

BEFORE THE
Federal Communications Commission
WASHINGTON, D.C. 20554

MAR - 8 2002

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Amendment of Section 73.606(b)) BPRM-20000717ADG
Television Table of Allotments)
(Topeka, Kansas))

To: Chief, Allocations Branch
Policy and Rules Division
Mass Media Bureau

AMENDMENT TO PETITION FOR RULE MAKING

Davis Television Topeka, LLC (“Davis”), sole applicant for a construction permit for a new television station at Topeka, Kansas, on Channel 43 (BPCT-19960920LZ), pursuant to the provisions of Section 1.401 of the Commission’s Rules and pursuant to the Commission’s Public Notice, DA 02-270, released February 6, 2002 (“Notice”) hereby amends its Petition for Rule Making filed with the Commission on July 17, 2000 to request that, to the extent necessary (as explained below), the Commission institute a rule making proceeding to amend Section 73.606(b), the Television Table of Allotments, by substituting NTSC Channel 22 in lieu of NTSC Channel 43.

This Petition is being filed in response to the Notice’s establishing March 8, 2002 as the end of the “window filing” opportunity within which pending NTSC applicants, such as Davis, must amend pending petitions for allotment of an NTSC channel between Channels 52 and 59. Applicants have been given this chance to propose substitute allotments as necessary to adapt to the Commission’s decision, part of the ongoing FCC effort to effect a conversion of the

United States television industry from NTSC to digital (“DTV”), not to accept proposals to allot channels for new NTSC stations on Channels 52-59. On July 17, 2000 Davis had filed a petition for rule making proposing the allotment of Channel 55 to Topeka if Montgomery Communications, Inc.’s pending application for Class A status for KTLJ-LP, Channel 43, Topeka (File No. BLTTA-20010413AAF) is granted. Because Channel 55 is no longer an option for Davis, Davis herein proposes to amend its pending petition to specify Channel 22 in lieu of Channel 55.

Davis has previously established that if Montgomery’s application for Class A status for KTLJ-LP is granted by the Commission, that status will directly conflict with operation of a full-power NTSC station on Channel 43 at Topeka. See original Engineering Statement of Bernard R. Segal, P.E. (the “Engineering Statement”) at 2, attached to the July 17, 2000 Petition as Exhibit A. Although it is not certain whether Montgomery will be awarded a Class A license (Davis has opposed it), its potential grant makes the filing of this protective amendment to Davis’ Petition necessary.^{1/} Davis therefore requests that the Petition as amended be released for comment if and when KTLJ is awarded a Class A license.

The Engineering Statement attached hereto establishes that Davis’ Channel 22 proposal is in full accord with all applicable coverage and allocation criteria set forth in the Commission’s rules. Channel 22 may be allotted for NTSC use without creating any new interference to any NTSC or DTV facilities. See Engineering Statement at 1-2, 6. The proposed allotment satisfies all Commission criteria with respect to NTSC and DTV station protection.

^{1/} While the timing of the filing of this Petition may be considered somewhat unusual due to the still uncertain Class A fate of KTLJ-LP, Davis does not want to face an argument that it failed to do everything possible within the filing window period to preserve this important full-power allotment in the face of the new reality of the Class A service.

See Engineering Statement at 1-2. As required by the Commission's rules, all of Topeka is included within the calculated Principal City Grade Contour of Channel 55, as proposed. See Engineering Statement at 4.

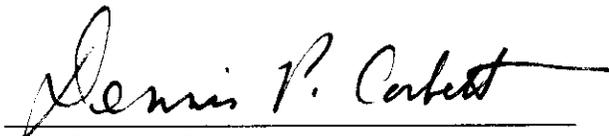
If KTLJ-LP is granted Class A status and this Petition is granted, Davis will timely file an amendment to its application for Channel 43 specifying operation on Channel 22 and, if granted, will adhere to all applicable Commission standards for the construction and operation of its facility. If KTLJ-LP is not granted Class A status and no other conflicts have arisen, this amended Petition will become moot and will be withdrawn by Davis, leaving Davis free to prosecute its application for Channel 43, at Topeka.

THEREFORE, for the reasons set forth above, to the extent necessary under the circumstances set forth above, a rule making proceeding should be instituted proposing the amendment of Section 73.606(b) of the Commission's Rules to substitute Channel 22 for Channel 43 at Topeka in the Television Table of Allotments.

