

TECHNICAL EXHIBIT  
APPLICATION FOR CONSTRUCTION PERMIT  
RADIO STATION WSLQ(FM)  
ROANOKE, VIRGINIA

MARCH 20, 2011

CH 256C    200 KW    598 M

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Technical Narrative

The technical exhibit of which this narrative is part was prepared in support of an application for construction permit for radio station WSLQ(FM) on Channel 256C assigned to Roanoke, Virginia. The applicant proposes, via this minor-change application, to slightly relocate its transmitter site location and radiation center.

Since the WSLQ(FM) transmitting site will only be moving 0.4 kilometer, it is proposed to maintain the effective radiated power of 200 kilowatts with an antenna height above average terrain of 598 meters. The below photograph shows the locations on the proposed and existing WSLQ(FM) transmitter sites atop *Poor Mountain*.



Photo 1. Proposed and Existing WSLQ(FM) Transmitter Sites Atop Poor Mountain.

Proposed Transmitter Location

A sketch showing the proposed antenna and supporting structure is shown on Figure 1. The transmitting antenna will be diplexed with WSLC-FM on Channel 235C assigned to Roanoke Virginia. The transmitter site will remain atop of *Poor Mountain*. Electrical beamtilt will be provided, with 190.9 kW at the horizontal plane and 200 kW at 0.75° below the horizontal plane. See the Appendix for the vertical pattern specifications.

Interference Concerns

The 115 dBu predicted "blanketing" contour of the proposed station would extend radially 5.6 kilometers from the transmitting site. No interference is expected. However, the applicant recognizes its responsibility to resolve complaints of interference, including blanketing and receiver-induced interference, as required by Sections 73.315(b), 73.316(e) and 73.318.

Determination of Overall Antenna HAAT

The overall antenna height above average terrain (HAAT) was determined from NASA's SRTM (Shuttle Radar Topography Mission) 90 m Digital Elevation Data for the world.

Predicted Coverage Contours

The predicted 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 aforementioned terrain database. The distances to the predicted coverage contours were determined using the average elevations of 3-16 km portions of radials spaced every 45-degrees of azimuth. The antenna radiation center HAAT in each radial direction and the ERP were used in conjunction with the propagation prediction curves of Section 73.333 to determine the distances to contours. Sheet 3 of Figure 2 is a tabulation of the average terrains and associated calculated distances.

Sheet 1 of Figure 2 is a map showing the predicted coverage contours for both its present facility and its herein proposed facility.

Waiver of Section 73.211(c)

If necessary, a waiver of Section 73.211(c) of the Commission's Rules is hereby requested. This Rule section require stations, such as WSLQ(FM), with effective radiated power and antenna height above average terrains exceeding the limits for typical stations, to not extend their proposed 60 dBu (1 mV/m) contour beyond that presently authorized. In some directions, the proposed WSLQ(FM) contour would extend slightly more (by less than 1 kilometer) than the existing WSLQ(FM) contour.

It is believed by the undersigned that this contour extension is *de minimis*. Therefore, if necessary, a waiver of Section 73.211(c) is requested for the following reasons: (1) the WSLQ(FM) transmitter site is moving by only 0.4 kilometer, (2) the proposed WSLQ(FM) 60 dBu contour extends only 0.65 kilometer beyond the existing WSLQ(FM) contour in any radial direction and (3) the average proposed contour distance will be less than its present distance.

It is proposed to relocate the WSLQ(FM) transmitter site by 0.4 kilometer. WSLQ(FM) will be co-located and diplexed with WSLC-FM on Channel 235C assigned to Roanoke Virginia. The transmitter site will remain atop of *Poor Mountain*, where most of the other radio stations serving Roanoke area located.

The proposed WSLQ(FM) 60 dBu coverage contour will not extend more than 0.65 kilometer in any radial direction compared to its existing contour.<sup>1</sup> Two different terrain databases were employed to calculate the existing and proposed coverage areas so as to show the proposed contour more congruous with the licensed contour. Therefore, as the proposed contour extension distance at most is only 0.65 kilometer, it should be considered as *de minimis*. Sheet 2 of Figure 3 is an expanded view of the WSLQ(FM) coverage map, showing the area of the 0.65 km contour extension, located in the northeast quadrant of the WSLQ(FM) 60 dBu coverage contour.

