

CITY OF LICENSE  
CALL LETTERS  
FACILITY ID  
PREPARED FOR  
VERSION  
JOB

Charlottesville, VA  
WTJU  
69145  
University of Virginia  
1.0  
113008

# **CONSOLIDATED**

# **ENGINEERING EXHIBIT**

FCC Form 340 - Section VII - FM Engineering

**ENGINEERING STATEMENT**  
**MINOR CHANGE TO WTJU, CHARLOTTESVILLE, VA**  
**Facility ID 69145**

**SUMMARY:**

The University of Virginia ("WTJU") hereby submits this proposed change. A change of the site, antenna height, ERP, and a switch to a directional antenna is proposed.

**PROTECTED ZONES REPORT:**

Protected zones report for WTJU on channel 216B 03-11-2013

Lat. 37 59 08.0 Lng. 78 28 49.0, ERP= 6.6 kw, HAAT= 284.1M

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Facility is okay with respect to AM station towers.

Closest AM Facility is WKAV, CHARLOTTESVILLE, VA, L, ND1 at 350.8° at a distance of 5.0 km

Facility is okay with respect to FCC monitoring stations.

Closest FCC Monitoring Station is 195.0 km= Laurel, MD

Facility is okay toward West Virginia Quiet Zone. Distance to center = 99.3 km

Facility is okay toward Table Mountain. Distance to Center = 2328.4 km, Azimuth = 284.3 Degrees True

