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KENSINGTON, MARYLAND

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ENGINEERING EXHIBIT  
FLASH-CUT APPLICATION FOR  
DIGITAL TRANSLATOR CONSTRUCTION PERMIT  
WYFF HEARST TELEVISION INC.  
STATION W10AL, CHEROKEE, ETC., NORTH CAROLINA  
CHANNEL 10 0.080 KW (MAX-DA)

WYFF Hearst Television Inc. (hereafter, Hearst) is the licensee of analog television translator Station W10AL, Cherokee, Etc., North Carolina. Pursuant to BLTTV3607, the station operates on Channel 10 with a maximum peak visual effective radiated power of 0.015 kW using a directional antenna. The antenna radiation center height is 1171 meters above mean sea level. By means of the instant application, Hearst seeks a construction permit to flash-cut the W10AL analog, operation to digital. In order to identify the digital operation in the discussions herein, the "LD" suffix has been added to the W10AL call sign.

The proposed operation for Station W10AL-LD is from the same site as for Station W10AL. However, during the course of preparation of the instant construction permit application, it was discovered that the geographic coordinates set forth in the W10AL license, BLTTV-3607, for the translator's site, were in error. The correct coordinates are specified herein. The difference in coordinates translates to a distance separation of 0.92 km. Since it is anticipated that the digital operation will soon supplant the analog operation, it would appear to be wasteful to modify the W10AL license to reflect the correct coordinates. Nevertheless, a license modification application for W10AL is being submitted contemporaneously with the instant flash-cut application.

The W10AL-LD site is atop Mt Noble, and the correct NAD '27 coordinates are: 35° 29' 44.9" North Latitude; 83° 20' 3.6" West Longitude. The site elevation, as determined from a U.S.G.S. topographic map, is 1158 meters above mean sea level. The antenna that will replace the existing antenna will be mounted with the radiation center 20 meters above ground level. The overall structure height with the antenna will be 1178 meters above mean sea level.

The service contour for the proposed W10AL-LD operation encompasses the site specified in BLTTV3607 for the analog W10AL operation, so there is no question that service contour overlap occurs and that the Rule requirement for a minor change is satisfied.

A new Larcan, Model MXi 201 VH, digital translator, will replace the present analog translator. A new antenna will replace the existing antenna. The new antenna will consist of a composite of three Kathrein, Scala Division, model K52 22 57, log-periodic antennas. Appropriate power division and phasing circuitry will complete the antenna installation. The individual antennas will be oriented 15° true, 120° true and 194° true. The horizontal plane radiation pattern for the composite antenna is provided in Figure 1. Figure 2 includes the tabulation of relative fields for the pattern of Figure 1. The maximum power gain for the antenna is 4.94 dBd. Maximum effective radiated power of 80 watts will occur at a bearing of 116° true.

Energy from the translator will be transferred to the antenna by means of a 100-foot (30.5 meter) length of Andrew, type AVA50-5, coaxial transmission line. The line loss is 0.47 dB/100 feet at Channel 10 (192-198 MHz). The transmitter output power needed to produce the maximum effective radiated power of 80 watts, is 28.6 watts.

A filter that provides a stringent mask will be employed as part of the transmission system installation. The translator will meet FCC performance requirements. The structure does not require an ASRN according to the "Towair" study that was conducted for the installation.

Allocation concerns have been considered for this proposal using the Longley-Rice prediction methodology in accordance with the procedures set forth in OET Bulletin

69. For interference analysis purposes, the undersigned employed a Sunblade processor and the "tv\_process\_2010" program that was developed by Mr. William Meintel. The undersigned has repeatedly replicated FCC results with the Sunblade processor and the mentioned program. The cell size used was 1 kilometer on a side and the terrain sampling intervals were 0.5 kilometer.

The allocation study results for the proposed W10AL-LD operation exceed 40 pages, so, only a resume of the results is provided here. The study results show that no full service digital television station, Class A station, or LPTV station would receive more than the percentage of new interference allowed by Section 74.793 of the Rules. In particular, Station WNTV, Greenville, SC, operating pursuant to BLEDT-20100628BQF, is predicted to receive 0.0031% new interference; and Station WBIR-TV, Knoxville, TN, operating pursuant to BLCDDT-20090619ADG, is predicted to receive 0.1276% new interference. The maximum permitted percentage of predicted new interference to these full service facilities is 0.5 %.