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<sup>1</sup> The WSLQ(FM) average terrain values, used to project the coverage contours, were obtained using the standard FCC 30" terrain database for the currently licensed WSLQ(FM) site and from NASA's SRTM (Shuttle Radar Topography Mission) 90 m Digital Elevation Data for the world for the proposed site.

Furthermore, the proposed WSLQ(FM) 60 dBu average contour distance will be less than its present distance. As shown from the tabulation provided herein as Sheet 2 of Figure 2, the presently licensed 60 dBu contour average distance is 98.9 kilometers. The proposed 60 dBu contour average distance is 98.4 kilometers

#### Allocation Study

There is no new short-spacing to any station or allotment would be created this modification of WSLQ(FM).

Section 73.213(a) processing is requested toward WJLS-FM on Channel 258B at Beckley, West Virginia.<sup>2</sup> As there is a second channel relationship between WSLQ(FM) and WJLS-FM, no additional allocation analysis is necessary. Therefore, the proposed facility satisfies the requirements of Section 73.213(a) of the Commission's Rules to WJLS-FM.

#### Radiofrequency Electromagnetic Field Exposure Analysis

A radiofrequency electromagnetic field measurement survey will be undertaken after construction and operation of WSLQ(FM) with its modified facility. As this transmitter site is the location of several FM radio stations, this survey will ensure that the ground level electromagnetic emissions due to the modification of WSLQ(FM) at this transmitter site are below the Commission's guideline values in both the appropriate controlled and uncontrolled radiofrequency environments.

Access to the transmitting site is restricted and appropriately marked with warning signs. When it becomes necessary for workers to ascend the tower, appropriate measures, such as reduction or shut down of power if necessary, shall be taken to ensure that the human exposure to radiofrequency radiation will not exceed the FCC guidelines. WXLK(FM) will also coordinate with the other co-located users of the towers to reduce or shut down power when workers representing any station ascend the tower.

It is noted that this statement only addresses the potential for radiofrequency electromagnetic field exposure. All other aspects of the environmental processing analysis will be or already have been provided to the FCC by the tower owner as part of the tower registration process.

Charles A. Cooper

du Treil, Lundin & Rackley, Inc.  
201 Fletcher Avenue  
Sarasota, Florida 34237  
941.329.6000

