of performance (BL-19791005AI))

TABLE XII-A

FIELD STRENGTH MEASUREMENTS

Radio Station WTVR  
Roy H. Park Broadcasting of Virginia, Inc.  
Richmond, Virginia

1380 kHz

5 kW-U

DA-2

Radial 17.5°T

Point No.	Dist. mi.	<u>5 kW Non-D</u>		<u>5 kW DA-D</u>			<u>5 kW DA-N</u>		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
1	.32	1300	1025 B						
2	.49	740	1027 B						
3	.6	660	1034 B						
4	.69	540	1038 B						
5	.75	465	1044 B						
6	.9	355	1050 B						
7	1.02	235	1059 B	160	1459 Z	-0.1669	34	1400 Z	-0.8396
8	1.82	120	1115 B	84	1503 Z	-0.1549	20	1409 Z	-0.7782
9	3.77	35.5	1107 F	29.5	1526 Z	-0.0804	4.8	1417 Q	-0.8690
10MP	3.92	31	1110 F	27	1523 Z	-0.0600	4.5	1413 Q	-0.8381
11	4.08	30.5	1112 F	25	1521 Z	-0.0864	4.6	1408 Q	-0.8215
12	4.58	19.7	1117 F	15	1530 Z	-0.1184	2.25	1425 Q	-0.9423
13	4.94	14.8	1130 F	12	1632 DD	-0.0911	1.8	1433 Q	-0.9150
14	5.12	13.3	1132 F	11	1634 DD	-0.0825	1.85	1437 Q	-0.8567
15	5.46	13.2	1143 F	-	-	-	-	-	-

TABLE XII-A(CONTINUED)

Radial 17.5°T

Point No.	Dist. mi.	5 kW Non-D		5 kW DA-D			5 kW DA-N		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
16	5.75	11.5	1148 F	8.6	1638 DD	-0.1262	1.75	1447 Q	-0.8177
17	6.4	8.6	1153 F	5.7	1642 DD	-0.1786	1.1	1452 Q	-0.8931
18	6.8	6.4	1157 F	5.3	1644 DD	-0.0819	.9	1457 Q	-0.8519
19	7.39	6.5	1202 F	5.8	1646 DD	-0.0495	1.15	1506 Q	-0.7522
20	7.7	4.85	1205 F	3.2	1649 DD	-0.1806	.7	1509 Q	-0.8406
21	8.65	2.57	1334 F	2.25	1652 DD	-0.0578	.4	1515 Q	-0.8079
22	9.8	1.7	1341 F	1.45	1658 DD	-0.0691	.32	1521 Q	-0.7263
23	10.91	1.71	1349 F	1.8	1702 DD	-0.0223	.33	1529 Q	-0.7145
24	12.66	1.8	1400 F	1.6	1705 DD	-0.0512	.29	1539 Q	-0.7929
25	14.3	.99	1408 F	.84	1709 DD	-0.0714	.16	1546 Q	-0.7915
26	15.4	1.2	1412 F	.85	1712 DD	-0.1498	.19	1550 Q	-0.8004
27	17.52	.78	1420 F	.7	1715 DD	-0.0470	.175	1557 Q	-0.6491
Date Code:		Average Log Ratio				Average Log Ratio			
B = 7-5-79		DA-D to Non-D =				DA-N to Non-D =			
F = 7-19-79		Average Ratio				Average Ratio			
Q = 8-23-79		DA-D to Non-D =				DA-N to Non-D =			
Z = 9-8-79									
DD = 9-19-79									