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

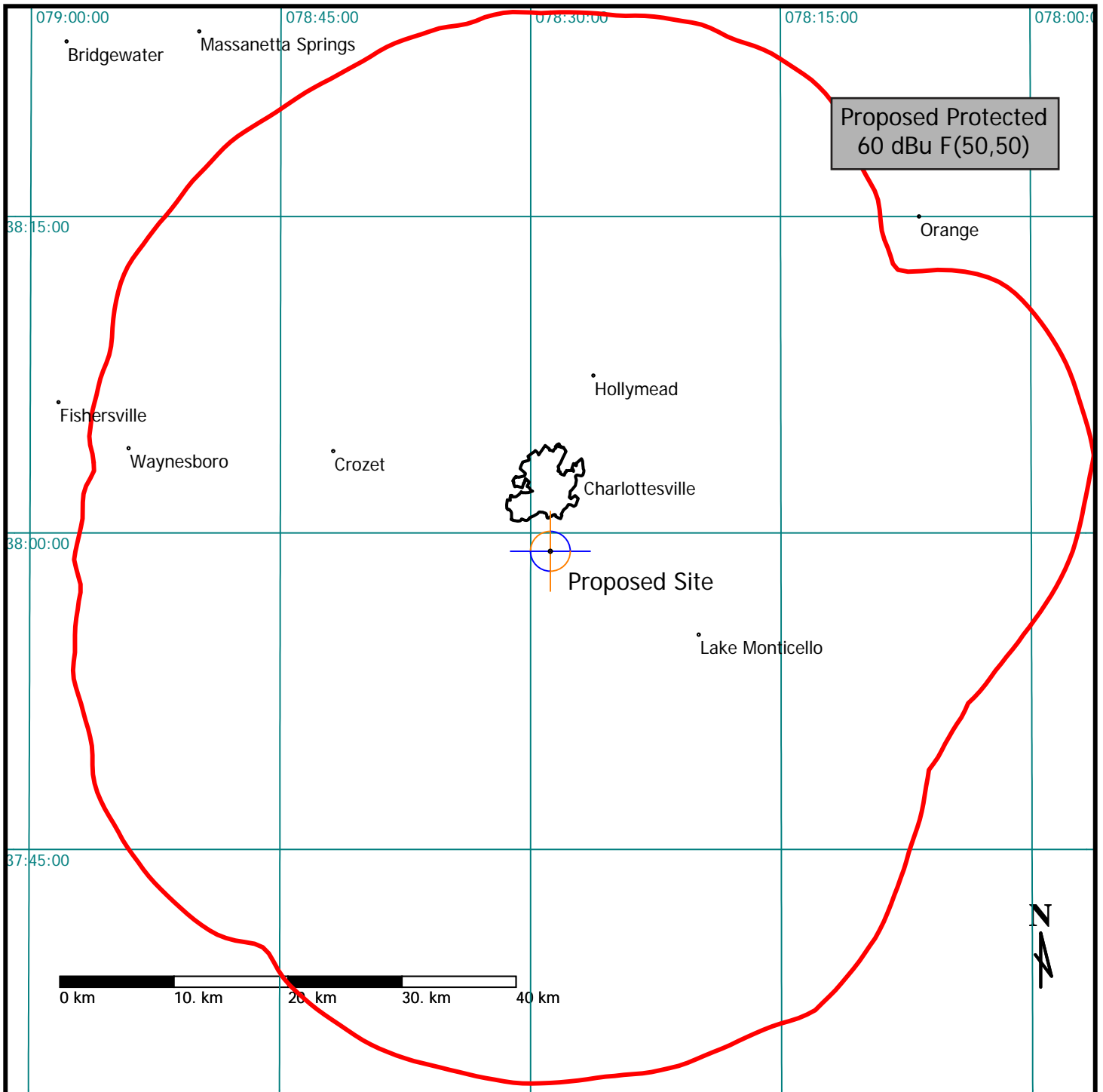
Portland, Oregon 97219-7418

503-245-6065

## Exhibit 16 - Community of License Coverage

Brown Broadcast Services, Inc.  
Job: WTJU Power Inc\_Mar2013.fmj  
Master Database: 2013\_Mar\_11.fmd  
Lat: N37:59:08 Lon: W078:28:49 NAD-27  
Scale: 1:500000  
Channel: 216 Class: B

rfInvestigator Version 3.5.25  
by rfSoftware, Inc.  
Date: 3/11/2013 05:22:33 PM  
Key:  
City Grade  
Protected  
Co-Channel  
1st Adj  
2nd/3rd Adj



# EXHIBIT 18

## CONTOUR OVERLAP PROTECTION TO OTHER RESERVED-BAND STATIONS & SPACING REQUIREMENTS TO NON-RESERVED BAND STATIONS

This proposed minor-change meets the contour overlap requirements of §73.509 with respect to all other reserved-band stations.

Domestic reserved-band stations considered:

ID	City	St.	Ch.	CL	Stat	Prefix	ARN	FID	Dist	Min 207	Clear 207	Notes
<b>Co-channel</b>												
WTJU	CHARLOTTESVILLE	VA	216	B1	LIC	BLED	20121120AAA	69145	0.5	211	-210.5	Current Lic.
WOKD-FM	DANVILLE	VA	216	C2	LIC	BLED	20000331ABX	82092	159.6	241	-81.4	
WHCE	HIGHLAND SPRINGS	VA	216	A	LIC	BMLED	20070914AAN	26916	113.3	178	-64.7	
WPIB	BLUEFIELD	WV	216	C1	LIC	BLED	20020717AAA	53098	251.6	270	-18.4	
WVRP	ROANOKE RAPIDS	NC	216	A	LIC	BLED	20000508AAF	85603	183.7	178	5.7	
WUFR	BEDFORD	PA	216	B	LIC	BLED	20080721ACC	91927	256.4	241	15.4	