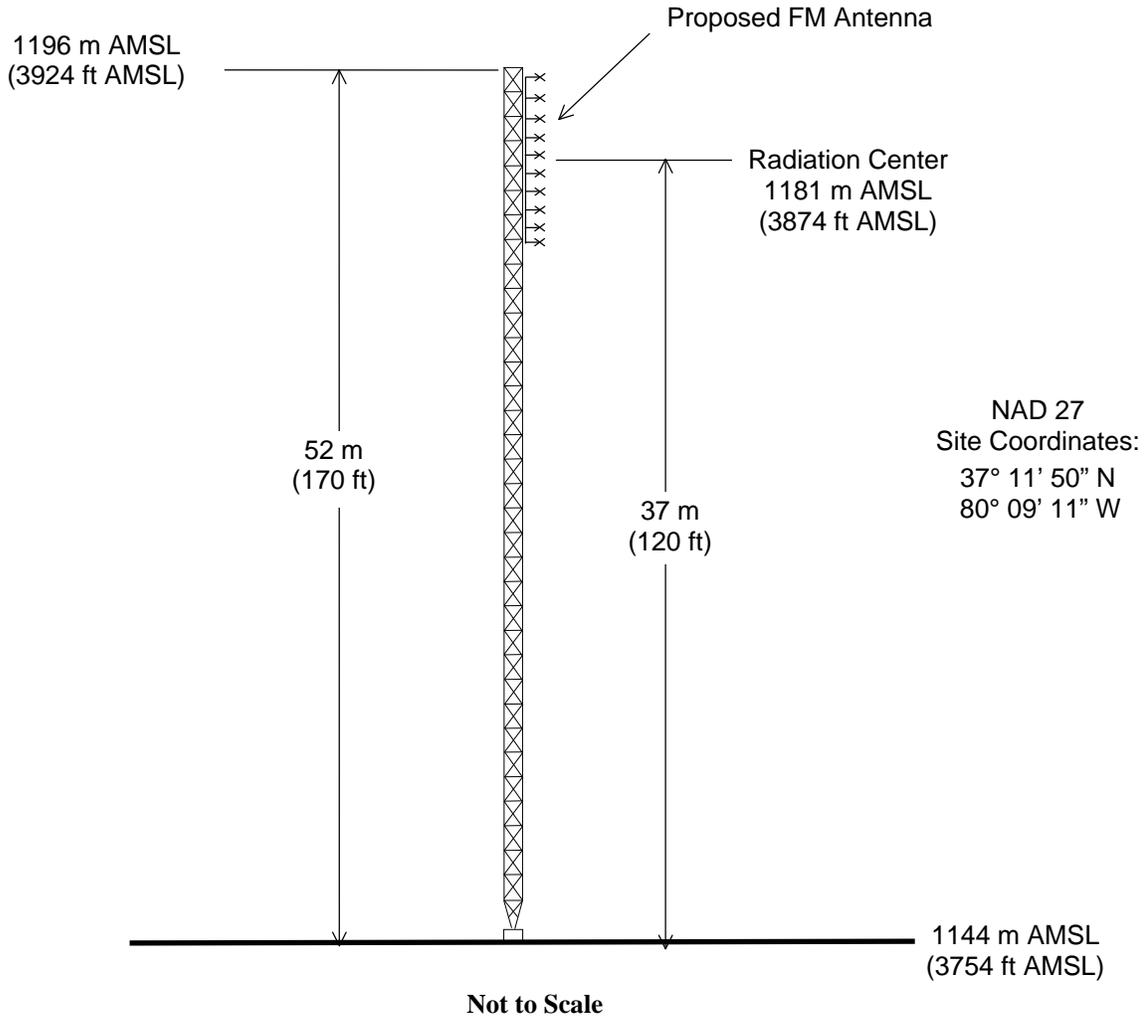
March 20, 2011

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<sup>2</sup> Stations WJLS-FM and WSLQ(FM) were operating before 1964 and appear to have been continuously short-spaced since that time.