Respectfully submitted,

DAVIS TELEVISION TOPEKA, LLC

By:


Dennis P. Corbett

Leventhal, Senter & Lerman P.L.L.C.
2000 K Street, N.W.
Suite 600
Washington, DC 20006-1809
202-429-8970

March 8, 2002

Its Attorney

ATTACHMENT

BERNARD R. SEGAL, P. E.
CONSULTING ENGINEER
BETHESDA, MARYLAND

ENGINEERING STATEMENT
AMENDED PETITION FOR RULE MAKING
DAVIS TELEVISION TOPEKA, LLC
TOPEKA, KANSAS

Davis Television Topeka, LLC (hereafter, Davis) is the applicant in BPCT-19960920LZ for a new analog television facility on Channel 43 at Topeka, Kansas. Since the submission of the application, the FCC adopted rules for new Class A television stations, and a prospective Class A station, KTLJ-LP, Topeka, Channel 43, if licensed, could pre-empt the Davis use of allotted Channel 43 at Topeka. The FCC afforded an opportunity for an applicant with a proposal that could be imperiled by the issuance of a Class A license to petition for use of an alternate channel. Davis did so, and petitioned for the use of Channel 55, instead of Channel 43, at Topeka as a protective measure. The file number is BPRM-20000717ADG.

On February 6, 2002, the FCC announced that it would afford a window opportunity until March 8, 2002, for an amendment to an in-core channel for a proposal such as that involving the Davis proposal that currently specifies a channel in the 52-59 band. The instant Engineering Statement is in support of an amendment to BPRM-20000717ADG in consonance with the February 6 Public Notice. To date, no action has been taken on the KTLJ-LP, Class A, proposal, so the instant amendment, also, is a protective measure.

If the FCC grants KTLJ-LP Class A status, Davis proposes the substitution of in-core Channel 22 for Channel 43 for Topeka in the FCC's Table of Allotments, Section 73.606 of the Rules. The reference coordinates specified below for the allotment satisfy all FCC minimum separation requirements of Section 73.610 of the Rules, and no Class A, or prospective Class A, stations are close enough for concern on Channel 22 or any

adjacent channel of allocation interest. A facility at the allotment reference site with effective radiated power of approximately 2400 kW and antenna radiation center height above average terrain of 400 meters in the direction toward Topeka would permit encompassment of the community by the 80 dBu, City Grade, contour.

The reference geographic coordinates for the proposed Channel 22 allotment are: 39° 00' 00" north latitude; 96° 07' 45" west longitude. The only separation constraint that merits discussion is with respect to KSNT, Topeka, Channel 27. Station KSNT is located at a site bearing the geographic coordinates: 39° 05' 34" north latitude; 95° 47' 04" west longitude. The minimum separation requirement of the Rules is 31.4 kilometers. The allotment reference site for this rule-making petition amendment is 31.6 kilometers from KSNT, and the spacing requirement is satisfied. No rule waiver is required for allotment purposes

In discussing NTSC and Class A allocation concerns for the Channel 22 allotment, a minus frequency offset has been assumed. The closest Channel 22 full service NTSC station is WMEC, Macomb, Illinois, at a distance exceeding 471 kilometers. The station employs a plus frequency offset. No Class A stations on Channel 22 are located less than 500 kilometers from the proposed Topeka, Channel 22, allotment reference site.

The policy announced by the FCC permits use of a specific proposal for demonstrating compliance with the requirement for not creating new interference. The allotment reference site used for the purposes of this amended petition is not the same as specified in the pending Channel 43 proposal in application BPCT-19960920LZ.

Davis has, already, obtained FAA approval for the antenna supporting structure at the application site, and Davis contemplates using the application site in BPCT-19960920LZ, subject to FCC approval, if circumstances result in the adoption of the Channel 22 allotment at Topeka. A specific proposal for Channel 22 has been developed for the application site currently specified in BPCT-19960920LZ. In addition to a discussion of DTV allocation matters for the proposed Channel 22 operation at this site, Section 73.610 separation constraints and Class A protection concerns are re-visited below.

The studies herein demonstrate the feasibility of the use of the application site, including the provision of the mandatory protection to DTV stations and allotments. At the application site, all Section 73.610 Channel 22 allotment criteria are satisfied, except for the N +5, intermodulation, taboo, involving station KSNT, Topeka, Channel 27. No Class A, or prospective Class A, stations were identified as being of interest with respect to the prospective Davis, Channel 22, operation from the application site. To the extent that a waiver of the N +5 taboo constraint may be needed at this time, a waiver is requested. Support for the waiver is provided in later paragraphs.

The proposed Davis, Channel 43, application site that would be used on Channel 22, if necessary, is at: 39° 01' 29" north latitude; 95° 55' 19" west longitude. This site is 14.1 kilometers from the KSNT, Channel 27 site, and, so, would be short spaced, requiring a waiver of the Section 73.610 requirements at the application stage. Since the necessary protections to be afforded DTV stations and allotments, that are demonstrated herein, are premised on use of the pending Channel 43 application site, the inclusion of the support for waiver of the N +5 intermodulation taboo with respect to KSNT is

believed appropriate.