WNSB	NORFOLK	VA	216	B1	LIC	BLED	19980603KA	49021	229.0	211	18.0	
<b>1st Adjacent Channel</b>												
WVRI	CLIFTON FORGE	VA	215	B	LIC	BLED	20110228AAJ	177072	122.7	169	-46.3	
WMLU	FARMVILLE	VA	217	A	LIC	BLED	20000731AAN	4311	76.8	113	-36.2	
WTRM	WINCHESTER	VA	217	B	LIC	BLED	20051207ABI	67125	133.3	169	-35.7	
WWMC	LYNCHBURG	VA	215	A	APP	BSTA	20120302AAV	37248	91.8	113	-21.2	
WWMC	LYNCHBURG	VA	215	A	LIC	BLED	19930211KF	37248	93.1	113	-19.9	
WETA	WASHINGTON	DC	215	B	LIC	BMLED	20070511AAI	65669	154.8	169	-14.2	
WPAR	SALEM	VA	217	C3	LIC	BLED	19931015KB	53097	144.6	145	-0.4	
WCWM	WILLIAMSBURG	VA	215	B1	LIC	BLED	20041022ACN	65555	148.2	145	3.2	
WPEX	KENBRIDGE	VA	215	A	LIC	BLED	19940415KZ	59528	123.9	113	10.9	
WVST-FM	PETERSBURG	VA	217	A	LIC	BLED	19981104KB	70337	125.4	113	12.4	
<b>2nd &amp; 3rd Adjacent Channel</b>												
WARN	CULPEPER	VA	218	A	CP	BPED	20121031ABI	79157	55.2	69	-13.8	
WEMC	HARRISONBURG	VA	219	A	CP	BPED	20110211AAO	4308	64.5	69	-4.5	
WEMC	HARRISONBURG	VA	219	A	LIC	BLED	19940707KB	4308	64.5	69	-4.5	
WARN	CULPEPER	VA	218	A	LIC	BMLED	20000918AGH	79157	67.7	69	-1.3	
WMRA	HARRISONBURG	VA	214	B	LIC	BLED	19950105KE	65447	76.2	74	2.2	
WLUR	LEXINGTON	VA	218	A	LIC	BLED	20060309ACD	70943	87.6	69	18.6	
WEQP	PAMPLIN CITY	VA	213	A	CP	BPED	20100315ADO	176875	89.0	69	20.0	
WEQP	PAMPLIN CITY	VA	213	A	LIC	BLED	20100308AAO	176875	89.0	69	20.0	