ASRN: N/A



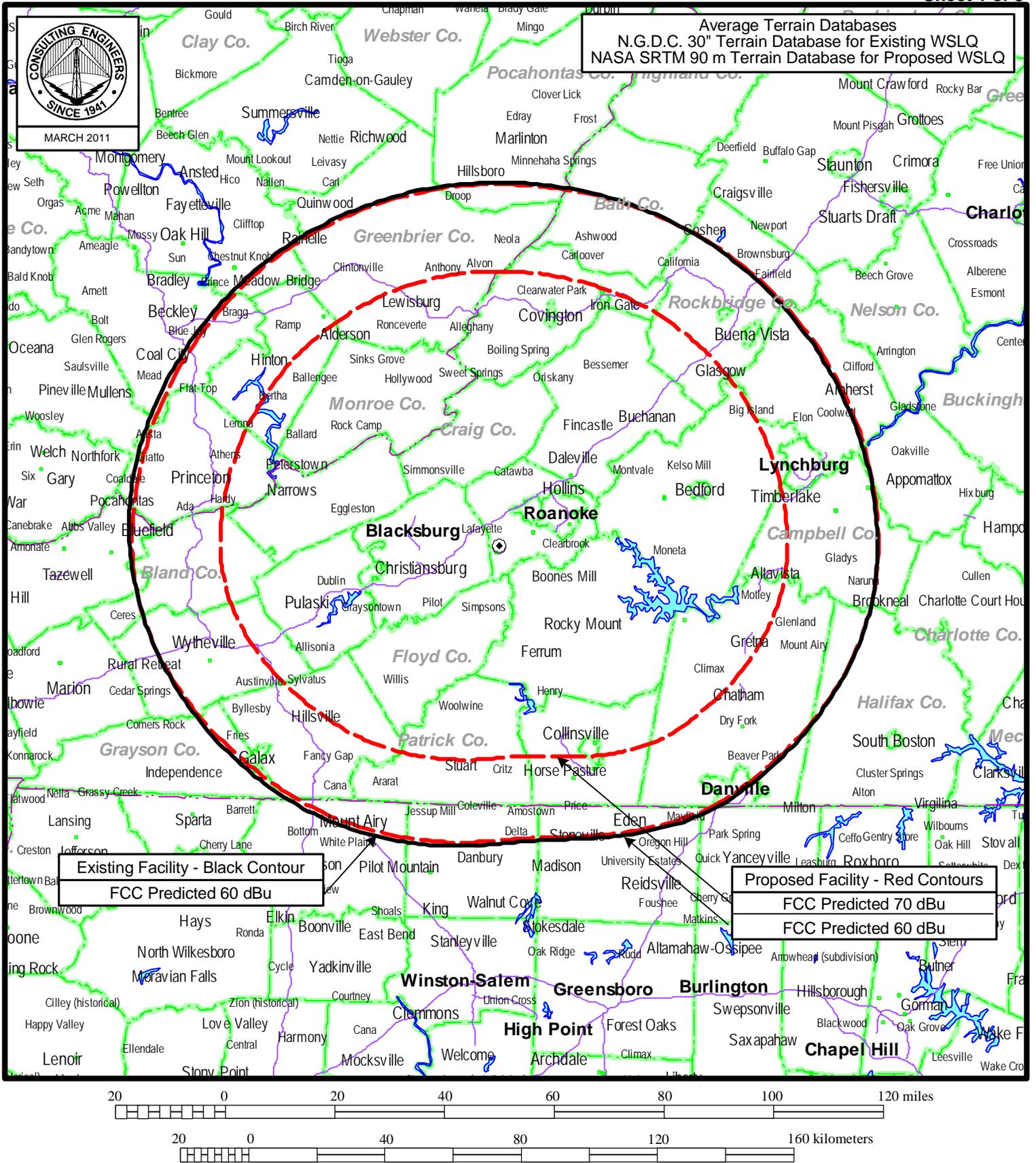
## ANTENNA AND SUPPORTING STRUCTURE

RADIO STATION WSLQ(FM)

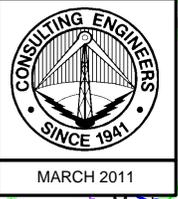
ROANOKE, VIRGINIA

CH 256C 200 KW 598 M

du Treil, Lundin & Rackley, Inc. Sarasota, Florida



Average Terrain Databases  
N.G.D.C. 30" Terrain Database for Existing WSLQ  
NASA SRTM 90 m Terrain Database for Proposed WSLQ