The important information for the specific proposal that Davis would employ on Channel 22 at the application site is set forth in Figures 1 through 6. Figure 1 is the azimuth pattern for the Andrew, model ATW30H3HTT, antenna that is contemplated for use. The vertical plane pattern for the antenna is shown in Figure 2. Figure 3 is the tabulation of relative field data for the vertical plane pattern of Figure 2. Figure 4 is a tabulation of relative fields for the azimuth pattern for the antenna.

Figure 5 is a map which shows the calculated coverage contours for the anticipated operation from the application site. The map of Figure 5 shows, also, the location of the Channel 22 allotment reference site. Using the anticipated operation for the Davis proposal as an example, it is apparent that complete encompassment of Topeka by the City Grade contour is readily achievable by a similar facility from the allotment reference site. Figure 6 is a tabulation of elevation data and effective radiated powers occurring at the electrical beam tilt angle of 0.75° , together with the distances to the various contours used in developing Figure 5.

Several DTV stations are close enough to the Davis application site to merit consideration. Under the FCC's criteria, no interference is permitted to these DTV facilities. Interference that does not exceed 0.5% of the baseline reference of a station rounds to 0%, and, to that extent, is considered acceptable. Stations KTAJ-DT, St. Joseph, Missouri, Channel 21; WOWT-DT, Omaha, Nebraska, Channel 22; KSNC-DT, Great Bend, Kansas; KMIZ-DT, Columbia, Missouri, Channel 22; KOKI-DT, Tulsa, Channel 23; and KTWU-DT, Topeka, Kansas, Channel 23, have been reviewed.

An FCC-matched computer analysis, taking into account the Appendix B allotments in the Second Memorandum Opinion and Order on Reconsideration of the Fifth and Sixth Report and Orders in MM Docket No.87-268, was conducted. A computer using an Alpha processor was employed in conjunction with the FCC's FLR software. The independently determined results, without the data for the prospective Topeka Channel 22 operation from the application site entered into the database, permitted a comparison with the FCC Appendix B results for the baseline values for the mentioned stations. Excellent agreement was achieved.

With the data for the prospective Topeka, Channel 22, operation from the application site included in the study database, no station would receive interference exceeding 0.2% of its baseline population. Since the interference, in each instance, would be less than 0.5%, the rounding is to 0%. Thus, the operation, as envisioned herein for the Davis, Topeka, Channel 22 facility from the application site, would fulfill the requirement for not creating new interference to any DTV station.

The UHF taboos were originally adopted approximately 40 years ago when UHF receiver technology was in its infancy. Since then, receiver designs have changed dramatically, and some of the current taboo requirements serve no useful purpose although they still remain part of the separation Rule requirements. The FCC recognized the inappropriateness of the N +5 taboo by ignoring it completely in adopting the criteria for evaluating interference as between two NTSC stations and as between a DTV and a NTSC station in formulating the DTV Table of Allotments. In this connection, please see the FCC's OET Bulletin No. 69, "Longley-Rice Methodology for Evaluating TV Coverage and Interference", July 2, 1997.

BERNARD R. SEGAL, P. E.
CONSULTING ENGINEER
KENSINGTON, MARYLAND

Davis Television Topeka, LLC
Engineering Statement

Page 6

More recently, the FCC did not include the N +5 taboo in adopting rules for Class A station protection to be afforded full service NTSC television stations, and vice-versa. At the present time, the N +5 taboo, while still on the books, serves only as a paper hindrance to the efficient utilization of the spectrum. The FCC has granted taboo short spacing waivers. The most notable recent such waivers permitted several Los Angeles area TV stations to migrate from Sunset Ridge to Mt. Wilson. Heretofore, the intermodulation interference taboo had prevented location of these stations to Mt. Wilson. In light of the foregoing, a waiver of the N +5 taboo is believed warranted, if needed.

In summary, this amended petition satisfies all FCC technical criteria for the substitution of Channel 22 for Channel 43 at Topeka in the Table of Allotments, Section 73.606. A waiver of the N +5 taboo would be required for an ensuing application. Support for the waiver has been provided, if needed, at this time. The facilities proposed to be employed would not create new interference to any NTSC or DTV facility.

I declare under penalty of perjury that the foregoing is true and correct. Executed on March 6, 2002.


Bernard R. Segal, P. E.