Station W11AN, Bryson City NC, operating pursuant to BDFCDTV-20111212ABB, is predicted to receive 0.0054% new interference; and Station W11AN, Bryson City, NC, operating pursuant to BLTTV-4960, is predicted to receive 1.4995% new interference. The maximum amount of predicted new interference that is permitted is 2.0%. The proposed W10AL-LD operation is in compliance with the interference protection provisions of Section 74.793 of the Rules.

The impact that implementation of the proposed operation could have on the environment has been considered. Since the site that will be employed is already used for broadcasting purposes, only the environmental impact concern of Section 1.1307 of the Rules that relates to human exposure to radio-frequency radiation (rfr), merits

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consideration. Using the criteria set forth in OET Bulletin 65 as the touchstone for evaluation, the prospective impacts relative to the general public and to workers have been addressed.

The FCC's adopted limit at Channel 10 (192-198 MHz) for general public, whole body, rfr exposure is  $0.2 \text{ mW/cm}^2$ . A test calculation has been performed for the proposed W10AL-LD operation toward an imaginary target that is located two meters above ground level at the base of the antenna supporting tower. The base of the tower is the closest that a member of the general public could get to the tower. The 2-meter height above ground level elevation approximates the height of a standing person's head.

The antenna radiation center is to be located 20 meters above ground level. The distance from the antenna to the target was 18 meters. As recommended in O.E.T. Bulletin 65, a ground reflection coefficient of 1.6 was employed. For the purpose of the study evaluation, flat earth was assumed in the vicinity of the tower site. In actuality the terrain slopes downward away from the tower. No allowance was made for vertical plane directivity, and the maximum ERP of 80 watts was assumed to be radiated toward the target. Thus, the calculation result errs on the conservative side.

The test calculation yielded a power density level of  $0.0082 \text{ mW/cm}^2$  at the target, corresponding to a contribution to the ambient power density level of 4.1 % of the maximum permitted exposure (MPE) of  $0.2 \text{ mW/cm}^2$ . The proposal complies with the general public radiation exposure limit permitted by the FCC.

As to controlled (worker) location rfr exposure concerns, a radiation hazard warning sign is posted on the tower, and excitation to the antenna is terminated whenever work must be performed on, or near the antenna. It is believed that these procedures are adequate to avoid overexposure of workers to rfr.

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The instant proposal complies with the FCC's adopted human rfr exposure standards for controlled and uncontrolled locations. An Environmental Assessment is not required for this proposal.

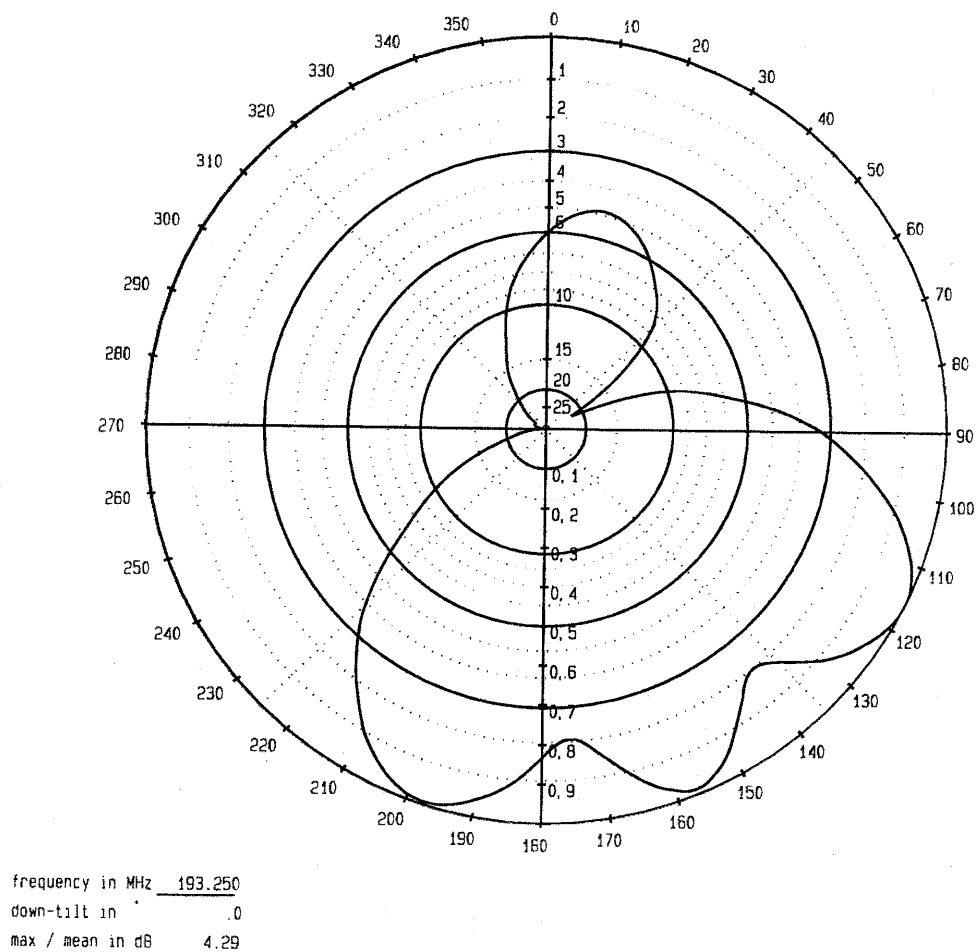
I declare under penalty of perjury that the foregoing is true and correct. Executed on March 1, 2012.