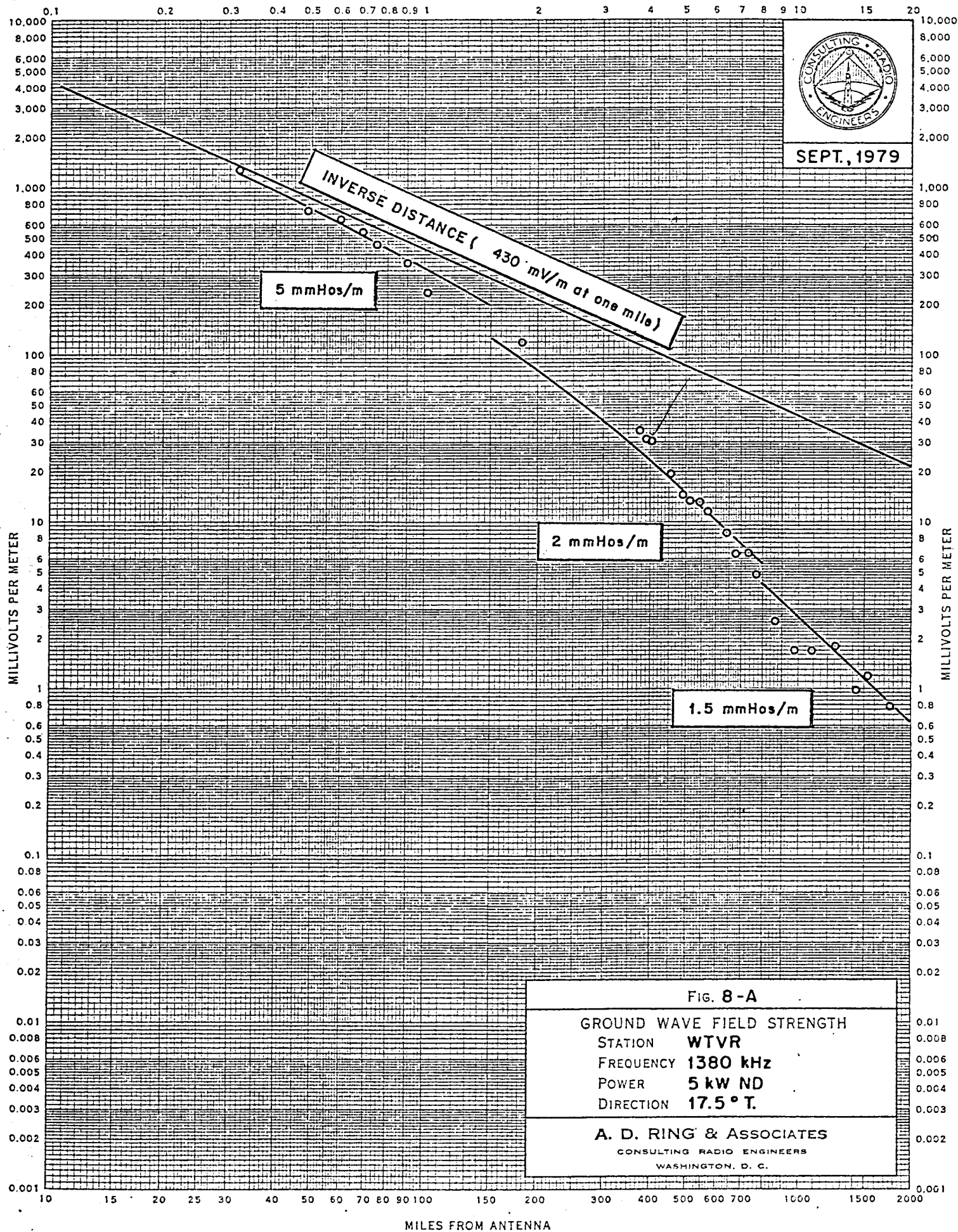


TABLE XII-B

FIELD STRENGTH MEASUREMENTS

Radio Station WTVR  
Roy H. Park Broadcasting of Virginia, Inc.  
Richmond, Virginia

1380 kHz5 kW-UDA-2Radial 35.5°T

Point No.	Dist. mi.	5 kW Non-D		5 kW DA-D		Ratio DA Non-D	5 kW DA-N		Log Ratio DA Non-D
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT		Field Strength mV/m	Time EDT	
1	.2	2170	0845 G						
2	.4	1110	0942 G						
3	.51	635	0946 G						
4	.62	515	0948 G						
5	.73	440	0951 G						
6	.8	395	0953 G						
7	.9	322	0955 G						
8	1.01	208	0958 G						
9	1.18	217	1002 G				10.05	1093 C	-1.3159
10	1.25	225	1006 G				6.4	1095 C	-1.5303
							10.0	1047 C	-1.3522
11	1.38	198	1008 G				5.4	1049 C	-1.5643
12	1.49	180	1011 G				7.2	1051 C	-1.3979
13M.P.	1.6	167	1015 G				6.4	1054 C	-1.4165
14	1.72	151	1019 G				6.2	1057 C	-1.3837
15	2.9	40	1045 G				-	-	