FIGURE 1

AZIMUTH PATTERN

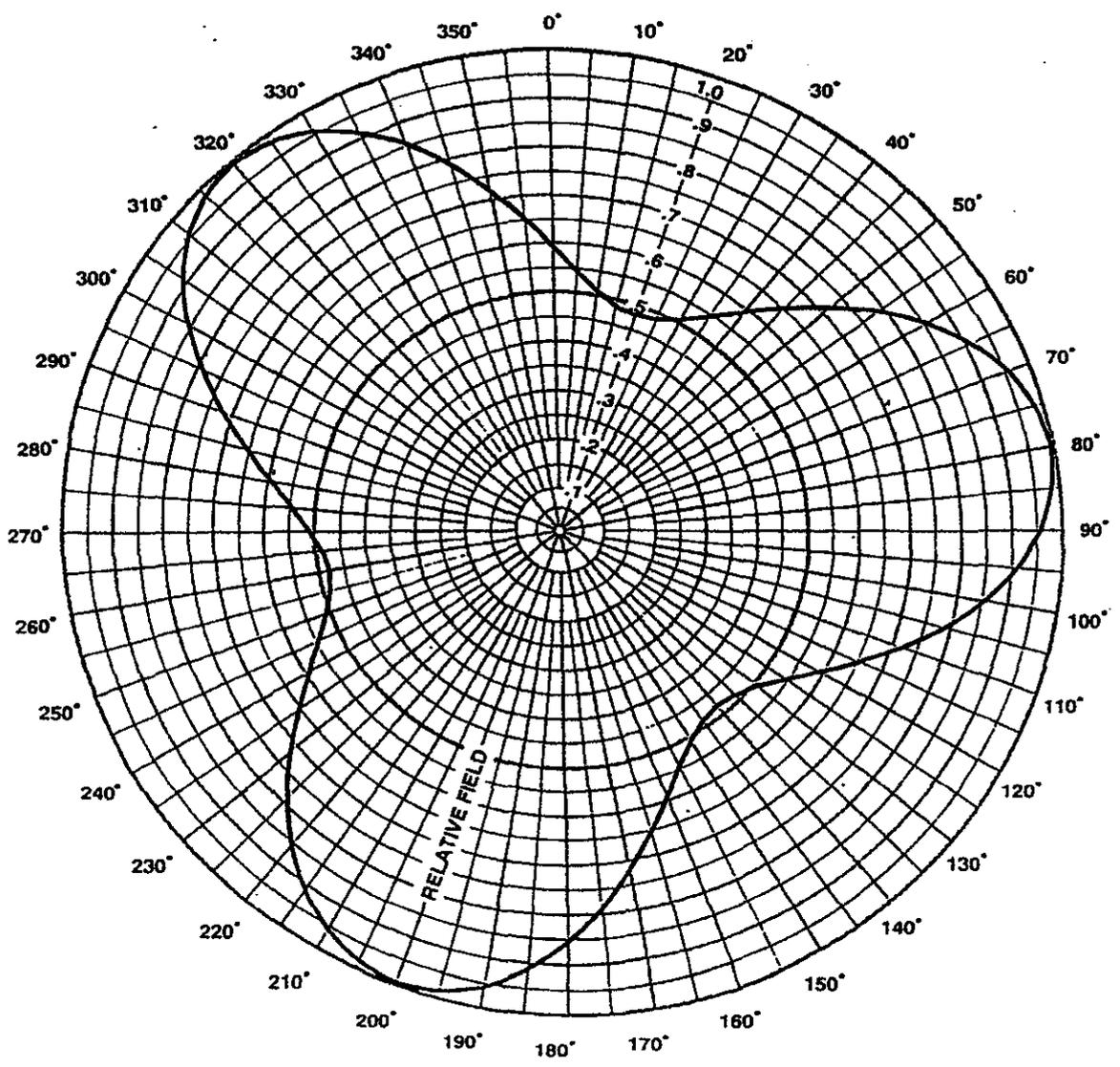
DAVIS TELEVISION TOPEKA, LLC
 TOPEKA, KANSAS
 CH. 22 2420 KW (MAX-DA, BT) 417 METERS
 Bernard R. Segal, P. E. Consulting Engineer



**ANDREW
 AZIMUTH PATTERN**

Type:	ATW-T1	
	Numeric	dB
Directivity:	1.78	2.50
Peak(s) At:		
Polarization:		
Channel:		
Location:		

Note: Pattern shape and directivity may vary with channel and mounting configuration.