Existing Facility - Black Contour  
FCC Predicted 60 dBu

Proposed Facility - Red Contours  
FCC Predicted 70 dBu  
FCC Predicted 60 dBu

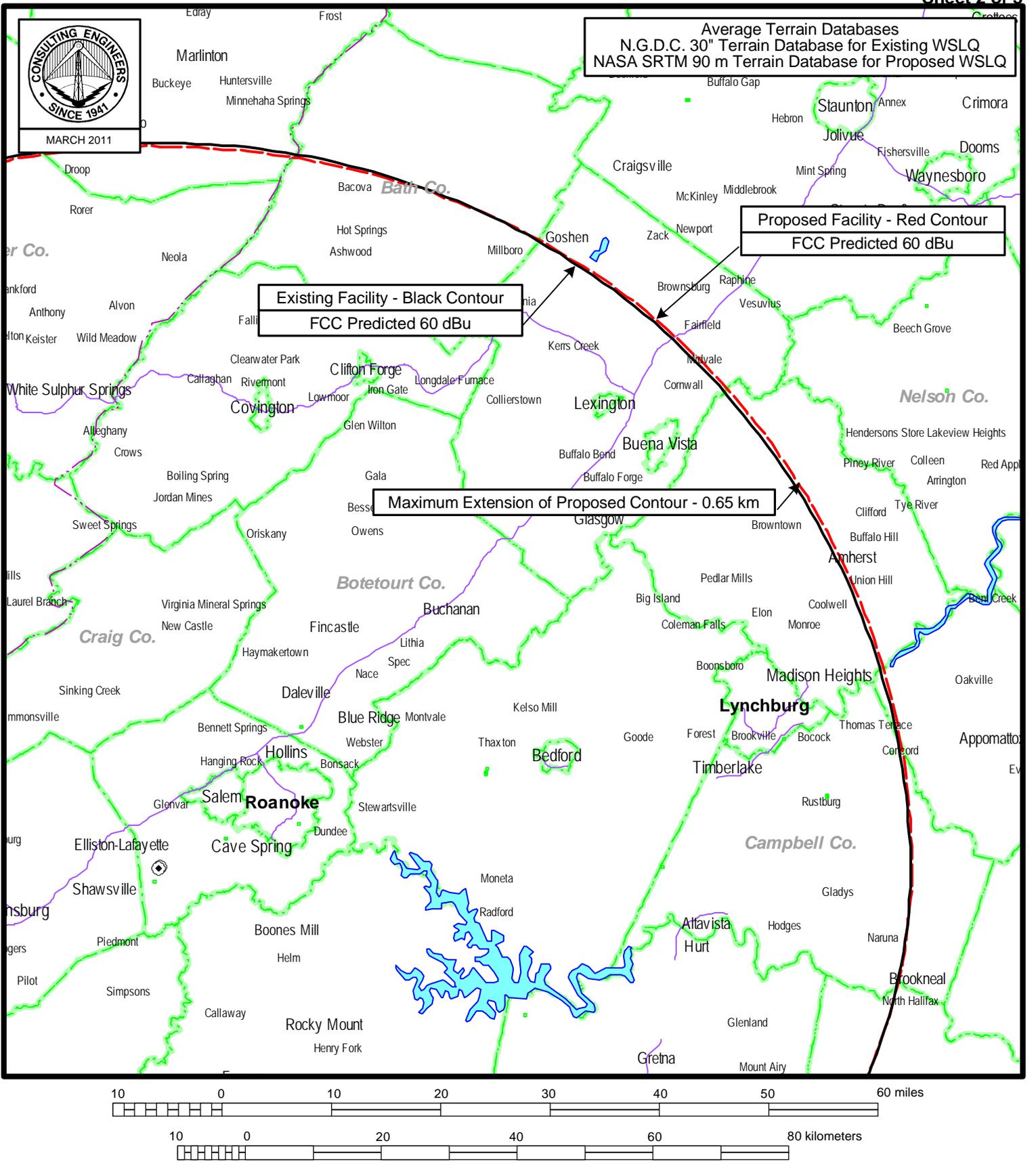
**FCC PREDICTED COVERAGE CONTOURS**

STATION WSLQ(FM)

ROANOKE, VIRGINIA

CH 256C 200 KW 598 M

du Treil, Lundin & Rackley, Inc Sarasota, Florida



**FCC PREDICTED COVERAGE CONTOURS - EXPANDED VIEW**

STATION WSLQ(FM)

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Antenna Height Above Average Terrain Calculations

Radials (0° True)	Average Terrain (m)	Antenna Height Above Average Terrain (m)	Distances to Contours (km)	
			70 dBu F(50,10)	60 dBu F(50,50)
0	526	658	77.4	101.9
45	487	697	78.8	103.7
90	437	747	80.6	106.1
135	638	546	72.6	96.7
180	833	351	60.0	83.2
225	686	498	69.5	93.4
270	499	685	78.4	103.1
315	505	679	78.2	102.9
<b>Average:</b>	<b>576</b>	<b>608</b>	<b>74.4</b>	<b>98.9</b>

Table 1. Existing WSLQ(FM) Licensed Facility

Radials (0° True)	Average Terrain (m)	Antenna Height Above Average Terrain (m)	Distances to Contours (km)	
			70 dBu F(50,10)	60 dBu F(50,50)
0	539	642	76.8	101.1
45	481	700	78.9	103.9
90	436	745	80.5	106.0
135	645	536	72.0	96.0
180	838	343	59.4	82.6
225	698	483	68.4	92.4
270	504	677	78.1	102.8
315	521	660	77.5	102.0
<b>Average:</b>	<b>583</b>	<b>598</b>	<b>74.0</b>	<b>98.4</b>

