MULTIPLE SOURCES STUDY

Since there will be multiple sources of radiofrequency radiation at the referenced site, special studies have been made to assure that the combined fields of the various signals do not exceed the ANSI Guidelines, as detailed in OST Bulletin No.65. The individual station fields were calculated, and the data tabulated. The calculations show that about the TV tower the individual fields are below the ANSI Guidelines.

There are five (5) authorized or licensed full service or LPTV stations at the existing tower. To determine the effect of the addition of the Channel 280A FM facility, and to verify that the operation of the new FM and the various TV stations meets the requirements of the Guidelines, calculations of the field have been made using the appropriate formulae of OST Bulletin No.65. The fields were determined using the listed procedure and the results plotted. The calculated peak field for each station was employed. As all the TV and LPTV stations are UHF, the TV element pattern was an EPA Type 2. The calculations were then made using the program "NIRAD". The file data for the various facilities was employed, plus discussion with the antenna manufacturer in the case of W15AU and W41BB.

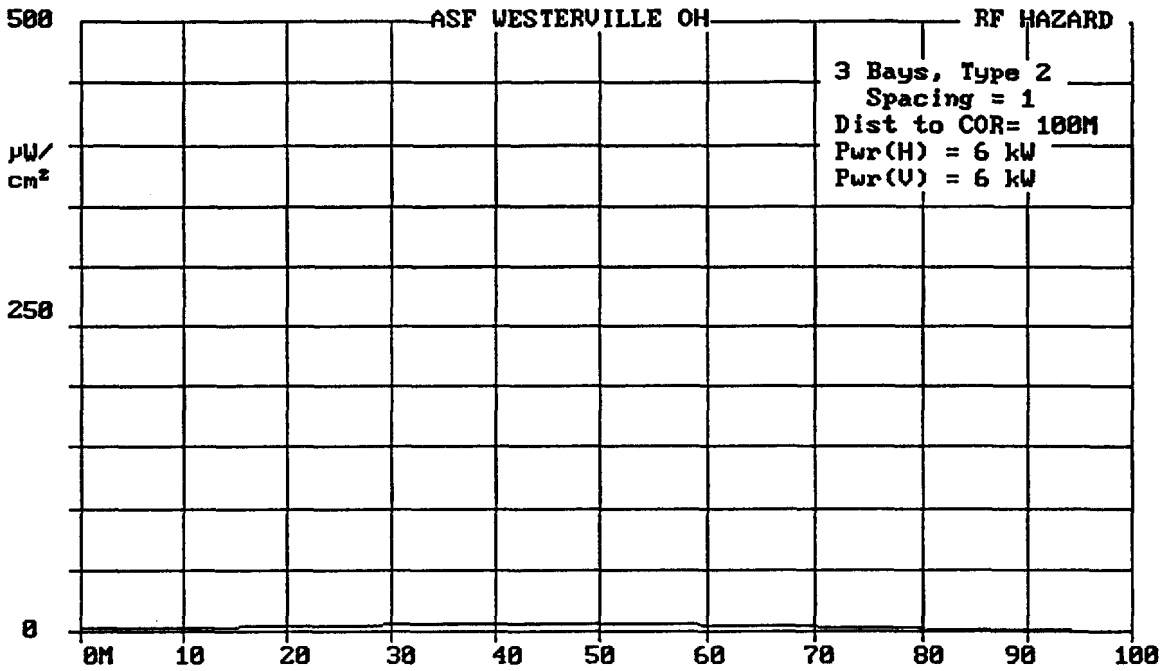
The FM field is based on calculations using the measured element pattern for the proposed antenna, which is expected to be a JAMPRO antenna, an EPA Type 2. There will be 3 bays.

In accordance with Section 4.1 of Appendix A of OST Bulletin No.65, the individual limit fractions have been determined, and the results added. The sum of the individual limits does not exceed unity, therefore the facilities are in full compliance with the Rules of the Commission.

STATION	FIELD	LIMIT	DECIMAL FRACTION
Ch.280(FM)	0.0062 mW/cm²	1.00 mW/cm²	0.0062
WTTE Ch.28	0.0123 mW/cm²	1.85 mW/cm²	0.0066
WOSU Ch.34	0.0062 mW/cm²	1.97 mW/cm²	0.0031
W15AUc.p.	0.0080 mW/cm²	1.59 mW/cm²	0.0050
W41BBc.p.	0.0092 mW/cm²	2.11 mW/cm²	0.0044
W62BEc.p.	0.0041 mW/cm²	2.53 mW/cm²	0.0016
		Total	0.0269

In the event work would be required on the structure, at such a distance from the structure or any antennae that the ANSI exposure guidelines would be exceeded, the transmitter power of the facility causing the exposure in excess of the limits will be reduced to the extent required, or that facility will be shut down, during the period in question. An agreement, signed by all parties, to effectuate the required power reductions or cessation of operations by the critical station will be in effect.

The transmitter site is protected by fencing, and locked gates. Proper signs are posted to warn of the potential for exposure to radiofrequency fields. There are no other FM or TV facilities within 1 km.



DISTANCE FROM RADIATOR (Meters) VERSUS POWER DENSITY (Microwatt/Square cm)

Dist (M)	PD (H)	PD (V)	Total (uW/cm2)
0.00	0.601	2.205	2.806
1.00	0.576	2.249	2.825
2.00	0.552	2.293	2.845
3.00	0.527	2.337	2.864
4.00	0.504	2.381	2.884
5.00	0.480	2.424	2.905
6.00	0.458	2.468	2.925
7.00	0.435	2.511	2.946
8.00	0.414	2.553	2.967
9.00	0.403	2.605	3.008
10.00	0.422	2.685	3.107
11.00	0.442	2.764	3.207
12.00	0.463	2.844	3.307
13.00	0.483	2.924	3.407
14.00	0.504	3.003	3.507
15.00	0.525	3.082	3.606
16.00	0.546	3.160	3.705
17.00	0.566	3.237	3.803
18.00	0.588	3.309	3.907
19.00	0.650	3.374	4.024
20.00	0.704	3.437	4.140
21.00	0.758	3.498	4.256
22.00	0.813	3.557	4.371
23.00	0.870	3.614	4.484
24.00	0.927	3.669	4.596
25.00	0.984	3.722	4.706
26.00	1.042	3.771	4.814
27.00	1.103	3.817	4.920
28.00	1.176	3.853	5.029
29.00	1.248	3.886	5.135
30.00	1.321	3.916	5.237
31.00	1.394	3.942	5.336
32.00	1.466	3.965	5.430
33.00	1.537	3.983	5.520
34.00	1.606	3.998	5.605
35.00	1.675	4.009	5.684
36.00	1.741	4.015	5.757
37.00	1.825	4.005	5.830
38.00	1.919	3.983	5.902
39.00	2.011	3.957	5.968
40.00	2.100	3.927	6.027
41.00	2.186	3.893	6.079
42.00	2.269	3.856	6.125
43.00	2.347	3.815	6.162
44.00	2.422	3.770	6.192
45.00	2.492	3.721	6.213
46.00	2.557	3.668	6.226
47.00	2.603	3.616	6.220
48.00	2.622	3.566	6.188
49.00	2.635	3.512	6.147
50.00	2.644	3.455	6.099
51.00	2.647	3.354	6.041
52.00	2.646	3.330	5.976

Summary of Input Data:

Call: WTTE

Frequency: 555.240 MHz

Horizontal Power (ERPd): 1910.000 kW Vertical Power (ERPd): .000 kW
Horizontal Input Power : Vertical Input Power : .000 kW

Antenna Type: BOGNER

Horizontal Element Type Number: 2.
Vertical Element Type Number: 0.

Height of observer above reference plane: 2.0 Meters

Element Data:

Horizontal:

Number of elements: 28
Distance from analysis reference point: .0 meters
Azimuth from analysis reference point: N .0 E
Height of center of radiation above reference plane: 300.0 Meters

Calculated Results:
---

* - indicates computed value exceeds ANSI guideline.

Farfield calculation methods were used.