All contour calculations were made using the methods and procedures described in 47 CFR §73.313(c).

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

## Exhibit 18a - Co-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: WTJU Power Inc\_Mar2013.fmj  
Master Database: 2013\_Mar\_11.fmd  
Lat: N37:59:08 Lon: W078:28:49 NAD-27  
Scale: 1:3000000  
Channel: 216 Class: B

rfInvestigator Version 3.5.25  
by rfSoftware, Inc.  
Date: 3/11/2013 05:27:13 PM

### PROPOSED

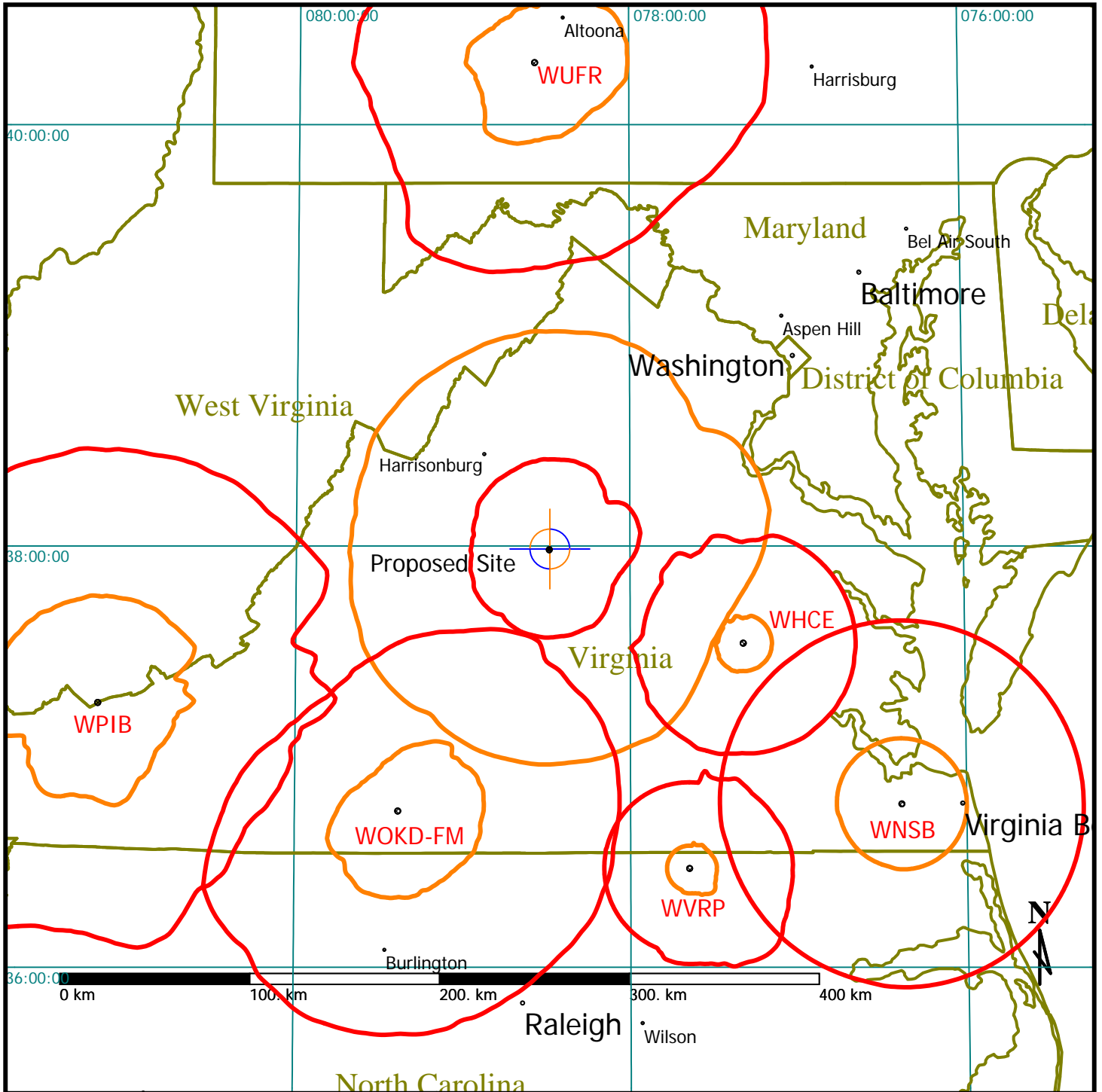
Protected: 60dBu F(50,50)

Interfering: 40dBu F(50,10)

### AFFECTED

Protected: 60dBu F(50,50)

Interfering: 40dBu F(50,10)



# EXHIBIT 18b

## FMOver Analysis -

### WTJU Proposed Minor Change vs. WOKD-FM, Danville, VA

03-11-2013 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WTJU Proposed Minor Change