ANDREW CORPORATION
 10500 W. 153rd Street
 Orland Park, Illinois U.S.A. 60462

MARCH 2002

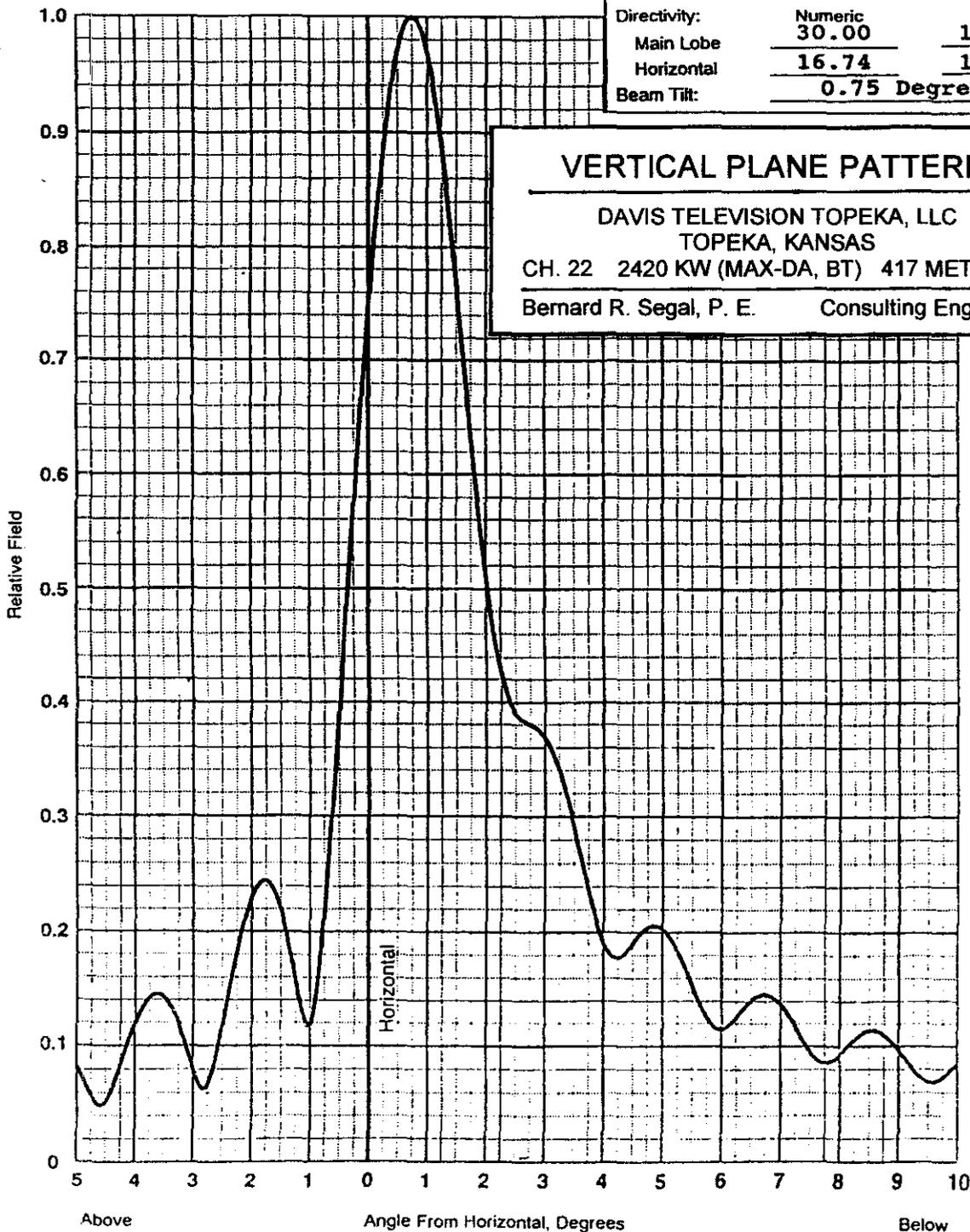
Form 5275B (8-90)

MARCH 2002



**ANDREW
ELEVATION PATTERN**

Type:	ATW30H3H	
Directivity:	Numeric	dBd
Main Lobe	30.00	14.77
Horizontal	16.74	12.24
Beam Tilt:	0.75 Degrees	



VERTICAL PLANE PATTERN

DAVIS TELEVISION TOPEKA, LLC
 TOPEKA, KANSAS
 CH. 22 2420 KW (MAX-DA, BT) 417 METERS
 Bernard R. Segal, P. E. Consulting Engineer