	Horizontal Polarization		Vertical Polarization		Total Power
Distance (meters)	E2 Field (V2/m2)	H2 Field (A2/m2)	E2 Field (V2/m2)	H2 Field (A2/m2)	Density (mW/cm2)
1.00	12.	.0001	0.	.0000	.0031
2.00	12.	.0001	0.	.0000	.0033
3.00	13.	.0001	0.	.0000	.0035
4.00	14.	.0001	0.	.0000	.0037
5.00	15.	.0001	0.	.0000	.0039
6.00	16.	.0001	0.	.0000	.0041
7.00	16.	.0001	0.	.0000	.0044
8.00	17.	.0001	0.	.0000	.0046
9.00	18.	.0001	0.	.0000	.0048
10.00	19.	.0001	0.	.0000	.0051
11.00	20.	.0001	0.	.0000	.0053
12.00	21.	.0001	0.	.0000	.0056
13.00	22.	.0002	0.	.0000	.0058
14.00	23.	.0002	0.	.0000	.0061
15.00	24.	.0002	0.	.0000	.0064
16.00	25.	.0002	0.	.0000	.0067
17.00	26.	.0002	0.	.0000	.0069
18.00	27.	.0002	0.	.0000	.0072
19.00	28.	.0002	0.	.0000	.0075
20.00	29.	.0002	0.	.0000	.0078
21.00	30.	.0002	0.	.0000	.0081
22.00	31.	.0002	0.	.0000	.0083
23.00	33.	.0002	0.	.0000	.0086
24.00	34.	.0002	0.	.0000	.0089
25.00	35.	.0002	0.	.0000	.0092
26.00	36.	.0003	0.	.0000	.0095
27.00	37.	.0003	0.	.0000	.0097
28.00	38.	.0003	0.	.0000	.0100
29.00	39.	.0003	0.	.0000	.0103
30.00	40.	.0003	0.	.0000	.0105
31.00	41.	.0003	0.	.0000	.0108
32.00	41.	.0003	0.	.0000	.0110
33.00	42.	.0003	0.	.0000	.0112
34.00	43.	.0003	0.	.0000	.0114
35.00	44.	.0003	0.	.0000	.0116
36.00	44.	.0003	0.	.0000	.0117
37.00	45.	.0003	0.	.0000	.0119
38.00	45.	.0003	0.	.0000	.0120
39.00	46.	.0003	0.	.0000	.0121
40.00	46.	.0003	0.	.0000	.0122
41.00	46.	.0003	0.	.0000	.0123
42.00	46.	.0003	0.	.0000	.0123
43.00	46.	.0003	0.	.0000	.0123
44.00	46.	.0003	0.	.0000	.0123
45.00	46.	.0003	0.	.0000	.0123
46.00	46.	.0003	0.	.0000	.0122
47.00	45.	.0003	0.	.0000	.0121
48.00	45.	.0003	0.	.0000	.0119

Summary of Input Data:

Call: WOSU

Frequency: 591.250 MHz

Horizontal Power (ERPd): 1170.000 kW Vertical Power (ERPd): .000 kW
Horizontal Input Power : Vertical Input Power : .000 kW

Antenna Type: BOGNER

Horizontal Element Type Number: 2.
Vertical Element Type Number: 0.

Height of observer above reference plane: 2.0 Meters

Element Data:

Horizontal:

Number of elements: 28
Distance from analysis reference point: .0 meters
Azimuth from analysis reference point: N .0 E
Height of center of radiation above reference plane: 331.0 Meters

Calculated Results:

* - indicates computed value exceeds ANSI guideline.

Farfield calculation methods were used.

Distance (meters)	Horizontal Polarization E2 Field (V2/m2)	Horizontal Polarization H2 Field (A2/m2)	Vertical Polarization E2 Field (V2/m2)	Vertical Polarization H2 Field (A2/m2)	Total Power Density (mW/cm2)
1.00	6.	.0000	0.	.0000	.0015
2.00	6.	.0000	0.	.0000	.0016
3.00	6.	.0000	0.	.0000	.0017
4.00	7.	.0000	0.	.0000	.0018
5.00	7.	.0001	0.	.0000	.0019
6.00	8.	.0001	0.	.0000	.0020
7.00	8.	.0001	0.	.0000	.0021
8.00	8.	.0001	0.	.0000	.0022
9.00	9.	.0001	0.	.0000	.0023
10.00	9.	.0001	0.	.0000	.0024
11.00	10.	.0001	0.	.0000	.0025
12.00	10.	.0001	0.	.0000	.0027
13.00	10.	.0001	0.	.0000	.0028
14.00	11.	.0001	0.	.0000	.0029
15.00	11.	.0001	0.	.0000	.0030
16.00	12.	.0001	0.	.0000	.0031
17.00	12.	.0001	0.	.0000	.0033
18.00	13.	.0001	0.	.0000	.0034
19.00	13.	.0001	0.	.0000	.0035
20.00	14.	.0001	0.	.0000	.0036
21.00	14.	.0001	0.	.0000	.0038
22.00	15.	.0001	0.	.0000	.0039
23.00	15.	.0001	0.	.0000	.0040
24.00	16.	.0001	0.	.0000	.0042
25.00	16.	.0001	0.	.0000	.0043
26.00	17.	.0001	0.	.0000	.0044
27.00	17.	.0001	0.	.0000	.0045
28.00	18.	.0001	0.	.0000	.0047
29.00	18.	.0001	0.	.0000	.0048
30.00	19.	.0001	0.	.0000	.0049
31.00	19.	.0001	0.	.0000	.0050
32.00	19.	.0001	0.	.0000	.0052
33.00	20.	.0001	0.	.0000	.0053
34.00	20.	.0001	0.	.0000	.0054
35.00	21.	.0001	0.	.0000	.0055
36.00	21.	.0001	0.	.0000	.0056
37.00	21.	.0002	0.	.0000	.0057
38.00	22.	.0002	0.	.0000	.0058
39.00	22.	.0002	0.	.0000	.0058
40.00	22.	.0002	0.	.0000	.0059
41.00	23.	.0002	0.	.0000	.0060
42.00	23.	.0002	0.	.0000	.0060
43.00	23.	.0002	0.	.0000	.0061
44.00	23.	.0002	0.	.0000	.0061
45.00	23.	.0002	0.	.0000	.0062
46.00	23.	.0002	0.	.0000	.0062
47.00	23.	.0002	0.	.0000	.0062
48.00	23.	.0002	0.	.0000	.0062
49.00	23.	.0002	0.	.0000	.0062
50.00	23.	.0002	0.	.0000	.0061
[illegible]	[illegible]	[illegible]	0.	.0000	.0061

Summary of Input Data:

Call: W15AU

Frequency: 477.250 MHz

Horizontal Power (ERPd): 15.000 kW Vertical Power (ERPd): .000 kW
Horizontal Input Power : Vertical Input Power : .000 kW

Antenna Type: MCI955512

Horizontal Element Type Number: 2.
Vertical Element Type Number: 0.

Height of observer above reference plane: 2.0 Meters

Element Data:

Horizontal:

Number of elements: 2
Distance from analysis reference point: .0 meters
Azimuth from analysis reference point: N .0 E
Height of center of radiation above reference plane: 74.0 Meters

Calculated Results:

* - indicates computed value exceeds ANSI guideline.

Farfield calculation methods were used.

Distance (meters)	Horizontal Polarization E2 Field (V2/m2)	Horizontal Polarization H2 Field (A2/m2)	Vertical Polarization E2 Field (V2/m2)	Vertical Polarization H2 Field (A2/m2)	Total Power Density (mW/cm2)
1.00	2.	.0000	0.	.0000	.0005
2.00	2.	.0000	0.	.0000	.0006
3.00	3.	.0000	0.	.0000	.0008
4.00	3.	.0000	0.	.0000	.0009
5.00	4.	.0000	0.	.0000	.0011
6.00	5.	.0000	0.	.0000	.0013
7.00	6.	.0000	0.	.0000	.0015
8.00	6.	.0000	0.	.0000	.0017
9.00	7.	.0000	0.	.0000	.0019
10.00	8.	.0001	0.	.0000	.0021
11.00	9.	.0001	0.	.0000	.0023
12.00	10.	.0001	0.	.0000	.0026
13.00	11.	.0001	0.	.0000	.0028
14.00	12.	.0001	0.	.0000	.0031
15.00	12.	.0001	0.	.0000	.0033
16.00	13.	.0001	0.	.0000	.0036
17.00	14.	.0001	0.	.0000	.0038
18.00	15.	.0001	0.	.0000	.0041
19.00	16.	.0001	0.	.0000	.0043
20.00	17.	.0001	0.	.0000	.0046
21.00	18.	.0001	0.	.0000	.0048
22.00	19.	.0001	0.	.0000	.0051
23.00	20.	.0001	0.	.0000	.0053
24.00	21.	.0001	0.	.0000	.0056
25.00	22.	.0002	0.	.0000	.0058
26.00	23.	.0002	0.	.0000	.0060
27.00	24.	.0002	0.	.0000	.0063
28.00	24.	.0002	0.	.0000	.0065
29.00	25.	.0002	0.	.0000	.0066
30.00	26.	.0002	0.	.0000	.0068
31.00	26.	.0002	0.	.0000	.0070
32.00	27.	.0002	0.	.0000	.0072
33.00	28.	.0002	0.	.0000	.0073
34.00	28.	.0002	0.	.0000	.0075
35.00	29.	.0002	0.	.0000	.0076
36.00	29.	.0002	0.	.0000	.0077
37.00	29.	.0002	0.	.0000	.0078
38.00	30.	.0002	0.	.0000	.0078
39.00	30.	.0002	0.	.0000	.0079
40.00	30.	.0002	0.	.0000	.0079
41.00	30.	.0002	0.	.0000	.0080
42.00	30.	.0002	0.	.0000	.0080
43.00	30.	.0002	0.	.0000	.0080
44.00	30.	.0002	0.	.0000	.0080
45.00	30.	.0002	0.	.0000	.0079
46.00	30.	.0002	0.	.0000	.0079
47.00	30.	.0002	0.	.0000	.0078
48.00	29.	.0002	0.	.0000	.0078
49.00	29.	.0002	0.	.0000	.0077
50.00	29.	.0002	0.	.0000	.0076

Summary of Input Data:

Call: W41BB

Frequency: 633.250 MHz

Horizontal Power (ERPd): 17.200 kW Vertical Power (ERPd): .000 kW
Horizontal Input Power : Vertical Input Power : .000 kW

Antenna Type: MCI955512

Horizontal Element Type Number: 2.
Vertical Element Type Number: 0.