TABLE XII-B(CONTINUED)

Radial 35.5°T

Point No.	Dist. mi.	5 kW Non-D		5 kW DA-D		Ratio DA Non-D	5 kW DA-N		Log Ratio DA Non-D
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT		Field Strength mV/m	Time EDT	
16	3.27	27.3	1037 G				1.5	1108 C	-1.2601
17	3.5	28	1032 G				1.5	1109 C	-1.2711
18	3.83	24.2	1056 G				-	-	-
19	4.71	14.8	1159 G				-	-	-
20	5.3	8.0	1212 G				.22	1116 C	-1.5607
21	6.16	6.75	1444 G				.58	1123 C	-1.0659
22	7.15	4.95	1501 G				.45	1128 C	-1.0414
23	8.4	3.1	1452 G				.15	1135 C	-1.3153
24	10.2	1.7	1511 G				.155	1142 C	-1.0401
25	10.95	2.38	1519 G				.17	1147 C	-1.1461
26	12.56	1.92	1533 G				.15	1200 C	-1.1072
27	14.0	1.0	1538 G				.062	1204 C	-1.2076
28	16.08	.94	1546 G				.052	1212 C	-1.2571

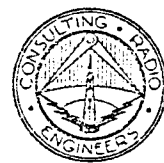
Date Code:

C = 7-9-79

G = 7-23-79

Average Log Ratio  
DA-N to Non-D = -1.2741  
Average Ratio  
DA-N to Non-D = .0532