ANDREW CORPORATION
 10500 W. 153rd Street
 Orland Park, Illinois U.S.A. 60462



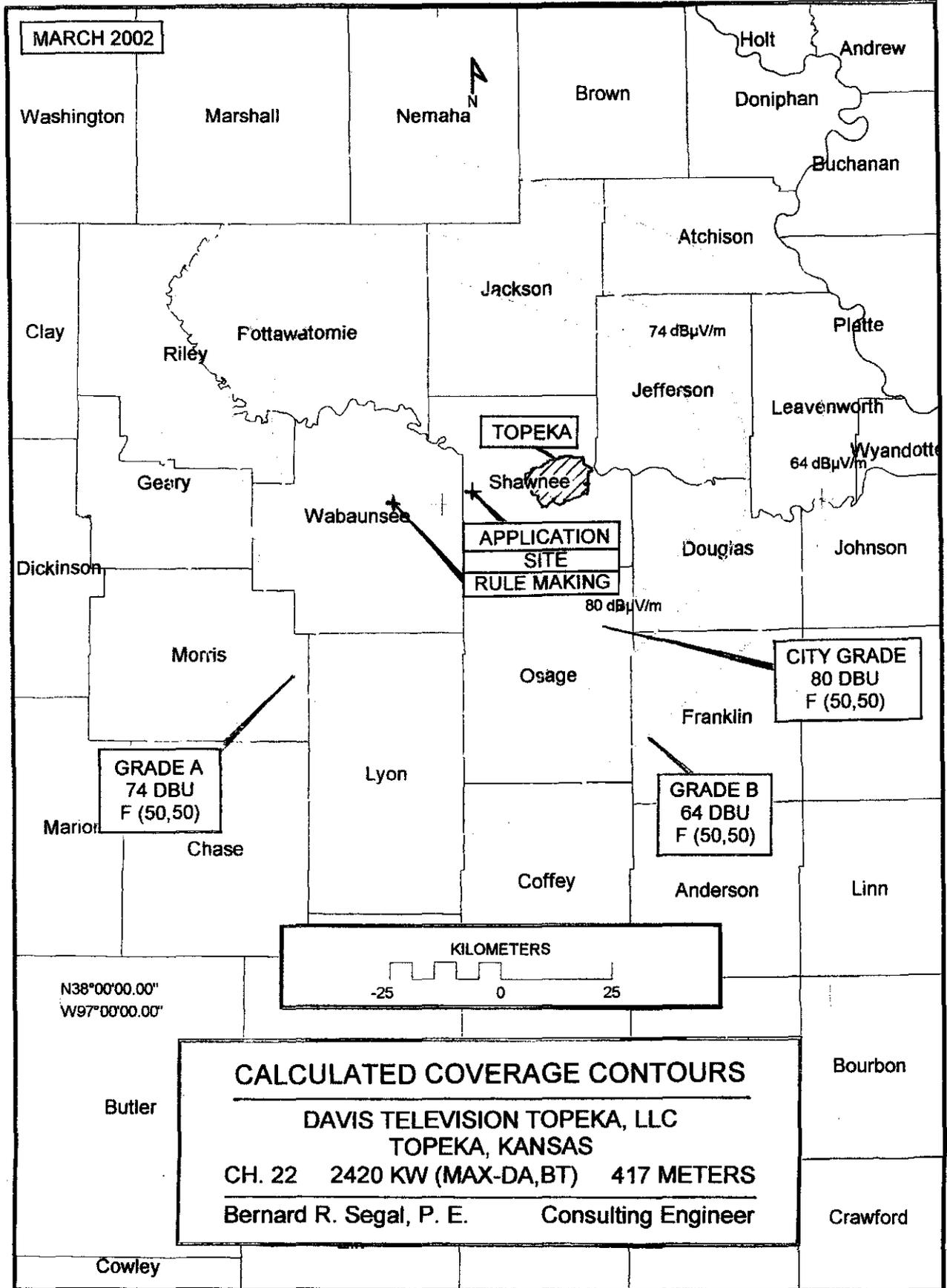
TABULATED DATA FOR ELEVATION PATTERN
TYPE ATW30H3H

ANGLE	RELATIVE FIELD	dB	ANGLE	RELATIVE FIELD	dB	ANGLE	RELATIVE FIELD	dB	ANGLE	RELATIVE FIELD	dB
-5° TO 10° IN 0.25° INCREMENTS			10° TO 90° IN 0.5° INCREMENTS								
-5.00	0.083	-21.61	10.00	0.084	-21.47	40.00	0.029	-30.82	70.00	0.009	-40.72
-4.75	0.057	-24.88	10.50	0.092	-20.71	40.50	0.025	-32.10	70.50	0.018	-35.01
-4.50	0.053	-25.59	11.00	0.069	-23.27	41.00	0.015	-36.24	71.00	0.025	-32.11
-4.25	0.084	-21.52	11.50	0.058	-24.70	41.50	0.017	-35.58	71.50	0.030	-30.54
-4.00	0.120	-18.43	12.00	0.076	-22.38	42.00	0.026	-31.72	72.00	0.032	-29.82
-3.75	0.142	-16.96	12.50	0.072	-22.83	42.50	0.029	-30.81	72.50	0.032	-29.79
-3.50	0.142	-16.94	13.00	0.050	-25.99	43.00	0.023	-32.85	73.00	0.030	-30.38
-3.25	0.119	-18.52	13.50	0.055	-25.20	43.50	0.014	-37.04	73.50	0.026	-31.65
-3.00	0.079	-22.01	14.00	0.067	-23.47	44.00	0.018	-34.90	74.00	0.021	-33.76
-2.75	0.067	-23.48	14.50	0.055	-25.21	44.50	0.027	-31.52	74.50	0.014	-37.20
-2.50	0.118	-18.53	15.00	0.039	-28.08	45.00	0.028	-30.98	75.00	0.007	-43.69
-2.25	0.182	-14.78	15.50	0.052	-25.63	45.50	0.022	-33.23	75.50	0.002	-56.24
-2.00	0.230	-12.78	16.00	0.057	-24.85	46.00	0.013	-37.45	76.00	0.008	-41.67
-1.75	0.245	-12.23	16.50	0.041	-27.64	46.50	0.018	-35.07	76.50	0.015	-36.62
-1.50	0.219	-13.19	17.00	0.036	-28.90	47.00	0.026	-31.57	77.00	0.020	-33.80
-1.25	0.158	-16.04	17.50	0.049	-26.11	47.50	0.029	-30.77	77.50	0.025	-32.02
-1.00	0.119	-18.45	18.00	0.048	-26.43	48.00	0.024	-32.52	78.00	0.029	-30.88
-0.75	0.220	-13.16	18.50	0.032	-29.86	48.50	0.015	-36.65	78.50	0.031	-30.19
-0.50	0.391	-8.16	19.00	0.035	-29.02	49.00	0.015	-36.35	79.00	0.032	-29.85
-0.25	0.575	-4.80	19.50	0.046	-26.72	49.50	0.024	-32.33	79.50	0.032	-29.78
0.00	0.747	-2.54	20.00	0.039	-28.08	50.00	0.029	-30.69	80.00	0.032	-29.95
0.25	0.884	-1.07	20.50	0.026	-31.56	50.50	0.027	-31.39	80.50	0.030	-30.34
0.50	0.971	-0.25	21.00	0.035	-29.12	51.00	0.019	-34.55	81.00	0.028	-30.92
0.75	1.000	0.00	21.50	0.042	-27.50	51.50	0.012	-38.28	81.50	0.026	-31.68
1.00	0.969	-0.27	22.00	0.033	-29.62	52.00	0.018	-34.77	82.00	0.023	-32.62
1.25	0.887	-1.04	22.50	0.025	-32.13	52.50	0.026	-31.58	82.50	0.021	-33.74