Height of observer above reference plane: .0 Meters

Element Data:

Horizontal:

Number of elements: 2
Distance from analysis reference point: .0 meters
Azimuth from analysis reference point: N .0 E
Height of center of radiation above reference plane: 72.0 Meters

Calculated Results:

* - indicates computed value exceeds ANSI guideline.

Farfield calculation methods were used.

Distance (meters)	Horizontal Polarization E2 Field (V2/m2)	Horizontal Polarization H2 Field (A2/m2)	Vertical Polarization E2 Field (V2/m2)	Vertical Polarization H2 Field (A2/m2)	Total Power Density (mW/cm2)
1.00	2.	.0000	0.	.0000	.0006
2.00	3.	.0000	0.	.0000	.0007
3.00	3.	.0000	0.	.0000	.0009
4.00	4.	.0000	0.	.0000	.0011
5.00	5.	.0000	0.	.0000	.0012
6.00	5.	.0000	0.	.0000	.0015
7.00	6.	.0000	0.	.0000	.0017
8.00	7.	.0001	0.	.0000	.0019
9.00	8.	.0001	0.	.0000	.0022
10.00	9.	.0001	0.	.0000	.0024
11.00	10.	.0001	0.	.0000	.0027
12.00	11.	.0001	0.	.0000	.0029
13.00	12.	.0001	0.	.0000	.0032
14.00	13.	.0001	0.	.0000	.0035
15.00	14.	.0001	0.	.0000	.0038
16.00	15.	.0001	0.	.0000	.0041
17.00	17.	.0001	0.	.0000	.0044
18.00	18.	.0001	0.	.0000	.0047
19.00	19.	.0001	0.	.0000	.0050
20.00	20.	.0001	0.	.0000	.0053
21.00	21.	.0001	0.	.0000	.0056
22.00	22.	.0002	0.	.0000	.0058
23.00	23.	.0002	0.	.0000	.0061
24.00	24.	.0002	0.	.0000	.0064
25.00	25.	.0002	0.	.0000	.0067
26.00	26.	.0002	0.	.0000	.0069
27.00	27.	.0002	0.	.0000	.0072
28.00	28.	.0002	0.	.0000	.0074
29.00	29.	.0002	0.	.0000	.0076
30.00	30.	.0002	0.	.0000	.0078
31.00	30.	.0002	0.	.0000	.0080
32.00	31.	.0002	0.	.0000	.0082
33.00	32.	.0002	0.	.0000	.0084
34.00	32.	.0002	0.	.0000	.0086
35.00	33.	.0002	0.	.0000	.0087
36.00	33.	.0002	0.	.0000	.0088
37.00	34.	.0002	0.	.0000	.0089
38.00	34.	.0002	0.	.0000	.0090
39.00	34.	.0002	0.	.0000	.0090
40.00	34.	.0002	0.	.0000	.0091
41.00	34.	.0002	0.	.0000	.0091
42.00	35.	.0002	0.	.0000	.0092
43.00	34.	.0002	0.	.0000	.0091
44.00	34.	.0002	0.	.0000	.0091
45.00	34.	.0002	0.	.0000	.0091
46.00	34.	.0002	0.	.0000	.0090
47.00	34.	.0002	0.	.0000	.0090
48.00	34.	.0002	0.	.0000	.0089
49.00	33.	.0002	0.	.0000	.0088
50.00	33.	.0002	0.	.0000	.0087

Summary of Input Data:

Call: W62BE

Frequency: 759.260 MHz

Horizontal Power (ERPd): 38.300 kW Vertical Power (ERPd): .000 kW
Horizontal Input Power : Vertical Input Power : .000 kW

Antenna Type: SWRSLP24EC

Horizontal Element Type Number: 2.
Vertical Element Type Number: 0.

Height of observer above reference plane: 2.0 Meters

Element Data:

Horizontal:

Number of elements: 24
Distance from analysis reference point: .0 meters
Azimuth from analysis reference point: N .0 E
Height of center of radiation above reference plane: 78.0 Meters

Calculated Results:
---

* - indicates computed value exceeds ANSI guideline.

Farfield calculation methods were used.

Distance (meters)	Horizontal Polarization E2 Field (V2/m2)	Horizontal Polarization H2 Field (A2/m2)	Vertical Polarization E2 Field (V2/m2)	Vertical Polarization H2 Field (A2/m2)	Total Power Density (mW/cm2)
1.00	4.	.0000	0.	.0000	.0011
2.00	5.	.0000	0.	.0000	.0014
3.00	6.	.0000	0.	.0000	.0017
4.00	8.	.0001	0.	.0000	.0020
5.00	9.	.0001	0.	.0000	.0024
6.00	10.	.0001	0.	.0000	.0027
7.00	12.	.0001	0.	.0000	.0031
8.00	13.	.0001	0.	.0000	.0034
9.00	14.	.0001	0.	.0000	.0037
10.00	15.	.0001	0.	.0000	.0039
11.00	15.	.0001	0.	.0000	.0041
12.00	16.	.0001	0.	.0000	.0041
13.00	15.	.0001	0.	.0000	.0041
14.00	14.	.0001	0.	.0000	.0038
15.00	13.	.0001	0.	.0000	.0034
16.00	11.	.0001	0.	.0000	.0029
17.00	9.	.0001	0.	.0000	.0024
18.00	7.	.0000	0.	.0000	.0017
19.00	4.	.0000	0.	.0000	.0011