MILES FROM ANTENNA



SEPT., 1979

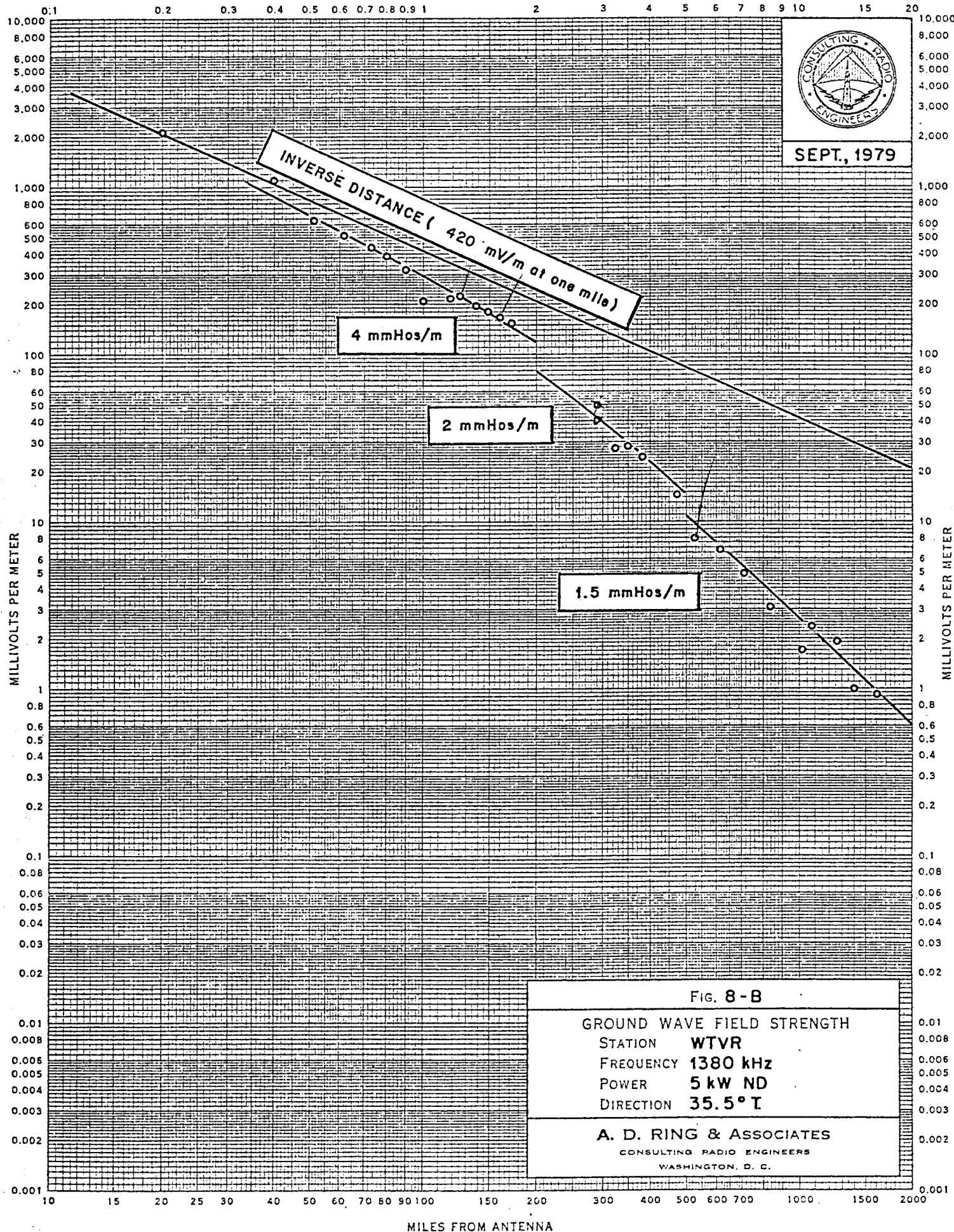


FIG. 8-B

GROUND WAVE FIELD STRENGTH

STATION **WTVR**

FREQUENCY **1380 kHz**

POWER **5 kW ND**

DIRECTION **35.5° I**

**A. D. RING & ASSOCIATES**

CONSULTING RADIO ENGINEERS

WASHINGTON, D. C.

MILES FROM ANTENNA

TABLE XII-C

FIELD STRENGTH MEASUREMENTS

Radio Station WTVR  
Roy H. Park Broadcasting of Virginia, Inc.  
Richmond, Virginia

1380 kHz

5 kW-U

DA-2

Radial 88° T

Point No.	Dist. mi.	<u>5 kW Non-D</u>		<u>5 kW DA-D</u>			<u>5 kW DA-N</u>		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
1	.36	1250	1358 E						
2	.48	760	1042 E						
3	.62	500	1039 E						
4	.69	490	1037 E						
5	.8	440	1036 E						
6	.85	430	1033 E						
7	.95	395	1032 E						
8	1.0	322	1015 H	400	0814 DD	0.0942	460	1107 DD	0.1549
9	1.09	295	1012 H	360	0812 DD	0.0865	425	1105 DD	0.1586
10	1.16	283	1010 H	370	1810 DD	0.1164	430	1101 DD	0.1817
11	1.28	268	1006 H	350	0807 DD	0.1159	375	1057 DD	0.1459
12	1.85	128	1022 H	-	-	-	-	-	-
13	2.96	36.5	1039 H	59	0824 DD	0.2086	62	1116 DD	0.2301
14	3.32	33	1049 H	48	0828 DD	0.1627	54	1122 DD	0.2139
15	3.72	29.5	1053 H	43	0831 DD	0.1636	47	1120 DD	0.2023



TABLE XII-C(CONTINUED)

Radial 88° T

Point No.	Dist. mi.	5 kW Non-D		5 kW DA-D			5 kW DA-N		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
16	3.8	28.8	1056 H	43	0834 DD	0.1741	48	1125 DD	0.2218
17	4.15	21.5	1104 H	28	0846 DD	0.1147	45	1130 DD	0.3208
18	5.1	11	1115 H	16	0855 DD	0.1627	17	1137 DD	0.1891
19	5.92	6.75	1128 H	11	0904 DD	0.2121	12	1144 DD	0.2499
20	6.7	4.85	1612 H	-	-	-	-	-	-
21	7.87	3.45	1619 H	5.6	0912 DD	0.2104	5.8	1150 DD	0.2256
22	8.6	3.55	1628 H	5.0	0916 DD	0.1487	5.2	1155 DD	0.1658
23	9.72	2.55	1636 H	3.4	0931 DD	0.1249	3.9	1261 DD	0.1845
24	10.82	1.9	1643 H	2.8	0939 DD	0.1836	3.3	1207 DD	0.2398
25	12.28	1.85	1005 R	2.45	0947 DD	0.1220	2.4	1213 DD	0.1130
26	14.66	.8	1023 R	1.2	1000 DD	0.1761	1.2	1221 DD	0.1761
27	15.78	.55	1028 R	.86	1004 DD	0.1941	1.05	1224 DD	0.3426
28	17.05	.8	1034 R	1.0	1008 DD	0.0969	1.25	1228 DD	0.1938