1.50	0.767	-2.30	23.00	0.035	-29.03	53.00	0.029	-30.74	83.00	0.018	-35.03
1.75	0.633	-3.98	23.50	0.039	-28.15	53.50	0.025	-32.04	83.50	0.015	-36.50
2.00	0.511	-5.84	24.00	0.029	-30.90	54.00	0.016	-35.78	84.00	0.012	-38.16
2.25	0.427	-7.40	24.50	0.024	-32.56	54.50	0.011	-39.18	84.50	0.010	-40.01
2.50	0.390	-8.19	25.00	0.035	-29.22	55.00	0.018	-34.81	85.00	0.008	-42.07
2.75	0.380	-8.40	25.50	0.036	-28.78	55.50	0.026	-31.62	85.50	0.006	-44.34
3.00	0.369	-8.66	26.00	0.025	-31.92	56.00	0.029	-30.65	86.00	0.005	-46.81
3.25	0.340	-9.37	26.50	0.022	-33.08	56.50	0.026	-31.60	86.50	0.003	-49.47
3.50	0.292	-10.71	27.00	0.033	-29.65	57.00	0.018	-34.72	87.00	0.002	-52.25
3.75	0.235	-12.57	27.50	0.034	-29.35	57.50	0.010	-39.90	87.50	0.002	-55.08
4.00	0.191	-14.36	28.00	0.024	-32.52	58.00	0.013	-37.43	88.00	0.001	-57.91
4.25	0.178	-14.98	28.50	0.021	-33.49	58.50	0.022	-33.03	88.50	0.001	-60.92
4.50	0.190	-14.41	29.00	0.031	-30.12	59.00	0.028	-31.02	89.00	0.001	-64.64
4.75	0.204	-13.81	29.50	0.032	-29.78	59.50	0.029	-30.80	89.50	0.000	-70.76
5.00	0.203	-13.85	30.00	0.023	-32.76	60.00	0.024	-32.30	90.00	0.000	-99.99
5.25	0.184	-14.70	30.50	0.020	-33.80	60.50	0.016	-36.01			
5.50	0.154	-16.27	31.00	0.030	-30.48	61.00	0.008	-42.23			
5.75	0.125	-18.07	31.50	0.032	-29.94	61.50	0.012	-38.34			
6.00	0.115	-18.79	32.00	0.023	-32.79	62.00	0.021	-33.51			
6.25	0.126	-18.02	32.50	0.018	-34.91	62.50	0.027	-31.23			
6.50	0.140	-17.05	33.00	0.027	-31.28	63.00	0.030	-30.58			
6.75	0.146	-16.73	33.50	0.031	-30.08	63.50	0.027	-31.32			
7.00	0.137	-17.27	34.00	0.024	-32.32	64.00	0.021	-33.64			
7.25	0.117	-18.62	34.50	0.016	-36.02	64.50	0.012	-38.51			
7.50	0.095	-20.40	35.00	0.023	-32.70	65.00	0.005	-45.79			
7.75	0.086	-21.36	35.50	0.030	-30.45	65.50	0.012	-38.32			
8.00	0.093	-20.65	36.00	0.026	-31.59	66.00	0.021	-33.62			
8.25	0.106	-19.48	36.50	0.016	-35.70	66.50	0.027	-31.32			
8.50	0.114	-18.90	37.00	0.018	-34.73	67.00	0.030	-30.40			
8.75	0.110	-19.17	37.50	0.027	-31.28	67.50	0.030	-30.56			
9.00	0.097	-20.30	38.00	0.028	-31.05	68.00	0.026	-31.79			
9.25	0.079	-22.01	38.50	0.020	-34.06	68.50	0.019	-34.40			
9.50	0.069	-23.21	39.00	0.015	-36.61	69.00	0.011	-39.57			
9.75	0.073	-22.73	39.50	0.023	-32.67	69.50	0.002	-52.84			