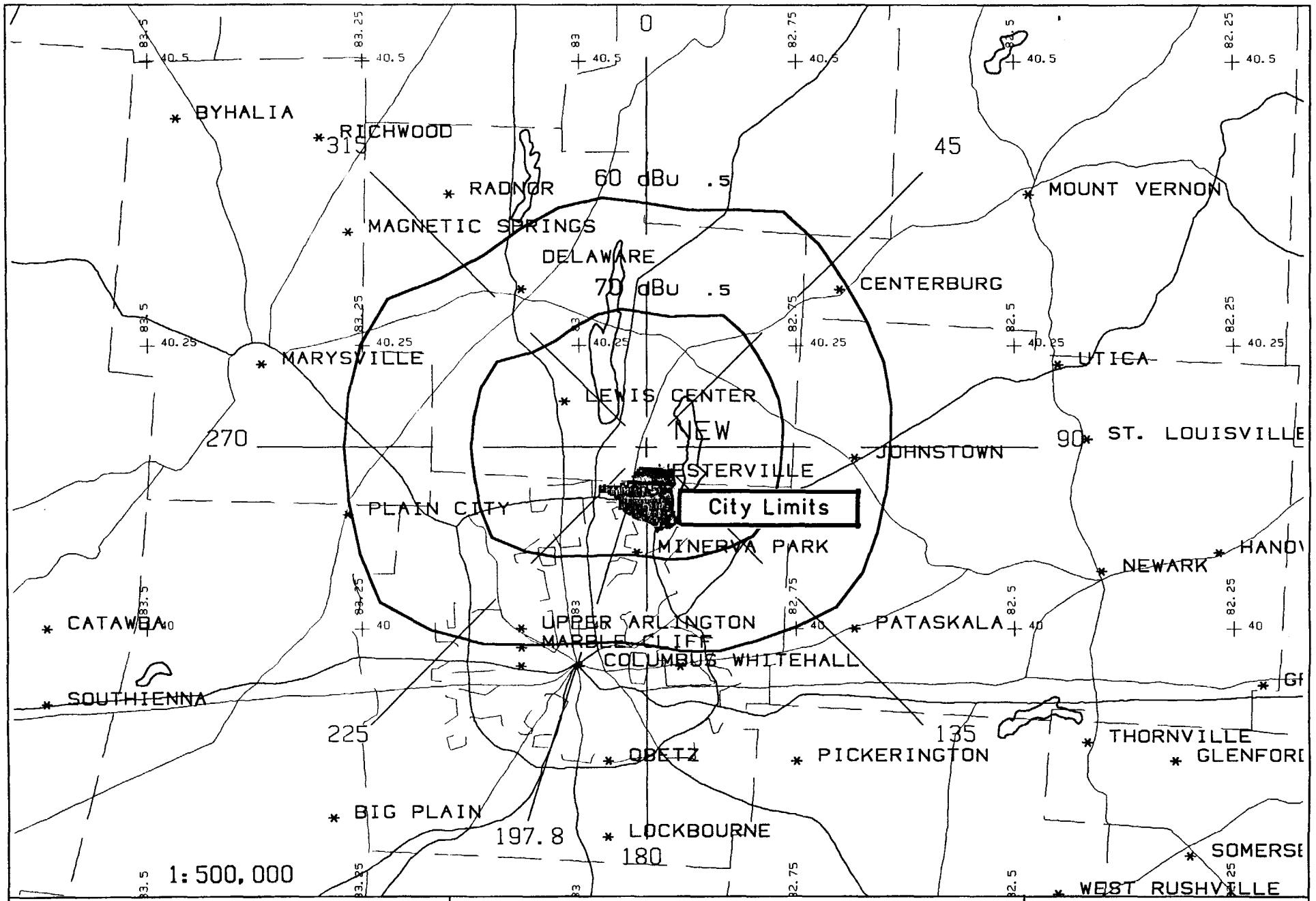
EXHIBIT A

The transmitting facility is so located that there is some resident population within the predicted "blanketing" contour, as defined in 47 C.F.R. §73.318. The applicant agrees that full compliance with the procedures and requirements of §73.318(b)(d) will be attained.

The applicant will take such engineering steps as may be required to satisfy complaints of "blanketing" including, but not limited to, the installation of filters, traps, or other devices to satisfy said complaints within the specified time period.

The proposed transmitter is located within 10 km of other existing or proposed FM and TV transmitters. This applicant does not believe that there would be any adverse effects on the operation of any other facility as a result of a grant of this application.

In the event adverse effects are noted, including but not limited to receiver-induced or other types of modulation, the applicant accepts full responsibility for the elimination of any objectionable interference to facilites in existence or authorized, or to radio receivers in use prior to grant of this application.



ASF BROADCASTING COMPANY 280 6kW
N. Lat. 40 09 33 W. Lng. 82 55 21

EXHIBIT E-1
MUNN & ASSOC. 06/94

EXHIBIT E-2

SOURCE OF TOPOGRAPHIC DATA

The topographic data employed in this application is based on the National Geophysical Center thirty second point topography data base, TPG-0050.

The averages calculated include 130 points between 3 and 16 km from the transmitter site proposed in this application.

The transmitter site elevation and coordinates were taken from file data for FAA Airspace Case Number 91-AGL-0939-OE, and are based on NAD-27 datum. A portion of the pertinent 7.5' map is included as Exhibit E-5 in this report.

In the event a detailed topographic analysis using 7.5' maps is required, such an analysis will be performed and supplied.

Elevations in feet have been converted to meters, using the following formula:

$$H(\text{meters}) = h(\text{feet}) * 0.3048$$

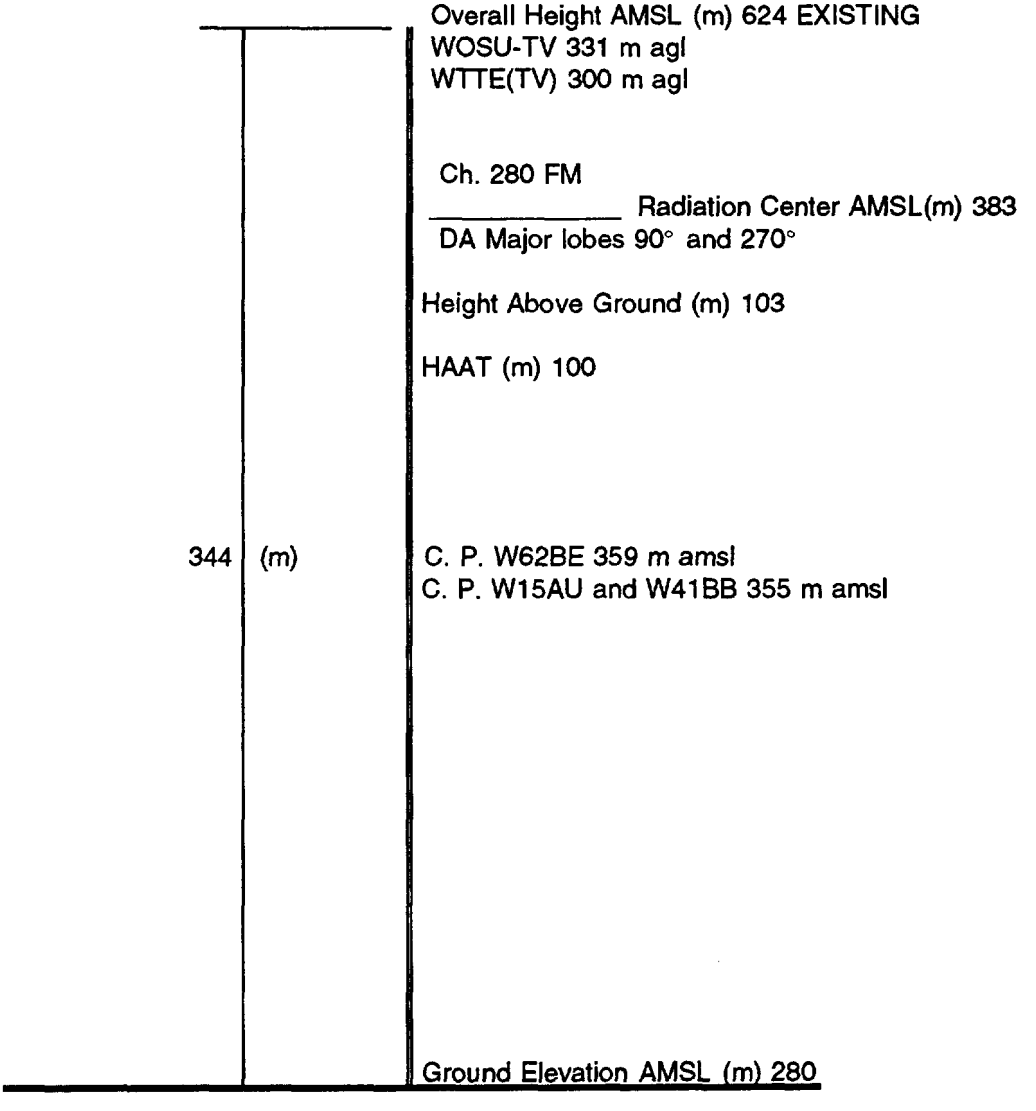
For application purposes, the resultant metric elevation has been rounded to the nearest meter.

EXHIBIT E-3

VERTICAL PLAN OF ANTENNA SYSTEM

Site Location

NL 40° 09' 33" 6680 St.Rd. 3, Westerville, Delaware Co., Ohio
WL 82° 55' 21"



Not to Scale - Guys, if any, not shown

E. HAROLD MUNN, JR. & ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, MI 49036

EXHIBIT E-4

PROPOSED FM OPERATING SPECIFICATIONS

Applicant: ASF Broadcasting Corporation
City of License: Westerville, Ohio

Frequency: 103.9 MHz **Channel:** 280A
ERP: 6.0 kW **HAAT:** 100 (meters)

Transmitter Location: 6680 St. Rd. 3, Westerville

County: Delaware

State: Ohio

Site Coordinates: **NL** 40° 09' 33"; **WL** 82° 55' 21"

Site Elevation: 280 meters AMSL

Proposed Operation: Class A

Effective Radiated Power: 6.0 (kW) H 6.0 (kW) V (DA)

Height of Antenna Radiation Center Above:

	Average Terrain	Mean Sea Level	Ground
Horizontal	100 meters	383 meters	103 meters
Vertical	100 meters	383 meters	103 meters

Overall Height of Supporting Structure Above Ground: 344 m
Overall Height of Supporting Structure Above Mean Sea Level: 624 m
Overall heights from FAA Study 91-AGL-0939-OE
All heights "rounded" to nearest meter for Section V-B of Form 301

EXHIBIT E-4

COMPLIANCE WITH 47 C.F.R. Sec.73.316(c)(5)(7)(8)

The antenna proposed in this application will be side-mounted in accordance with specific instructions provided by the antenna manufacturer. The antenna will be tested by the manufacturer using the type of mounting which will be employed in the field.