WOKD-FM BLED20000331ABX

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Protected  
60 dBu

Channel = 216C2  
Max ERP = 18 kW  
RCAMSL = 353 M  
N. Lat. 36 44 30.0  
W. Lng. 79 23 07.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
165.0	006.6000	0302.7	046.5	044.3	018.0000	0132.2	131.2	36.36	
166.0	006.6000	0303.7	046.5	044.2	018.0000	0132.7	130.5	36.51	
167.0	006.6000	0303.8	046.5	044.0	018.0000	0133.4	129.8	36.67	
168.0	006.6000	0303.8	046.5	043.8	018.0000	0134.4	129.1	36.82	
169.0	006.6000	0303.9	046.5	043.6	018.0000	0135.6	128.4	36.98	
170.0	006.6000	0303.3	046.5	043.4	018.0000	0137.0	127.8	37.14	
171.0	006.6000	0302.3	046.4	043.1	018.0000	0138.7	127.2	37.30	
172.0	006.6000	0301.5	046.4	042.9	018.0000	0140.5	126.6	37.47	
173.0	006.6000	0301.1	046.4	042.7	018.0000	0142.4	126.0	37.63	
174.0	006.6000	0300.8	046.4	042.4	018.0000	0144.3	125.4	37.80	
175.0	006.6000	0301.2	046.4	042.2	018.0000	0146.2	124.8	37.97	
176.0	006.6000	0302.1	046.4	042.0	018.0000	0148.1	124.1	38.14	
177.0	006.6000	0303.0	046.5	041.7	018.0000	0150.0	123.5	38.31	
178.0	006.6000	0303.8	046.5	041.5	018.0000	0151.8	122.9	38.48	
179.0	006.6000	0304.6	046.6	041.2	018.0000	0153.6	122.3	38.64	
180.0	006.6000	0305.3	046.6	040.9	018.0000	0155.3	121.7	38.79	
181.0	006.6000	0306.0	046.7	040.7	018.0000	0156.9	121.2	38.95	
182.0	006.6000	0306.6	046.7	040.4	018.0000	0158.5	120.6	39.10	
183.0	006.6000	0306.9	046.7	040.1	018.0000	0160.0	120.1	39.24	
184.0	006.6000	0306.7	046.7	039.8	017.8793	0161.3	119.6	39.34	
185.0	006.6000	0305.8	046.7	039.4	017.7068	0162.6	119.2	39.42	
186.0	006.6000	0304.8	046.6	039.1	017.5321	0163.7	118.8	39.48	
187.0	006.6000	0303.9	046.5	038.8	017.3564	0164.6	118.4	39.54	
188.0	006.6000	0303.0	046.5	038.4	017.1790	0165.3	118.0	39.59	
189.0	006.6000	0301.9	046.4	038.1	016.9983	0165.8	117.7	39.63	
190.0	006.6000	0300.9	046.4	037.7	016.8173	0166.3	117.3	39.66	
191.0	006.6000	0300.3	046.3	037.3	016.6375	0166.5	117.0	39.69	
192.0	006.6000	0299.7	046.3	037.0	016.4567	0166.5	116.7	39.70	
193.0	006.6000	0299.4	046.3	036.6	016.2763	0166.5	116.4	39.72	
194.0	006.6000	0299.4	046.3	036.3	016.0966	0166.3	116.0	39.73	
195.0	006.6000	0299.4	046.3	035.9	015.9157	0166.1	115.7	39.73	
196.0	006.6000	0298.9	046.2	035.5	015.7307	0165.9	115.5	39.72	
197.0	006.6000	0298.2	046.2	035.1	015.5446	0165.6	115.3	39.71	
198.0	006.6000	0297.3	046.1	034.7	015.3571	0165.4	115.1	39.68	
199.0	006.6000	0296.3	046.1	034.3	015.1692	0165.3	114.9	39.66	
200.0	006.6000	0295.0	046.0	033.9	014.9803	0165.1	114.8	39.63	
201.0	006.6000	0293.2	045.9	033.5	014.7904	0165.1	114.7	39.59	