TABULATION OF DATA FOR AZIMUTH PATTERN
DAVIS TELEVISION TOPEKA, LLC
TOPEKA, KANSAS , CHANNEL 22

<u>AZIMUTH</u> (Deg. True)	<u>RELATIVE</u> <u>FIELD</u>	<u>AZIMUTH</u> (Deg. True)	<u>RELATIVE</u> <u>FIELD</u>
0	0.589	180	0.857
10	0.504	190	0.961
20	0.474 (min.)	200	1.000 (max.)
30	0.504	210	0.961
40	0.589	220	0.857
50	0.719	230	0.719
60	0.857	240	0.589
70	0.961	250	0.504
80	1.000 (max.)	260	0.474 (min.)
90	0.961	270	0.504
100	0.857	280	0.589
110	0.719	290	0.719
120	0.589	300	0.857
130	0.504	310	0.961
140	0.474 (min.)	320	1.000 (max.)
150	0.504	330	0.961
160	0.589	340	0.857
170	0.719	350	0.719

FIGURE 5



BERNARD R. SEGAL, P. E.
CONSULTING ENGINEER
KENSINGTON, MARYLAND

Figure 6

TABULATIONS OF
DISTANCES TO COVERAGE CONTOURS
AND SUPPORTING DATA FOR CHANNEL 22 OPERATION

Site coordinates: 39° 01' 29" N. Lat.
95° 55' 19" W. Long.

Radiation Center: 737 meters AMSL

Maximum peak visual ERP: 2420 kW

Azimuth (Deg. True)	Radiation Ctr. Above 3.2-16.1 km Terrain Avg. (meters)	ERP Employed (kW)	Distance to		
			City Grade Contour (km)	Grade A Contour (km)	Grade B Contour (km)
0	445	777	49.7	59.7	77.7
15	445	535	47.2	57.1	74.7
30	445	569	47.6	57.5	75.2
45	451	958	51.4	61.4	79.8
60	458	1645	55.7	65.9	85.2
75	436	2155	56.7	66.9	86.4
85	430	2155	56.4	66.5	86.0
90	430	1676	56.1	66.1	85.5
105	420	1390	52.9	62.8	81.5
120	401	777	48.1	57.7	75.2
135	396	535	45.3	54.8	71.5
150	391	569	45.6	55.1	71.8
165	396	958	49.4	58.9	76.6
180	390	1645	52.7	62.2	80.9
195	396	2155	54.9	64.6	83.9
210	389	2068	54.4	64.0	83.1
225	390	1390	51.6	61.1	79.5
240	385	777	47.5	56.9	74.0
255	379	535	44.8	54.1	70.5
270	395	569	45.8	55.3	72.1
285	417	958	50.2	60.0	78.0
300	434	1645	54.7	64.8	83.8
315	435	2155	56.7	66.9	86.4
330	444	2068	56.8	67.0	86.5
345	447	1390	54.0	64.2	83.1

Note: The average for the eight standard radials is 417 meters