Date Code:

E = 7-17-79

H = 7-24-79

R = 8-24-79

DD = 9-19-79

Average Log Ratio

DA-D to Non-D

= 0.1501

Average Ratio

DA-N to Non-D

= 1.413

Average Log Ratio

DA-N to Non-D

= 0.2058

Average Ratio

DA-N to Non-D

= 1.606

MILES FROM ANTENNA

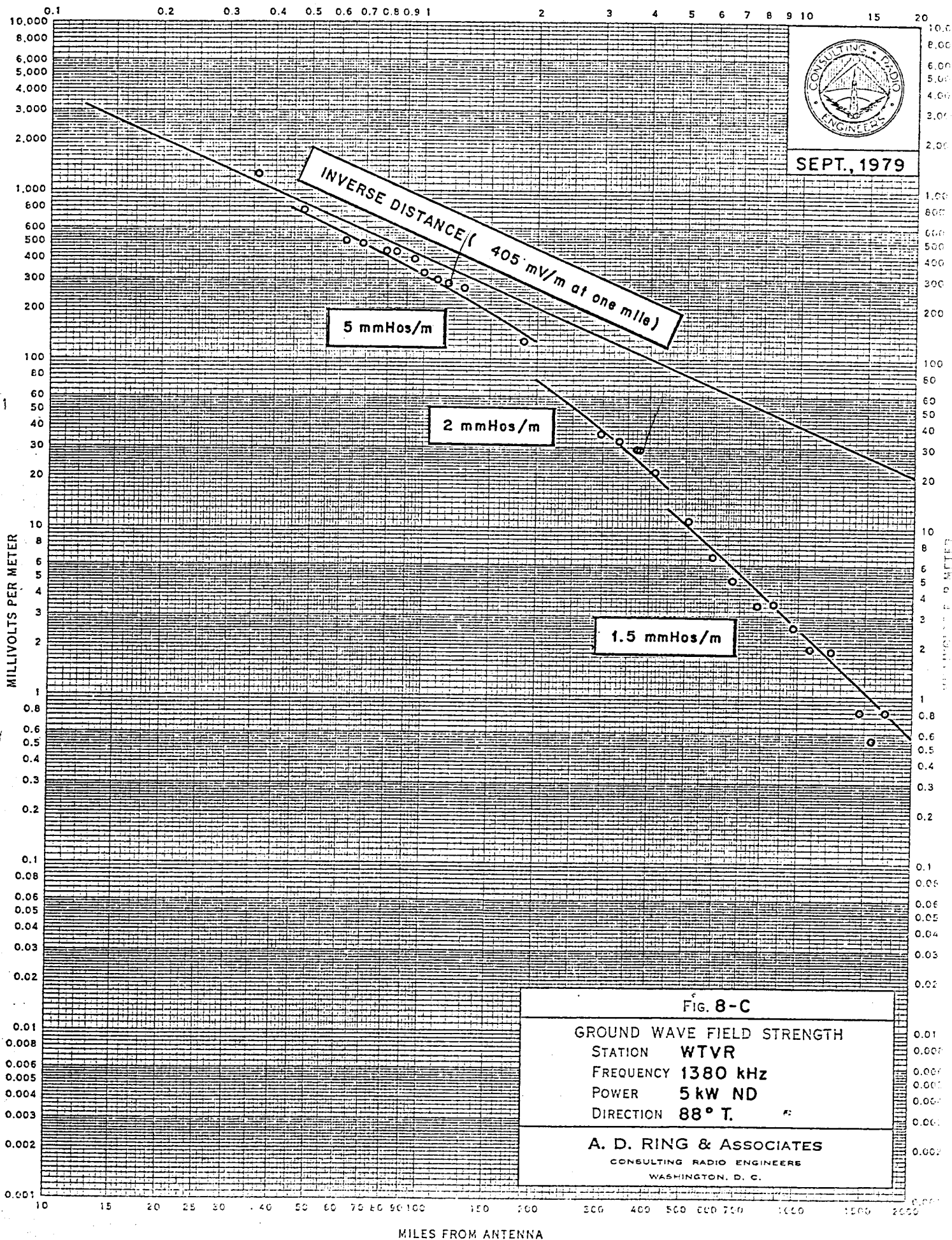


TABLE XII-I

FIELD STRENGTH MEASUREMENTS

Radio Station WTVR  
Roy H. Park Broadcasting of Virginia, Inc.  
Richmond, Virginia

1380 kHz5 kW-UDA-2Radial 318°T

Point No.	Dist. mi.	<u>5 kW Non-D</u>		<u>5 kW DA-D</u>			<u>5 kW DA-N</u>		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
1	.55	660	1123 A						
2	.65	510	1125 A						
3	.77	430	1130 A						
4	.91	265	1145 A						
5	1.05	260	1147 A	220	0958 Y	-0.0726	71	0855 Z	-0.5637
6	1.15	160	1203 A	125	1003 Y	-0.1072	51	0859 Z	-0.4965
7	1.29	212	1155 A	160	1000 Y	-0.1222	59	0856 Z	-0.5555
8	1.68	120	1215 A	94	1005 Y	-0.1061	40	0901 Z	-0.4771
9 M.P.	1.95	90	1222 A	66	1009 Y	-0.1347	32	0905 Z	-0.4491
10	2.18	80	1234 A	61	1011 Y	-0.1178	27.5	0907 Z	-0.4638
11	2.25	80	1355 T	58	1013 Y	-0.1397	24	0908 Z	-0.5229
12	2.35	71	1357 T	48	1016 Y	-0.1700	22	0910 Z	-0.5088