No other antennas of any type are or will be mounted on the same tower level as the directional antenna.

No antenna is or will be mounted within any vertical or horizontal distance specified by the antenna manufacturer as being necessary for proper operation of the directional antenna. In the case of the particular antenna proposed in this application, the minimum vertical distance is specified as 3.05 m (10 feet). The minimum horizontal distance for any antenna or structure is 22.8 m (75 feet) to be beyond the "near field" of the directional antenna.

The antenna will be assembled under the supervision of a qualified engineer, who will provide the required certification. Upon completion of antenna construction, a statement from a licensed surveyor will be submitted with the application for license. This statement will certify that the antenna has been installed pursuant to the manufacturer's instructions, and is in the proper orientation.

The antenna will consist of three (3) bays. Each bay will be composed of a driven circularly polarized element of the Jampro JSCP type or equivalent. The expected model number will be a JAMPRO JSCP-3(DA). The directional antenna pattern will be produced by means of parasitic horizontal and/or vertical elements, adjusted to produce the required pattern. Each bay will be spaced one (1) wavelength vertically from the adjacent element.

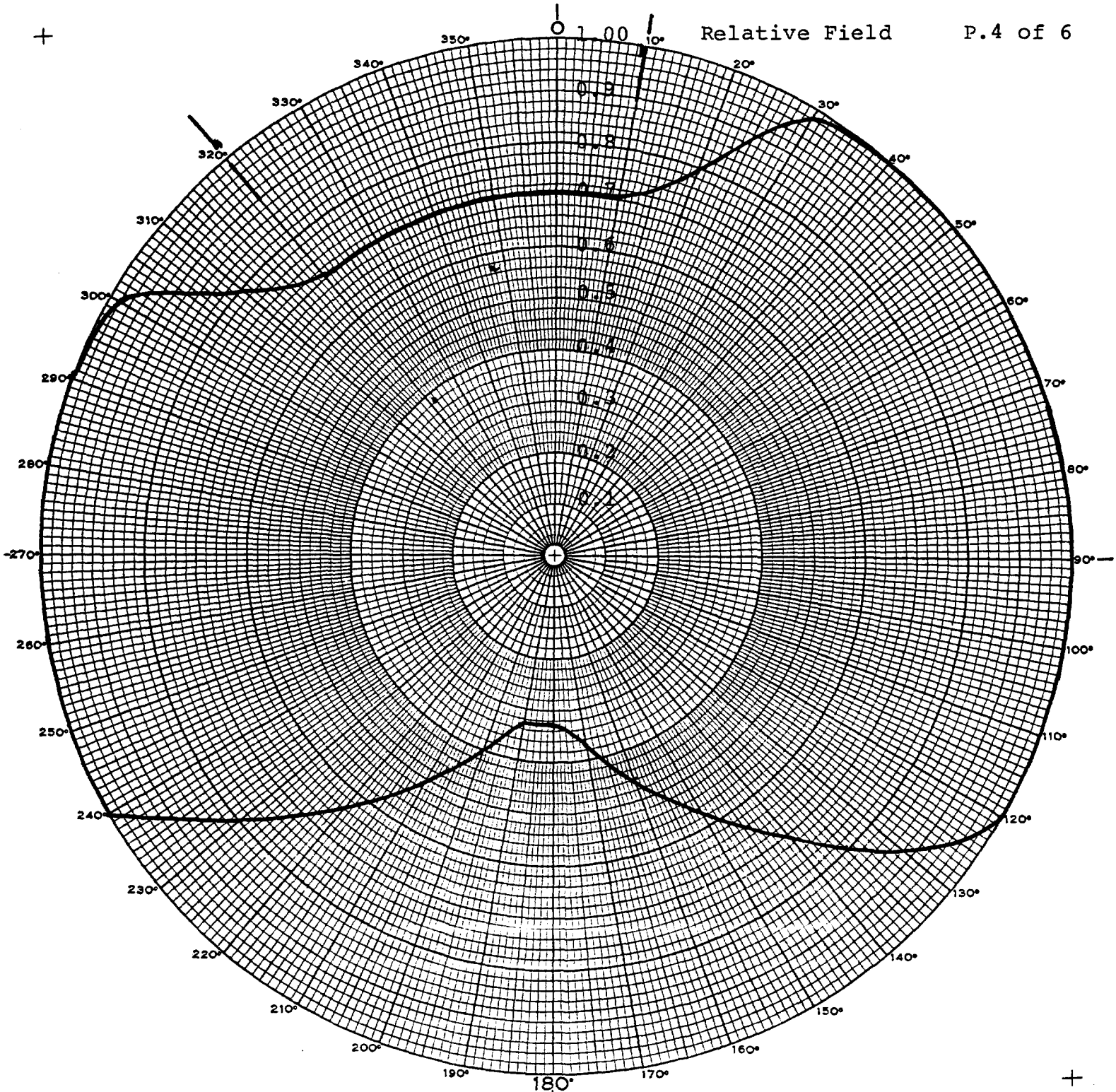
The antenna pattern will be measured by the manufacturer on the test range, and the measurement results will be supplied to the Commission at the time Form 302 is filed covering the construction.

EXHIBIT E-4

DIRECTIONAL ANTENNA COMPOSITE RELATIVE FIELD

PATTERN AZIMUTH: 0° = 0 °T.

AZIMUTH	FIELD	AZIMUTH	FIELD
0°	0.707	180°	0.330
10°	0.707	190°	0.330
20°	0.790	200°	0.410
30°	0.980	210°	0.510
40°	1.000	220°	0.639
50°	1.000	230°	0.800
60°	1.000	240°	1.000
70°	1.000	250°	1.000
80°	1.000	260°	1.000
90°	1.000	270°	1.000
100°	1.000	280°	1.000
110°	1.000	290°	1.000
120°	1.000	300°	0.980
130°	0.880	310°	0.790
140°	0.710	320°	0.707
150°	0.570	330°	0.707
160°	0.460	340°	0.707
170°	0.370	350°	0.707
45°	1.000	225°	0.717
135°	0.795	315°	0.739
197.5°	0.380		



TOWER PLACEMENT SKETCH	PATTERN PARAMETERS					FIGURE E-4	STATION DATA
	TOWER No.	ELECTRICAL HEIGHT G°	SPACING S°	PHASING V°	FIELD RATIO F	COMPOSITE PATTERN	CALL NEW
	1					RELATIVE FIELD	FREQ Ch. 280A
	2						POWER 6 kW max
	3					Westerville, OH	TYPE FM-DA
	4						TIME Unlimited
	5					ASF	LAT. 40° 09' 33"
	6					Broadcasting Company	LONG. 82° 55' 21"
	DAYTIME OPERATION ☐		NIGHTTIME OPERATION ☐			$\theta^\circ = 0$	E. HAROLD MUNN, JR. & ASSOCIATES, INC. COLDWATER, MICH.

