

TECHNICAL EXHIBIT  
APPLICATION FOR MODIFICATION OF FM  
BOOSTER STATION  
FM BOOSTER STATION WRYV-FM1  
HUNTINGTON, WEST VIRGINIA

October 30, 2006

CH 268 3.5 KW (MAX-DA) 278 M AMSL

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Technical Statement

This exhibit was prepared on behalf of FM booster station WRYV-FM1 at Huntington, West Virginia. WRYV-FM1 holds a construction permit for operation with a maximum ERP of 3.5 kW and an antenna height of 274 m AMSL. See FCC File No. BPFTB-20060825ABA. By means of this application it is proposed to increase the transmitting antenna height by 4 meters to 278 m AMSL. No other changes are proposed. It is believed that this proposal conforms to all applicable rules and regulations of the FCC.

Tower Registration

The overall height above ground of the existing tower is 55 m. The tower has been registered with the FCC and it bears Antenna Structure Registration Number (ASRN) 1043534. There will be no change in the overall height of the existing structure.

Notification of FCC Monitoring Stations and the National Radio Quiet Zone

The proposed facility is located 504 km from the closest FCC monitoring station at Laurel, Maryland. At this distance, notification of the monitoring station is not necessary.

The proposed facility is located 179 km outside of the National Radio Quiet Zone surrounding the radio astronomy observatory facilities at Green Bank, West

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Virginia. Given the distance from the quiet zone, notification is not required pursuant to Section 73.1030 of the FCC Rules.

### Environmental Considerations

The proposal is categorically excluded from environmental processing, as an existing tower site is to be employed, and the proposal complies with the FCC Rules concerning human exposure to radio frequency (RF) energy. There are no other broadcast or broadcast-related facilities located on the existing tower or within 1,000 meters of the site.

The calculation of RF energy at 2-m above ground was made under the procedures of OET Bulletin No. 65.\* The formula employed is as follows:

$$S = \frac{(33.4)F^2P}{R^2}$$

where,  $S$  = power density in  $\mu\text{W}/\text{cm}^2$ ,  $F$  = relative field factor at the angle to the calculation point,  $P$  = the total effective radiated power relative to a dipole in watts, and  $R$  = distance from the antenna radiation center to the calculation point in meters. Based on the *conservative* assumption of a relative field factor ( $F$ ) of 1.0 with a total effective radiated power ( $P$ ) of 3500 watts, and an antenna radiation center height above ground of 34 m, the calculated power density will not exceed  $114.2 \mu\text{W}/\text{cm}^2$ . Therefore, the

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\* Federal Communications Commission OET Bulletin No. 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields (Edition 97-01, August 1997).

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calculated RF exposure at 2 m above ground will not exceed 57.1% of the limit of 200  $\mu\text{W}/\text{cm}^2$  for general population / uncontrolled environments.

The transmitter site shall be restricted from access. In the event that personnel are required to climb the structure, the proposed FM translator transmissions shall be reduced or terminated as necessary to prevent RF exposure above the FCC recommended limits.

#### Predicted Coverage Contours

The predicted 54 dBu coverage contours were calculated in accordance with Section 73.313 of the FCC Rules. The average terrain elevations from 3 to 16 km from the proposed site were computed using the N.G.D.C. 30-second terrain database. The distances to the predicted 54 dBu coverage contour for the proposed booster were determined using the average elevations of radials spaced every 5-degree of azimuth. The antenna radiation center height above average terrain and the ERP in each radial direction were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to the contour.

Figure 1 is a map showing the predicted 54 dBu coverage contours of the WRYV(FM) main facility and the proposed WRYV-FM1 booster. As indicated in Figure 1, the proposed predicted 54 dBu contour of WRYV-FM1 will be contained within the WRYV(FM) main facility predicted 54 dBu contour.

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Allocation Considerations

The proposed facility meets the adjacent-channel protection requirements and spacing requirements outlined in the FCC Rules. Furthermore, the proposed booster facility meets the other allocation requirements in all respects.