13	3.3	38	1404 T	27	1020 Y	-0.1484	11.5	0915 Z	-0.5191
14	3.45	29.5	1408 T	25	1023 Y	-0.0719	8.2	0918 Z	-0.5560
15	4.01	28	1414 T	21	1027 Y	-0.1249	7.6	0921 Z	-0.5663

TABLE XII-I(CONTINUED)

Radial 318°T

Point No.	Dist. mi.	<u>5 kW Non-D</u>		<u>5 kW DA-D</u>			<u>5 kW DA-N</u>		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
16	4.3	20	1417 T	12	1030 Y	-0.2218	6.4	0923 Z	-0.4949
17	4.92	19	1433 T	13.5	1034 Y	-0.1484	6.4	0927 Z	-0.4726
18	5.05	20.2	1430 T	11	1037 Y	-0.2640	-	-	-
19	5.8	12	1441 T	9.2	1042 Y	-0.1154	3.9	0931 Z	-0.4881
20	6.12	6.7	1445 T	5.4	1045 Y	-0.0937	3.1	0934 Z	-0.3347
21	7.95	5.8	1459 T	4.9	1055 Y	-0.0732	1.8	0943 Z	-0.5082
22	8.86	4.2	1515 T	3.1	1103 Y	-0.1319	1.3	0949 Z	-0.5093
23	9.32	3.2	1518 T	2.4	1106 Y	-0.1250	0.99	0952 Z	-0.5100
24	10.6	2.6	1524 T	1.9	1110 Y	-0.1362	0.86	0956 Z	-0.4805
25	11.66	2.45	1530 T	1.7	1113 Y	-0.1587	0.72	0959 Z	-0.5318
26	12.7	2.25	1535 T	1.85	1117 Y	-0.0580	0.8	1002 Z	-0.4491
27	13.85	2	1542 T	1.8	1121 Y	-0.0458	0.74	1005 Z	-0.4318
28	15.5	1.4	1547 T	1.05	1126 Y	-0.1249	0.54	1010 Z	-0.4137
29	16.98	1.22	1556 T	0.88	1134 Y	-0.1419	0.46	1014 Z	-0.4236