RF SPECIALTIES
ELEVATION PATTERN
JSCP-3-DA - 3

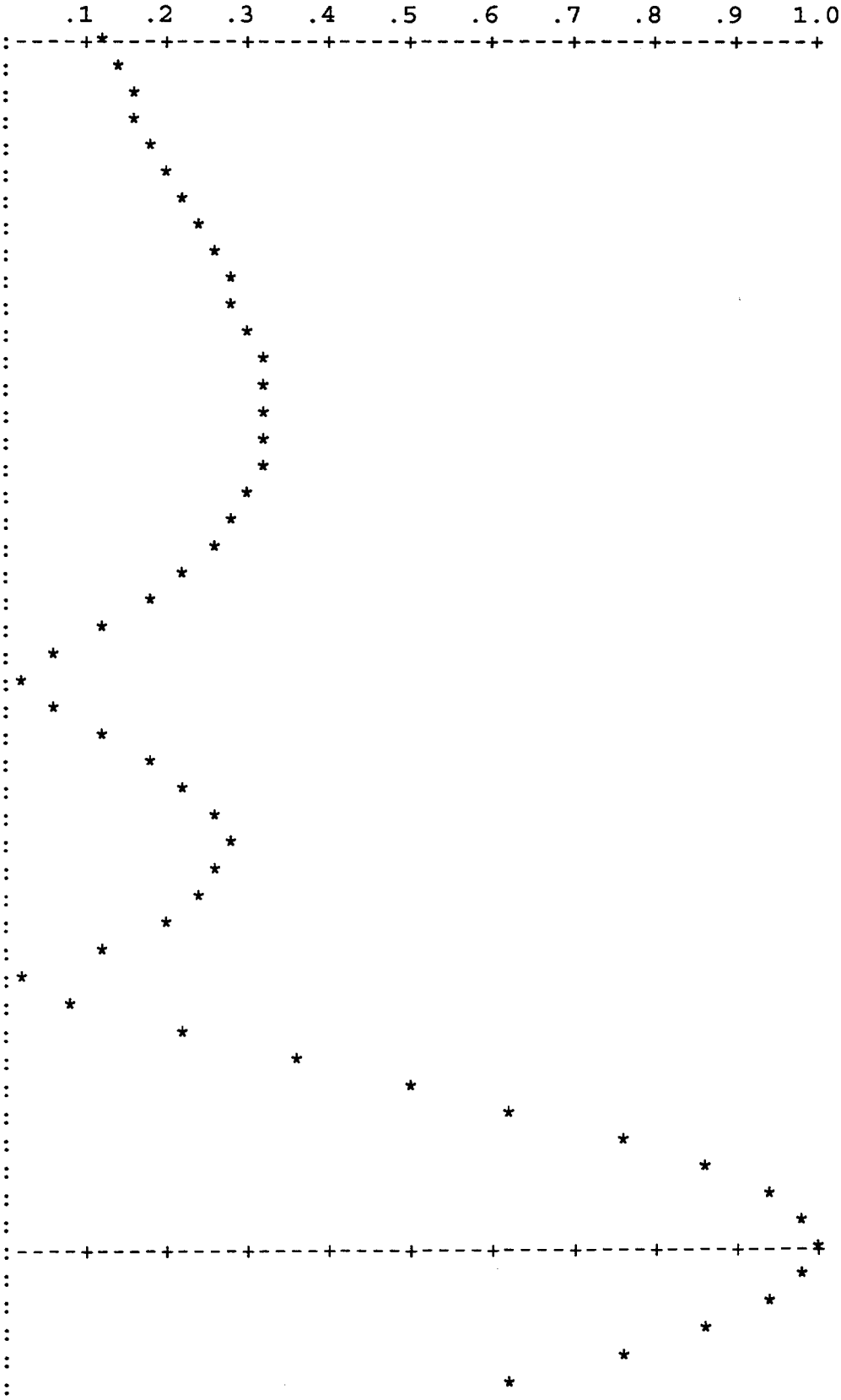
EXHIBIT E-4
DATE: JUNE 2, 1994
RMS GAIN= 1.8

PROGRAM NO. FMP
BEAM TILT= 0%
NULL FILL= 0%

PLOT PREPARED FOR: ASF BROADCASTING

FREQ: 103.9 mHz

ELEVATION	FIELD
90.00	.125
88.00	.139
86.00	.153
84.00	.168
82.00	.184
80.00	.201
78.00	.218
76.00	.236
74.00	.253
72.00	.270
70.00	.286
68.00	.300
66.00	.312
64.00	.321
62.00	.325
60.00	.324
58.00	.317
56.00	.303
54.00	.282
52.00	.253
50.00	.216
48.00	.171
46.00	.119
44.00	.061
42.00	.000
40.00	.062
38.00	.122
36.00	.177
34.00	.222
32.00	.255
30.00	.271
28.00	.267
26.00	.241
24.00	.192
22.00	.119
20.00	.024
18.00	.089
16.00	.217
14.00	.354
12.00	.494
10.00	.629
8.00	.751
6.00	.855
4.00	.934
2.00	.983
0.00	1.000
-2.00	.983
-4.00	.934
-6.00	.855
-8.00	.751
-10.00	.629



RF SPECIALTIES
ELEVATION PATTERN
JSCP-3-DA - 3

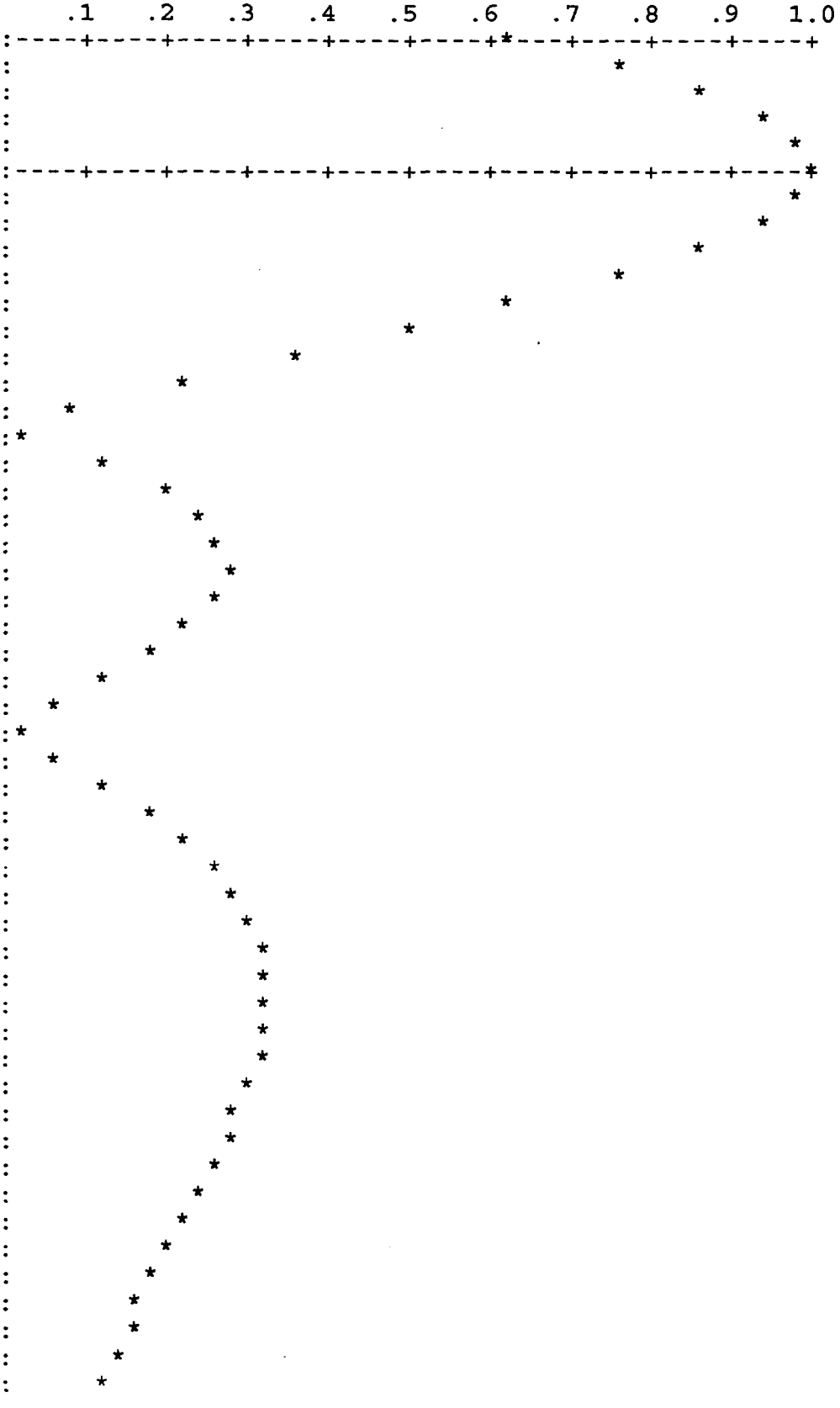
EXHIBIT E-4
DATE: JUNE 2, 1994
RMS GAIN= 1.8