Table 2. Proposed WSLQ(FM) Facility

*Note: The existing WSLQ(FM) average terrains were obtained from the standard FCC 30" N.G.D.S. terrain database.  
The proposed WSLQ(FM) average terrains were obtained from NASA's SRTM (Shuttle Radar Topography Mission) 90m Digital Elevation Data for the world.*

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Proposed Site Allocation Study

37° 11' 50" North Latitude  
 80° 09' 11" West Longitude

Callsign	Status	Chan.	Serv.	Freq.	City	State	Latitude	Dist.(km)	Sep.(km)	Spacing(km)	
Fac. ID	ARN			Class	DA Ant. ID	ERP(kW)	HAAT(m)	Longitude	Bear.(deg)	73.215	Comment
WRVL	CP	202	FM	88.3	LYNCHBURG	VA	037-11-50	71.13	41	30.13	
37249	BPED	20100813BGN		C1	D 101409	50	330	079-21-07	89.76		
WRVL	LIC	202	FM	88.3	LYNCHBURG	VA	037-11-50	71.13	41	30.13	
37249	BLED	19831012AJ		C1	D 13551	50	330	079-21-07	89.76		
WDNE-FM	LIC	255	FM	98.9	ELKINS	WV	038-54-36	192.79	193	-0.21	
65939	BLH	19980401KE		B1	N	5.1	221	079-47-18	9.41	165 N	
<i>(Separation distance rounds to 193 kilometers, therefore, no allocation concern.)</i>											
0	RSV	255	FA	98.9	MIDLOTHIAN	VA	037-35-23	217.48	193	24.48	
	RM	10592		B1				077-44-49	77.67	165	CLEAR
WSLQ	LIC	256	FM	99.1	ROANOKE	VA	037-11-41	0.39	290		
41112	BMLH	19830922AA		C		200	607	080-09-22	224.23	270 N	
<i>(Applicant's existing facility.)</i>											
WGGE	LIC	256	FM	99.1	PARKERSBURG	WV	039-17-15	266.77	259	7.77	
15254	BLH	19901023KE		B1	N	11.5	148	081-39-25	330.99	233 N	
WZFX	LIC	256	FM	99.1	WHITEVILLE	NC	034-44-05	299.61	270	29.61	
32376	BLH	19860909KB		C1		100	299	078-47-25	155.47	249 N	
WTZR	LIC	257	FM	99.3	ELIZABETHTON	TN	036-24-07	203.15	176	27.15	
18036	BLH	19980630KG		C3	N	3.6	247	082-12-12	244.77	165 Y	
WJLS-FM	LIC	258	FM	99.5	BECKLEY	WV	037-35-23	95.61	105	-9.39	
52336	BLH	5592		B	N	34	320	081-06-51	297.5	99 N	SHORT
<i>(Section 73.213(a) processing requested toward WJLS-FM. Since WJLS-FM and WSLQ(FM) are 2<sup>nd</sup> adjacent channel, there is no allocation concern. Furthermore, the separation distance is also increasing by 0.1 kilometer.)</i>											