**BROWN BROADCAST SERVICES**  
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Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
202.0	006.6000	0291.0	045.7	033.1	014.6001	0165.2	114.7	39.54	
203.0	006.6000	0288.5	045.6	032.7	014.4110	0165.2	114.7	39.48	
204.0	006.6000	0286.1	045.4	032.3	014.2239	0165.2	114.7	39.42	
205.0	006.6000	0284.0	045.3	031.9	014.0394	0165.3	114.7	39.36	
206.0	006.6000	0282.1	045.2	031.5	013.8572	0165.3	114.7	39.30	
207.0	006.6000	0280.0	045.0	031.2	013.6768	0165.3	114.8	39.23	
208.0	006.6000	0277.6	044.9	030.8	013.4982	0165.3	114.9	39.15	
209.0	006.6000	0275.0	044.7	030.4	013.3221	0165.3	115.0	39.07	
210.0	006.6000	0272.2	044.5	030.0	013.1468	0165.2	115.2	38.98	
211.0	006.6000	0269.3	044.3	029.6	012.9413	0165.2	115.4	38.87	
212.0	006.6000	0265.6	044.1	029.2	012.7405	0165.1	115.7	38.75	
213.0	006.6000	0260.4	043.8	028.8	012.5458	0165.0	116.0	38.61	
214.0	006.6000	0254.2	043.4	028.5	012.3585	0164.9	116.5	38.45	
215.0	006.6000	0248.5	043.0	028.1	012.1771	0164.7	116.9	38.29	
216.0	006.6000	0246.3	042.9	027.8	011.9943	0164.5	117.2	38.18	
217.0	006.6000	0249.1	043.0	027.4	011.8033	0164.2	117.1	38.11	
218.0	006.6000	0255.1	043.4	027.0	011.6035	0163.8	116.8	38.07	
219.0	006.6000	0261.7	043.9	026.6	011.4000	0163.3	116.6	38.03	
220.0	006.6000	0267.1	044.2	026.2	011.1990	0162.8	116.4	37.97	
221.0	006.6000	0271.1	044.5	025.8	011.0022	0162.3	116.3	37.89	
222.0	006.6000	0273.8	044.6	025.4	010.8115	0161.8	116.4	37.79	
223.0	006.6000	0275.7	044.8	025.0	010.6255	0161.3	116.5	37.68	
224.0	006.6000	0277.1	044.8	024.7	010.4445	0161.0	116.7	37.57	
225.0	006.6000	0278.3	044.9	024.3	010.2666	0160.7	116.9	37.45	
226.0	006.6000	0279.2	045.0	023.9	010.0925	0160.4	117.1	37.32	
227.0	006.6000	0280.3	045.0	023.6	009.9208	0160.2	117.3	37.19	
228.0	006.6000	0281.2	045.1	023.2	009.7527	0160.1	117.6	37.06	
229.0	006.6000	0282.3	045.2	022.8	009.5869	0159.9	117.9	36.93	
230.0	006.6000	0283.1	045.2	022.5	009.4257	0159.8	118.2	36.80	
231.0	006.6000	0283.5	045.3	022.2	009.2701	0159.7	118.5	36.65	
232.0	006.6000	0283.3	045.2	021.8	009.1224	0159.5	118.9	36.51	
233.0	006.6000	0282.7	045.2	021.5	008.9813	0159.4	119.3	36.35	
234.0	006.6000	0282.8	045.2	021.2	008.8386	0159.3	119.7	36.20	
235.0	006.6000	0283.2	045.2	020.9	008.6977	0159.2	120.2	36.05	
236.0	006.6000	0283.0	045.2	020.6	008.5650	0159.0	120.6	35.89	
237.0	006.6000	0282.1	045.2	020.3	008.4408	0158.8	121.1	35.72	
238.0	006.6000	0281.5	045.1	020.0	008.3204	0158.6	121.6	35.56	
239.0	006.6000	0281.6	045.1	019.7	008.2495	0158.3	122.1	35.42	
240.0	006.6000	0281.6	045.1	019.4	008.1806	0158.0	122.6	35.28	
241.0	006.6000	0281.4	045.1	019.1	008.1149	0157.7	123.1	35.14	
242.0	006.6000	0280.2	045.0	018.9	008.0556	0157.4	123.7	34.98	
243.0	006.6000	0278.2	044.9	018.7	008.0019	0157.1	124.4	34.83	
244.0	006.6000	0274.7	044.7	018.5	007.9578	0156.9	125.1	34.66	
245.0	006.6000	0269.9	044.4	018.3	007.9228	0156.7	125.8	34.49	
246.0	006.6000	0264.5	044.0	018.2	007.8930	0156.6	126.6	34.32	
247.0	006.6000	0260.3	043.8	018.1	007.8596	0156.4	127.4	34.15	
248.0	006.6000	0257.4	043.6	017.9	007.8216	0156.2	128.1	33.99	
249.0	006.6000	0255.7	043.5	017.7	007.7791	0156.0	128.7	33.84	
250.0	006.6000	0254.6	043.4	017.6	007.7355	0155.9	129.4	33.69	
251.0	006.6000	0253.6	043.3	017.4	007.6933	0155.7	130.0	33.54	
252.0	006.6000	0252.5	043.3	017.2	007.6534	0155.7	130.7	33.39	
253.0	006.6000	0252.8	043.3	017.0	007.6075	0155.6	131.3	33.24	
254.0	006.6000	0253.2	043.3	016.8	007.5627	0155.5	131.9	33.09	

**BROWN BROADCAST SERVICES**  
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# Page 3 of 4

03-11-2013

Terrain Data: FCC NGDC 30 Sec

FMOVER Analysis

WOKD-FM BLED20000331ABX

WTJU Proposed Minor Change

Channel = 216C2  
Max ERP = 18 kW  
RCAMSL = 353 M  
N. Lat. 36 44 30.0  
W. Lng. 79 23 07.0  
Protected  
60 dBu