*Bernard R. Segal, P.E.*

Bernard R. Segal, P. E.

Maryland Registration # 25811

FIGURE 1



W10AL

<b>SCALA</b> Medford Oregon	3 x K52 22 57 Log-periodic Antennas	Typ Nr.
MB 24.2.12 11:9	CH: 10	B1.:

simulation with typical exactness of +/- 8% of max signal

FIGURE 2

Azimuth Radiation Pattern in % and dB at downtilt: .0

f = 193.250MHz

azimuth	%	dB	azimuth	%	dB
0	50.1	-6.0	180	83.3	-1.6
5	53.8	-5.4	185	90.5	-.9
10	56.2	-5.0	190	95.4	-.4
15	57.0	-4.9	195	98.7	-.1
20	56.0	-5.0	200	98.8	-.1
25	53.7	-5.4	205	95.2	-.4
30	50.2	-6.0	210	89.6	-1.0
35	46.1	-6.7	215	81.6	-1.8
40	42.3	-7.5	220	73.1	-2.7
45	37.1	-8.6	225	63.5	-3.9
50	28.0	-11.1	230	52.1	-5.7
55	17.8	-15.0	235	41.4	-7.7
60	8.6	-21.3	240	33.0	-9.6
65	12.5	-18.0	245	25.1	-12.0
70	27.2	-11.3	250	16.9	-15.4
75	37.9	-8.4	255	10.3	-19.7
80	47.1	-6.5	260	6.6	-23.7
85	58.2	-4.7	265	3.7	-28.6
90	68.4	-3.3	270	.8	-41.4
95	76.6	-2.3	275	1.1	-38.9
100	84.6	-1.4	280	2.0	-34.1
105	91.8	-.7	285	2.7	-31.5
110	97.1	-.3	290	3.2	-29.9
115	99.9	.0	295	2.9	-30.8
120	99.0	-.1	300	3.4	-29.4
125	95.5	-.4	305	5.3	-25.6
130	90.2	-.9	310	7.2	-22.9
135	82.6	-1.7	315	9.2	-20.7
140	79.7	-2.0	320	12.6	-18.0
145	85.5	-1.4	325	16.6	-15.6
150	93.1	-.6	330	20.3	-13.9
155	98.0	-.2	335	24.5	-12.2
160	96.9	-.3	340	30.5	-10.3
165	91.0	-.8	345	36.5	-8.8
170	83.4	-1.6	350	41.3	-7.7
175	78.8	-2.1	355	45.8	-6.8
180	83.3	-1.6	360	50.1	-6.0

maximum fieldstrength was found at:

azimuth 116.

downtilt 0.

W10AL

<b>SCALA</b> Medford Oregon	3 x K52 22 57 Log-periodic Antennas  CH: 10	Typ No.
		81..