Date Code:

A = 6-28-79  
T = 8-30-79  
Y = 9-7-79  
Z = 9-8-79

Average Log Ratio

DA-D to Non-D

= -0.1273

Average Ratio

DA-D to Non-D

= 0.746

Average Log Ratio

DA-N to Non-D

= -0.4881

Average Ratio

DA-N to Non-D

= 0.325

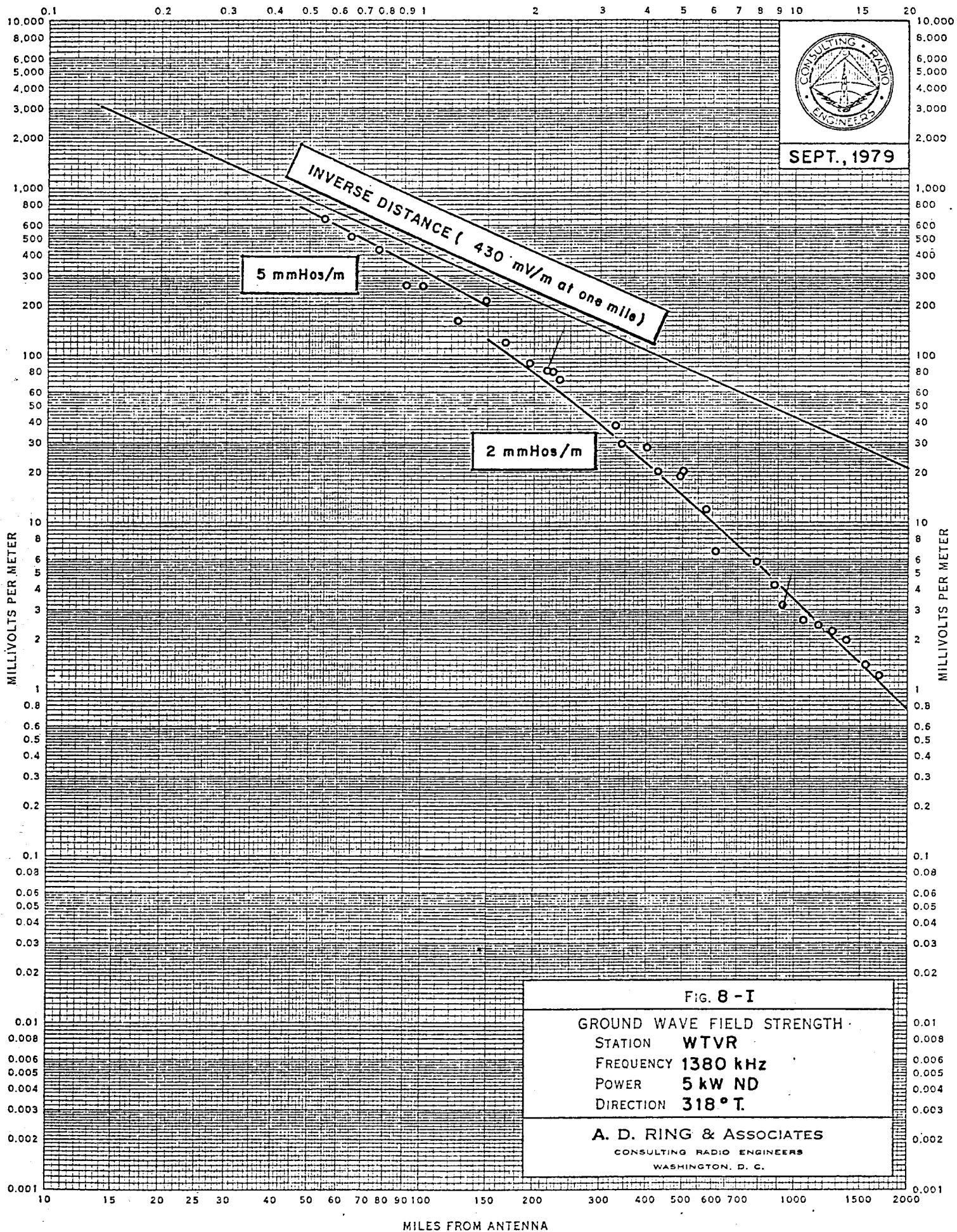


TABLE XII-J

FIELD STRENGTH MEASUREMENTS

Radio Station WTVR  
Roy H. Park Broadcasting of Virginia, Inc.  
Richmond, Virginia