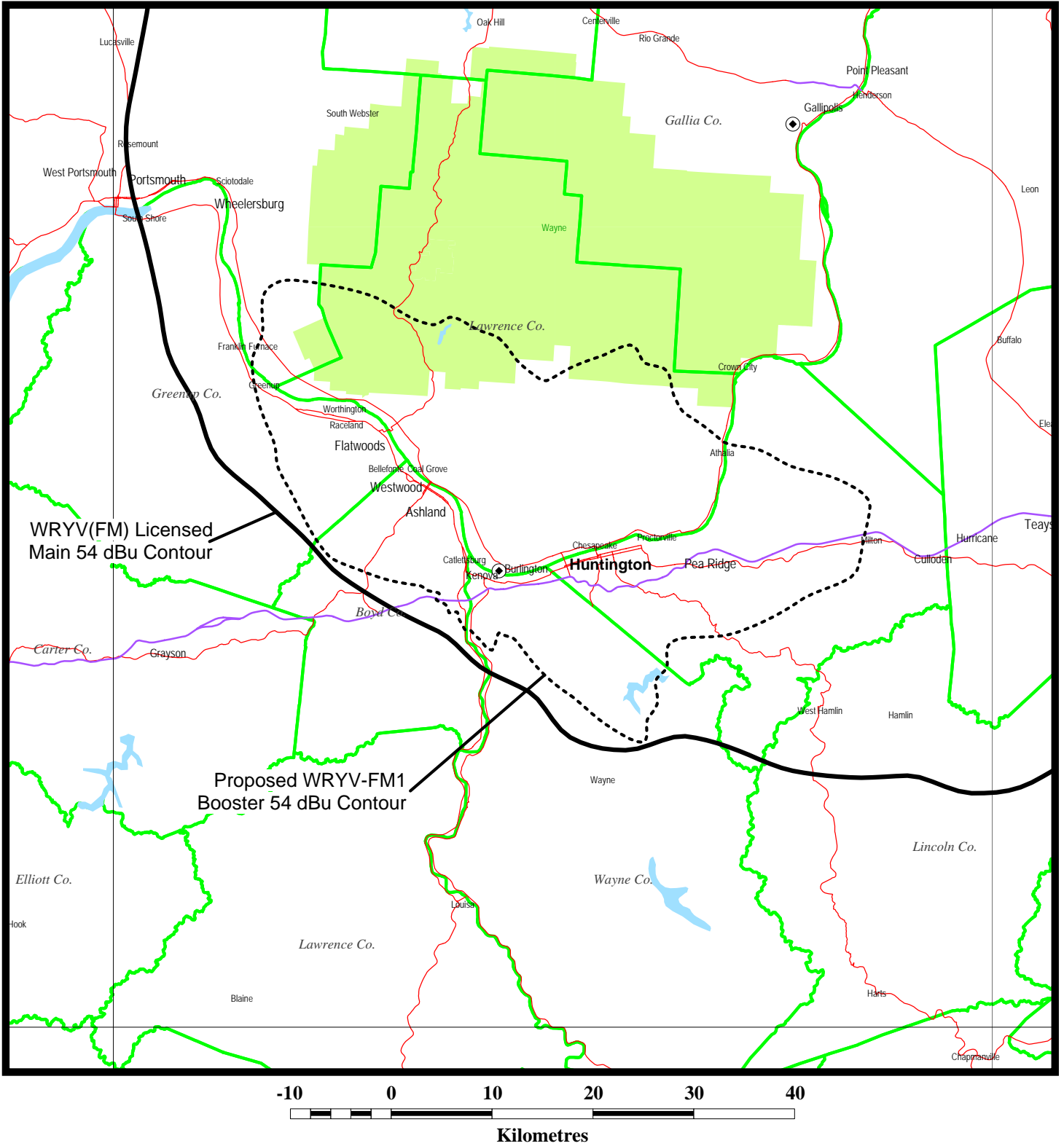


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October 30, 2006

Figure 1



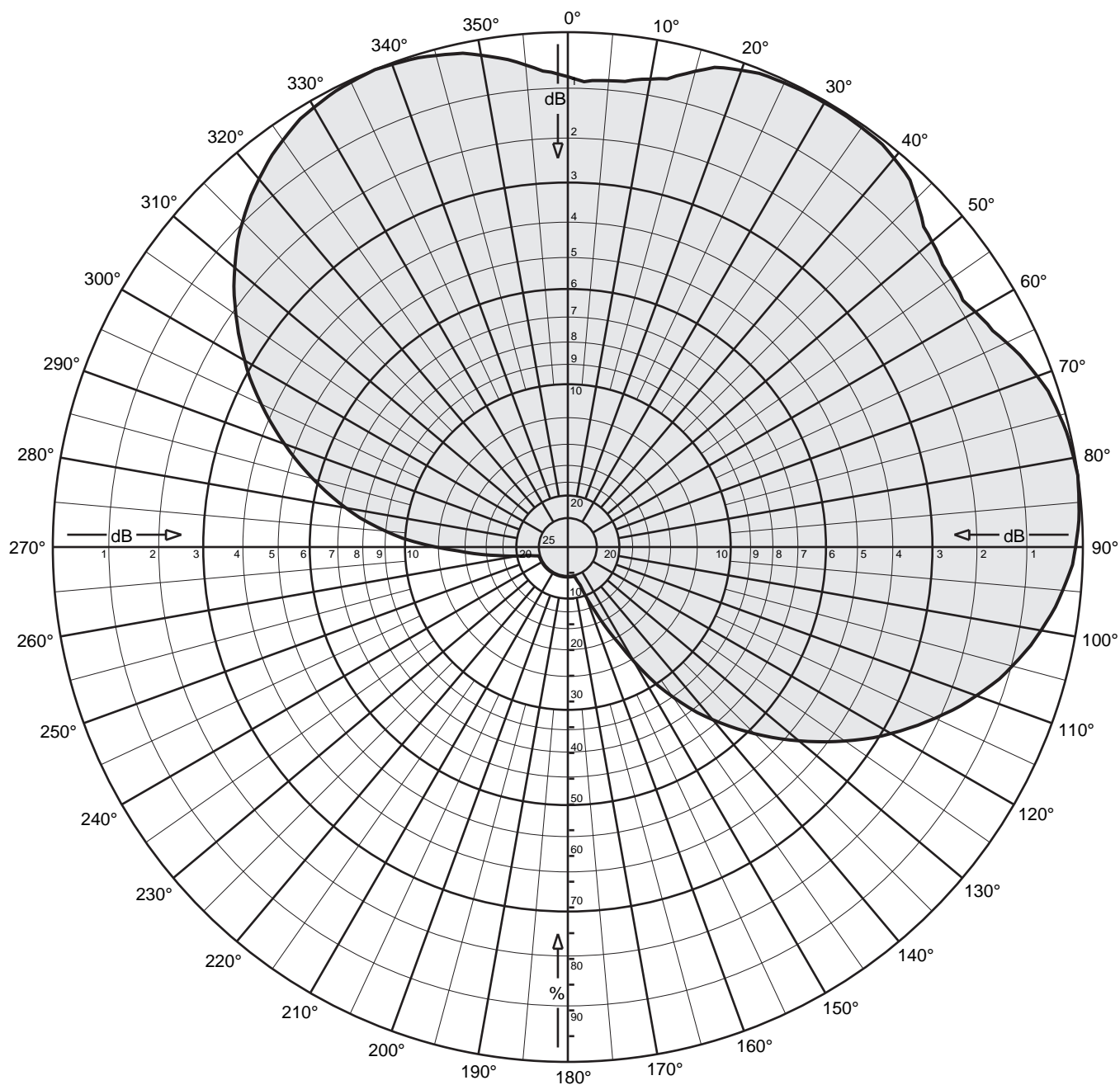
# PREDICTED COVERAGE CONTOURS

duTreil, Lundin & Rackley, Inc. Sarasota, Florida

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Antenna Manufacturer's Pattern Data

*{2 sheets follow}*



2xCL-FM/VRM/VV FM LP Array

One antenna skewed 82' w/ 50% PWR

One antenna skewed 338' w/ 50% PWR

Max gain: 3.7 dBd

Power-x: 2.34

Vertical Polarization

Horizontal Plane Pattern



2xCL-FM/VRM/VV FM LP Array

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Max gain: 3.7 dBd

Power-x: 2.34

Vertical Polarization

Horizontal Plane Pattern

Angle	Field	Rel.dB	dBd	PwrMult	Angle	Field	Rel.dB	dBd	PwrMult
0	0.914	-0.78	2.92	1.96	180	0.058	-24.69	-20.99	0.01
10	0.923	-0.70	3.00	2.00	190	0.058	-24.69	-20.99	0.01