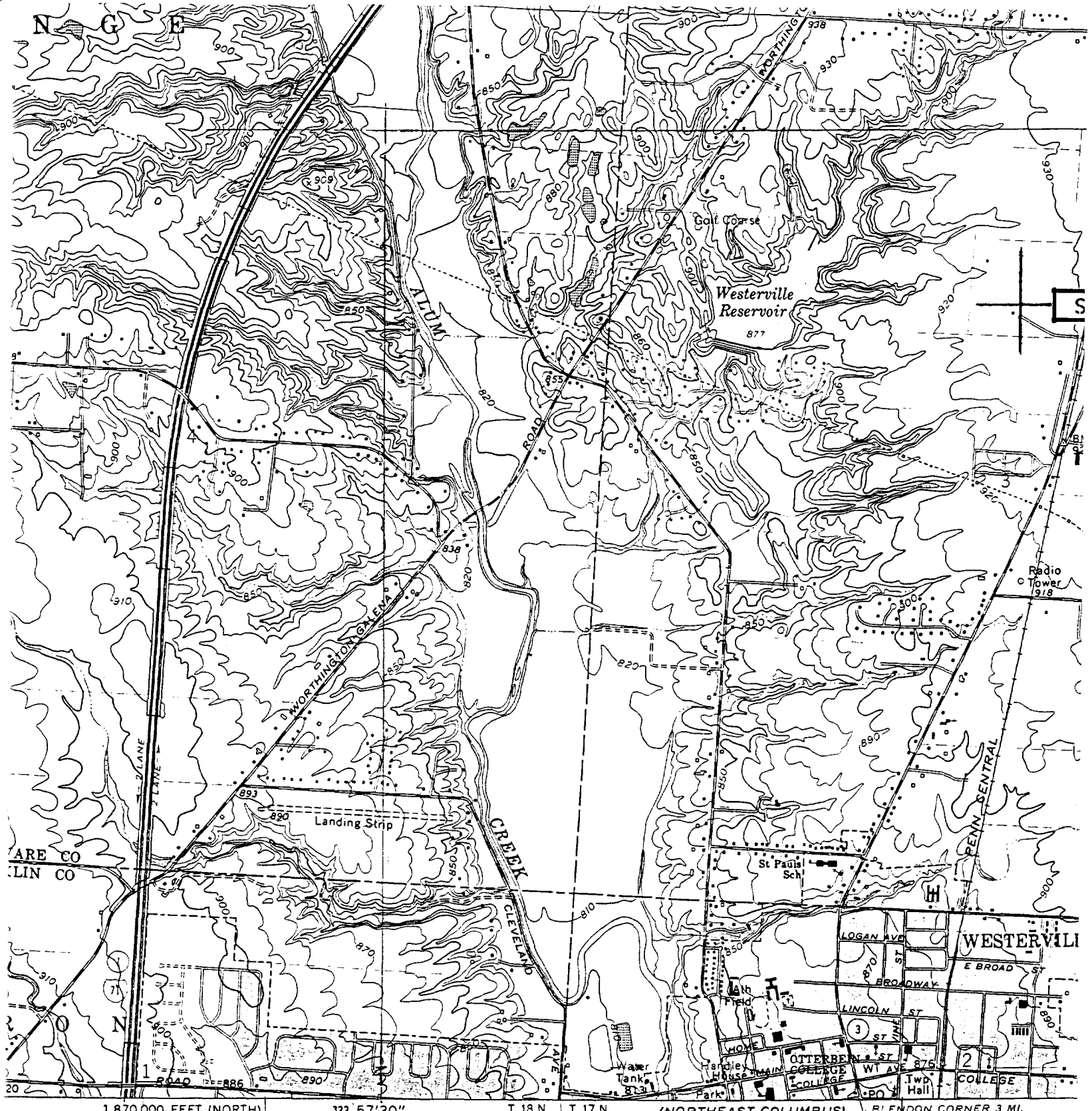
PROGRAM NO. FMP
BEAM TILT= 0%
NULL FILL= 0%

PLOT PREPARED FOR: ASF BROADCASTING

FREQ: 103.9 mHz

ELEVATION	FIELD
10.00	.629
8.00	.751
6.00	.855
4.00	.934
2.00	.983
0.00	1.000
-2.00	.983
-4.00	.934
-6.00	.855
-8.00	.751
-10.00	.629
-12.00	.494
-14.00	.354
-16.00	.217
-18.00	.089
-20.00	.024
-22.00	.119
-24.00	.192
-26.00	.241
-28.00	.267
-30.00	.271
-32.00	.255
-34.00	.222
-36.00	.177
-38.00	.122
-40.00	.062
-42.00	.000
-44.00	.061
-46.00	.119
-48.00	.171
-50.00	.216
-52.00	.253
-54.00	.282
-56.00	.303
-58.00	.317
-60.00	.324
-62.00	.325
-64.00	.321
-66.00	.312
-68.00	.300
-70.00	.286
-72.00	.270
-74.00	.253
-76.00	.236
-78.00	.218
-80.00	.201
-82.00	.184
-84.00	.168
-86.00	.153
-88.00	.139
-90.00	.125





Survey

hotographs
1964

MN
GN
3°
53 MILS
1°15'
22 MILS

UTM GRID AND 1973 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

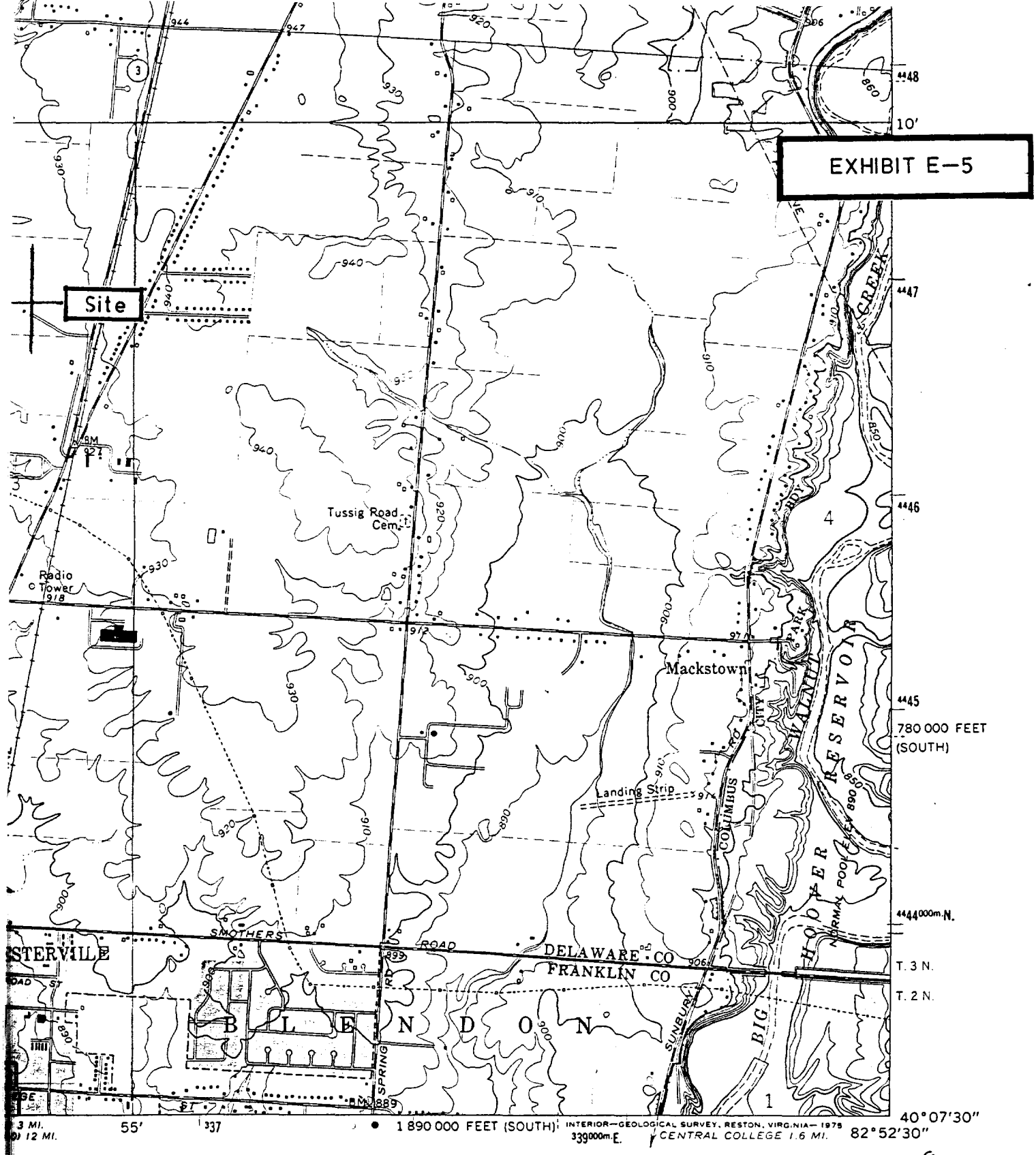
SCALE 1:24 000

1 ½ 0
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER

CONTOUR INTERVAL 10 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

gs are shown
lines where
on is unchecked
ct

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, RESTON, VIRGINIA 22092
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST



1 MILE

7000 FEET

METER

ROAD CLASSIFICATION

Heavy-duty — Light-duty

Medium-duty — Unimproved dirt

Interstate Route — State Route

E. HAROLD MUNN, JR.
& ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, Michigan

GALENA, OHIO

N4007.5—W8252.5/7.5

1964
PHOTOREVISED 1973

Revisions shown in purple compiled in cooperation with State of Ohio agencies from aerial photographs taken