## APPENDIX

# TRANSMITTING ANTENNA VERTICAL ELEVATION PATTERN AND TABULATION



**AN SPX DIVISION**

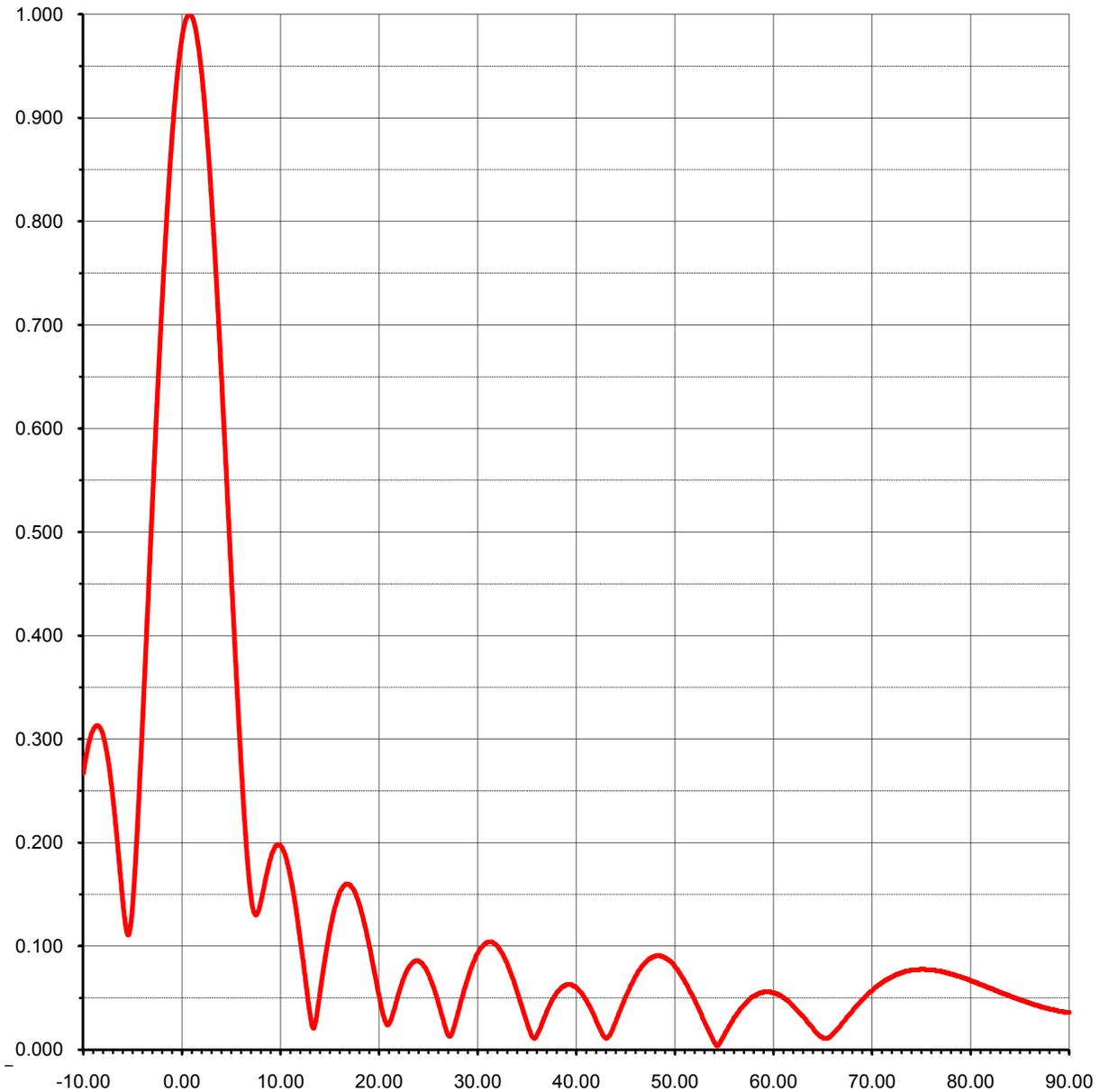
Proposal Number **C-04256**  
Date **7/23/2010**  
Call Letters **WSLQ**  
Location **Roanoke, VA**

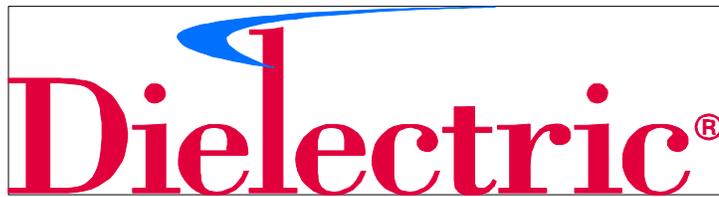
Antenna Type **DCRM10CFER**  
Frequency **99.1**  
Drawing # **3**

### ELEVATION PATTERN

RMS Gain at Main Lobe **5.20 ( 7.16 dB )**  
Per Polarization  
Calculated / Measured **Calculated**

Beam Tilt **0.00 deg**  
Frequency **99.1 MHz**





Proposal Number **C-04256**  
 Date **28-Jul-10**  
 Call Letters **WSLQ**  
 Location **Roanoke, VA**  
 Customer **0**  
 Antenna Type **DCRM10CFER**  
 Frequency **99.10 MHz**  
 Drawing #: **3**