20	0.985	-0.13	3.57	2.28	200	0.058	-24.69	-20.99	0.01
30	0.996	-0.03	3.67	2.33	210	0.058	-24.69	-20.99	0.01
40	0.985	-0.13	3.57	2.28	220	0.058	-24.69	-20.99	0.01
50	0.923	-0.70	3.00	2.00	230	0.058	-24.69	-20.99	0.01
60	0.914	-0.78	2.92	1.96	240	0.058	-24.69	-20.99	0.01
70	0.970	-0.27	3.43	2.21	250	0.058	-24.69	-20.99	0.01
80	0.998	-0.02	3.68	2.33	260	0.101	-19.92	-16.22	0.02
90	0.986	-0.12	3.58	2.28	270	0.256	-11.82	-8.12	0.15
100	0.933	-0.60	3.10	2.04	280	0.438	-7.17	-3.47	0.45
110	0.844	-1.47	2.23	1.67	290	0.585	-4.65	-0.95	0.80
120	0.724	-2.80	0.90	1.23	300	0.724	-2.80	0.90	1.23
130	0.585	-4.65	-0.95	0.80	310	0.844	-1.47	2.23	1.67
140	0.438	-7.17	-3.47	0.45	320	0.933	-0.60	3.10	2.04
150	0.256	-11.82	-8.12	0.15	330	0.986	-0.12	3.58	2.28
160	0.101	-19.92	-16.22	0.02	340	0.998	-0.02	3.68	2.33
170	0.058	-24.69	-20.99	0.01	350	0.970	-0.27	3.43	2.21