EXHIBIT E–5A

ALTITUDE OF USE*	TIME OF USE†	CONTROLLING AGENCY**
8000	SUN-SAT 1000-1500	ZOB CNTR
4000 MSL TO BUT NOT INCL 18,000	MON-FRI 0800-2200 SAT-SUN 0800-1600	ZOB CNTR
300 AGL TO BUT NOT INCL 18,000	MON-FRI 0800-2200 SAT-SUN 0800-1600	ZOB CNTR
11,000 MSL TO BUT NOT INCL 18,000	MON-FRI 0800-2200 SAT-SUN 0800-1600	ZOB CNTR
4000 4000 AND 5000 WILL ONLY BE USED WHEN FIGHTER INTERCEPTOR TRAINING IS NECESSARY, ALL OTHER TIMES THE FLOOR WILL BE 6000	CONTINUOUS	ZOB AND ZMP CNTRS
TO BUT NOT INCL FL 180	DAILY 0800-1700	ZMP CNTR

MOA. All MOA's extend to but do not include FL 180 unless otherwise indicated in tabulation or on chart.
tact FSS
eapolis

E. HAROLD MUNN, JR.
& ASSOCIATES, INC.
Broadcast Engineering Consultants
Coldwater, Michigan

EXHIBIT E-6

TABULATION OF POPULATION AND AREA

Proposed - Westerville, Ohio

CONTOUR	POPULATION	AREA
1.0 mV/m	590,932	1,959 km^2

The population within the 1.0 mV/m contour was determined by superimposing the desired contour onto U.S. Standard Civil Division maps of the 1990 Census, and assuming uniform population distribution within each minor civil division. The data was computer generated. The service area calculation was determined by measurement of the contour map exhibit using a calibrated polar planimeter.

EXHIBIT E-7

REQUEST FOR PROCESSING UNDER 47 C.F.R. SECTION 73.215

The allotment of Channel 280(A) at Westerville, OH. was made under the provisions of the Rules prior to October 1, 1989.

The prior and current rules spacings are tabulated as Exhibit E-7(A) and E-7(B).

The directional antenna proposed by ASF Broadcasting permits the use of a maximum lobe power of 6.0 kW ERP. The antenna height above average terrain will be 100 meters.

The INTERDLG© data tabulations included in this section shows that there will be no overlap of contours between ASF Broadcasting, and the operation of WPAY-FM.

Exhibit E-7(1) is a tabulation of the distance to the ASF 1.0 mV/m (60 dBu) contours based on the proposed operation. Also tabulated is the 0.5 mV/m (54 dBu 50/10) contour of WPAY-FM, showing no interference to the ASF proposal. The INTERDLG© map, Exhibit E-7(2), shows the relationship of the proposed ASF protected and interference contours to the protected and interference contours of WPAY-FM.

Based on the data submitted, this proposal is in compliance with the provisions of the Rules, and processing is requested under the provisions of §73.215 with respect to WPAY-FM.

EXHIBIT E-7

Predicted Signal Contours:

40 09 33 - ASF BROADCASTING STUDY 6/94
82 55 21 - WESTERVILLE, OHIO

ERP = 6 kW, 7.782 dBk FM - 2-6 Tables

Radial	HAAT	kW	dBk	Field	70 dBu.5	60 dBu.5	54 dBu.1
0 Degs.	98.4M	2.999	4.770	0.707	13.3	24.0	36.3
10 Degs.	95.5M	2.999	4.770	0.707	13.1	23.7	35.7
20 Degs.	95.3M	3.745	5.734	0.790	13.9	24.9	37.9
30 Degs.	90.9M	5.762	7.606	0.980	15.1	26.8	41.3
40 Degs.	85.5M	6.000	7.782	1.000	14.8	26.3	40.5
50 Degs.	79.2M	6.000	7.782	1.000	14.2	25.4	39.0
60 Degs.	76.7M	6.000	7.782	1.000	14.0	25.0	38.3
70 Degs.	75.0M	6.000	7.782	1.000	13.8	24.7	37.9
80 Degs.	72.2M	6.000	7.782	1.000	13.6	24.3	37.1
90 Degs.	69.4M	6.000	7.782	1.000	13.4	23.9	36.4
100 Degs.	69.2M	6.000	7.782	1.000	13.3	23.9	36.3
110 Degs.	70.6M	6.000	7.782	1.000	13.5	24.1	36.7
120 Degs.	73.4M	6.000	7.782	1.000	13.7	24.5	37.5
130 Degs.	81.6M	4.646	6.671	0.880	13.5	24.3	36.9
140 Degs.	88.6M	3.025	4.807	0.710	12.7	22.9	34.3
150 Degs.	98.3M	1.949	2.899	0.570	12.0	21.7	32.3
160 Degs.	114.2M	1.270	1.037	0.460	11.6	21.1	31.2
170 Degs.	130.3M	0.821	-0.854	0.370	11.1	20.2	29.7
180 Degs.	133.2M	0.653	-1.848	0.330	10.7	19.3	28.4
190 Degs.	133.7M	0.653	-1.848	0.330	10.7	19.3	28.5
200 Degs.	119.2M	1.009	0.037	0.410	11.2	20.4	30.0
210 Degs.	114.9M	1.561	1.933	0.510	12.3	22.2	33.1
220 Degs.	118.8M	2.450	3.892	0.639	13.9	25.0	37.9
230 Degs.	119.4M	3.840	5.843	0.800	15.8	27.7	42.4
240 Degs.	115.8M	6.000	7.782	1.000	17.6	30.3	46.6
250 Degs.	113.3M	6.000	7.782	1.000	17.4	30.0	46.2
260 Degs.	111.2M	6.000	7.782	1.000	17.2	29.7	45.8
270 Degs.	111.2M	6.000	7.782	1.000	17.2	29.7	45.8
280 Degs.	111.5M	6.000	7.782	1.000	17.2	29.8	45.9
290 Degs.	111.9M	6.000	7.782	1.000	17.3	29.8	45.9
300 Degs.	110.2M	5.762	7.606	0.980	16.9	29.3	45.2
310 Degs.	105.4M	3.745	5.734	0.790	14.6	26.1	39.8
320 Degs.	105.3M	2.999	4.770	0.707	13.8	24.8	37.6
330 Degs.	105.3M	2.999	4.770	0.707	13.8	24.8	37.6
340 Degs.	108.0M	2.999	4.770	0.707	14.0	25.1	38.1
350 Degs.	106.2M	2.999	4.770	0.707	13.9	24.9	37.8

Ave. HAAT= 100.5M, Ant. COR= 383.0M AMSL

Other Azimuths:

45 Degs.	82.2M	6.000	7.782	1.000	14.5	25.8	39.7
135 Degs.	85.0M	3.792	5.789	0.795	13.1	23.6	35.7
198 Degs.	122.4M	0.866	-0.623	0.380	11.0	19.9	29.3
225 Degs.	119.6M	3.085	4.892	0.717	14.8	26.4	40.2
315 Degs.	105.2M	3.277	5.154	0.739	14.1	25.3	38.5

E. HAROLD MUNN JR & ASSOCIATES
P.O. Box 220 Coldwater MI 49036-0220

ASF BROADCASTING CORPORATION
EXHIBIT E-7-A WESTERVILLE OH

REFERENCE
40 09 33 N
82 55 21 W

CLASS A
Current rules spacings
CHANNEL 280 -103.9 MHz

DISPLAY DATES
DATA 03-27-94
SEARCH 06-02-94

CALL TYPE	CH# LAT	CITY LNG	STATE PWR	BEAR' HT	D-KM D-Mi	R-KM R-Mi	MARGIN (KM)
ALOPEN AL N	280A 40 14 04	Westerville 82 50 20	OH 0.000 kW	40.4 0M	10.98 6.8	115.0 71.5	-104.02 *
		WO= 911125					911230
WPAYFM LI CN	281C 38 43 20	Portsmouth 83 00 05	OH 100.000 kW	182.4 305M	159.68 99.2	165.0 102.6	-5.32 *
	Radio Stations WPAY/WPFB, Inc				BLH890612KC		
WTTFFM LI CN	279B 41 08 20	Tiffin 83 14 45	OH 50.000 kW	345.9 131M	112.18 69.7	113.0 70.2	-0.82 *
	WTTF, Inc.				BLH850715KW		
WYMJFM LI CN	280A 39 44 12	Beavercreek 84 09 25	OH 1.150 kW	246.0 159M	115.46 71.8	115.0 71.5	0.46 <
	Dayton Radio, Inc.				BLH841029CB		
CP282 CP CN	282A 40 21 52	Richwood 83 15 34	OH 2.500 kW	308.5 100M	36.62 22.8	31.0 19.3	5.62
	Janice M. Scantland				BPH920113MC		
>Accepted by Canada on 931221							
AD227 AD	227B 39 53 32	Reynoldsburg 83 02 44	OH 0.000 kW	199.5 0M	31.45 19.5	15.0 9.3	16.45
	Pearl Broadcasting, Inc.				RM7516		