### TABULATION OF ELEVATION PATTERN

Angle	Field								
-10.0	0.267	10.5	0.187	31.0	0.104	51.5	0.057	72.0	0.070
-9.5	0.294	11.0	0.167	31.5	0.104	52.0	0.048	72.5	0.073
-9.0	0.309	11.5	0.140	32.0	0.100	52.5	0.038	73.0	0.074
-8.5	0.313	12.0	0.106	32.5	0.093	53.0	0.027	73.5	0.076
-8.0	0.304	12.5	0.070	33.0	0.083	53.5	0.017	74.0	0.077
-7.5	0.280	13.0	0.034	33.5	0.070	54.0	0.007	74.5	0.077
-7.0	0.243	13.5	0.025	34.0	0.056	54.5	0.006	75.0	0.078
-6.5	0.195	14.0	0.055	34.5	0.041	55.0	0.014	75.5	0.077
-6.0	0.143	14.5	0.087	35.0	0.026	55.5	0.023	76.0	0.077
-5.5	0.111	15.0	0.115	35.5	0.013	56.0	0.031	76.5	0.076
-5.0	0.140	15.5	0.137	36.0	0.014	56.5	0.037	77.0	0.076
-4.5	0.218	16.0	0.152	36.5	0.025	57.0	0.043	77.5	0.074
-4.0	0.316	16.5	0.159	37.0	0.037	57.5	0.048	78.0	0.073
-3.5	0.421	17.0	0.159	37.5	0.047	58.0	0.052	78.5	0.072
-3.0	0.527	17.5	0.153	38.0	0.055	58.5	0.054	79.0	0.070
-2.5	0.630	18.0	0.140	38.5	0.060	59.0	0.056	79.5	0.069
-2.0	0.725	18.5	0.122	39.0	0.063	59.5	0.056	80.0	0.067
-1.5	0.811	19.0	0.100	39.5	0.063	60.0	0.055	80.5	0.065
-1.0	0.883	19.5	0.076	40.0	0.060	60.5	0.053	81.0	0.063
-0.5	0.939	20.0	0.052	40.5	0.055	61.0	0.050	81.5	0.061
0.0	0.977	20.5	0.031	41.0	0.048	61.5	0.047	82.0	0.059
0.5	0.997	21.0	0.025	41.5	0.039	62.0	0.042	82.5	0.057
1.0	0.998	21.5	0.038	42.0	0.028	62.5	0.037	83.0	0.055
1.5	0.979	22.0	0.055	42.5	0.018	63.0	0.032	83.5	0.054
2.0	0.943	22.5	0.069	43.0	0.011	63.5	0.026	84.0	0.052
2.5	0.889	23.0	0.079	43.5	0.016	64.0	0.021	84.5	0.050
3.0	0.821	23.5	0.085	44.0	0.027	64.5	0.015	85.0	0.048
3.5	0.740	24.0	0.086	44.5	0.039	65.0	0.012	85.5	0.047
4.0	0.651	24.5	0.081	45.0	0.051	65.5	0.011	86.0	0.045
4.5	0.556	25.0	0.073	45.5	0.062	66.0	0.015	86.5	0.043
5.0	0.459	25.5	0.061	46.0	0.071	66.5	0.020	87.0	0.042
5.5	0.364	26.0	0.045	46.5	0.078	67.0	0.026	87.5	0.041
6.0	0.275	26.5	0.029	47.0	0.084	67.5	0.032	88.0	0.039
6.5	0.200	27.0	0.014	47.5	0.088	68.0	0.037	88.5	0.038
7.0	0.148	27.5	0.019	48.0	0.090	68.5	0.043	89.0	0.037
7.5	0.130	28.0	0.036	48.5	0.091	69.0	0.048	89.5	0.036
8.0	0.143	28.5	0.053	49.0	0.089	69.5	0.053	90.0	0.036
8.5	0.166	29.0	0.069	49.5	0.086	70.0	0.057		
9.0	0.185	29.5	0.083	50.0	0.080	70.5	0.061		
9.5	0.197	30.0	0.093	50.5	0.074	71.0	0.065		
10.0	0.197	30.5	0.100	51.0	0.066	71.5	0.068		