1380 kHz5 kW-UDA-2Radial 351°T

Point No.	Dist. mi.	<u>5 kW Non-D</u>		<u>5 kW DA-D</u>			<u>5 kW DA-N</u>		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
1	0.34	1400	1035 D						
2	0.46	780	1040 D						
3	0.59	540	1043 D						
4	0.66	480	1047 D						
5	0.74	430	1053 D						
6	1.03	325	1058 D	210	1311 Y	-0.1897	25.5	1037 Z	-1.1053
7	1.72	105	1115 D	90	1320 Y	-0.0669	8.15	1046 Z	-1.1100
8	2.2	78	1118 D	59	1325 Y	-0.1212	6.85	1048 Z	-1.0564
9	2.87	36	1218 K	30	1329 Y	-0.0792	2.8	1052 Z	-1.1091
10	3.24	39	1227 K	30	1343 Y	-0.1139	2.6	1055 Z	-1.1761
11M.P.	3.39	38	1244 K	28	1346 Y	-0.1326	2.25	1057 Z	-1.2276
12	3.88	26	1252 K	19	1348 Y	-0.1362	2.1	1100 Z	-1.0928
13	4.25	19	1258 K	15	1351 Y	-0.1027	1.8	1141 Z	-1.0235
14	5.1	14	1310 K	11	1358 Y	-0.1047	1.05	1148 Z	-1.1250
15	6.0	5.1	1316 K	3.0	1400 Y	-0.2304	0.28	1151 Z	-1.2604

TABLE XII-J(CONTINUED)

Radial 351°T

Point No.	Dist. mi.	5 kW Non-D		5 kW DA-D			5 kW DA-N		
		Field Strength mV/m	Time EDT	Field Strength mV/m	Time EDT	Log Ratio DA Non-D	Field Strength mV/m	Time EDT	Log Ratio DA Non-D
16	7.1	6.2	1327 K	5.2	1405 Y	-0.0764	0.56	1155 Z	-1.0442
17	8.2	4.8	1350 K	4.1	1409 Y	-0.0645	0.23	1159 Z	-1.3195
18	8.8	3.6	1446 K	3.2	1414 Y	-0.0512	0.225	1203 Z	-1.2041
19	9.18	2.8	1452 K	2.45	1417 Y	-0.0580	0.14	1207 Z	-1.3010
20	10.02	3.85	1030 L	2.95	1425 Y	-0.1156	0.18	1214 Z	-1.3301
21	10.91	3.5	1040 L	2.25	1429 Y	-0.1919	0.21	1218 Z	-1.2218
22	11.97	2.1	1052 L	1.5	1434 Y	-0.1461	0.16	1224 Z	-1.1101
23	12.64	2.6	1058 L	1.9	1448 Y	-0.1362	0.22	1230 Z	-1.0726
24	16.41	0.9	1132 L	0.8	1458 Y	-0.0512	0.076	1256 Z	-1.0734
25	17.45	0.68	1139 L	0.59	1503 Y	-0.0617	0.042	1302 Z	-1.2092
Date Code:				Average Log Ratio			Average Log Ratio		
D = 7-12-79				DA-D to Non-D =			DA-N to Non-D =		
K = 8-1-79				Average Ratio			Average Ratio		
L = 8-9-79				DA-D to Non-D =			DA-N to Non-D =		
Y = 9-7-79									
Z = 9-8-79									

D = 7-12-79

K = 8-1-79

L = 8-9-79

Y = 9-7-79

Z = 9-8-79

Average Log Ratio

DA-D to Non-D

=

-0.1084

Average Ratio

DA-D to Non-D

=

0.779

Average Log Ratio

DA-N to Non-D

=

-1.1592

Average Ratio

DA-N to Non-D

=

.0693