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
345.0	002.3328	0141.5	026.6	217.9	006.6000	0254.5	142.1	32.82	
346.0	002.4376	0141.0	026.8	217.9	006.6000	0254.2	141.6	32.91	
347.0	002.5448	0141.0	027.1	217.8	006.6000	0253.9	141.0	33.01	
348.0	002.6542	0140.2	027.3	217.8	006.6000	0253.4	140.5	33.09	
349.0	002.7660	0139.2	027.4	217.7	006.6000	0252.9	140.1	33.18	
350.0	002.8800	0137.6	027.5	217.6	006.6000	0252.3	139.6	33.25	
351.0	003.0258	0135.6	027.7	217.5	006.6000	0251.7	139.2	33.32	
352.0	003.1752	0134.0	027.8	217.4	006.6000	0251.1	138.7	33.40	
353.0	003.3282	0134.1	028.1	217.3	006.6000	0250.7	138.2	33.50	
354.0	003.4848	0135.6	028.6	217.3	006.6000	0250.6	137.5	33.62	
355.0	003.6450	0137.2	029.0	217.3	006.6000	0250.4	136.9	33.75	
356.0	003.8088	0138.1	029.4	217.2	006.6000	0250.1	136.3	33.86	
357.0	003.9762	0138.8	029.7	217.1	006.6000	0249.7	135.6	33.97	
358.0	004.1472	0139.7	030.1	217.1	006.6000	0249.4	135.0	34.09	
359.0	004.3218	0140.6	030.5	217.0	006.6000	0249.0	134.4	34.20	
000.0	004.5000	0141.6	030.9	216.9	006.6000	0248.6	133.8	34.32	
001.0	004.6452	0142.9	031.3	216.8	006.6000	0248.2	133.1	34.43	
002.0	004.7926	0145.2	031.7	216.7	006.6000	0247.9	132.4	34.57	
003.0	004.9424	0147.4	032.2	216.6	006.6000	0247.6	131.7	34.70	
004.0	005.0944	0148.8	032.6	216.5	006.6000	0247.2	131.1	34.82	
005.0	005.2488	0149.1	032.9	216.4	006.6000	0246.8	130.5	34.92	
006.0	005.4055	0149.1	033.1	216.2	006.6000	0246.5	130.0	35.01	
007.0	005.5644	0149.9	033.5	216.1	006.6000	0246.4	129.5	35.12	
008.0	005.7257	0150.8	033.8	215.9	006.6000	0246.4	128.9	35.23	
009.0	005.8893	0151.4	034.1	215.7	006.6000	0246.5	128.3	35.34	
010.0	006.0552	0152.3	034.4	215.5	006.6000	0246.8	127.8	35.45	
011.0	006.2658	0153.3	034.8	215.4	006.6000	0247.2	127.2	35.58	
012.0	006.4800	0154.5	035.2	215.2	006.6000	0247.8	126.6	35.72	
013.0	006.6978	0155.3	035.6	215.0	006.6000	0248.5	126.0	35.85	
014.0	006.9192	0155.4	035.9	214.8	006.6000	0249.5	125.5	35.97	
015.0	007.1442	0155.4	036.1	214.5	006.6000	0250.8	125.0	36.09	
016.0	007.3728	0155.4	036.4	214.3	006.6000	0252.3	124.6	36.22	
017.0	007.6050	0155.6	036.7	214.1	006.6000	0253.9	124.1	36.35	
018.0	007.8408	0156.3	037.0	213.8	006.6000	0255.4	123.6	36.49	
019.0	008.0802	0157.5	037.4	213.6	006.6000	0257.0	123.1	36.64	
020.0	008.3232	0158.6	037.7	213.3	006.6000	0258.6	122.6	36.78	
021.0	008.7571	0159.3	038.2	213.0	006.6000	0260.1	122.0	36.95	
022.0	009.2021	0159.6	038.7	212.8	006.6000	0261.7	121.4	37.11	
023.0	009.6580	0160.0	039.1	212.5	006.6000	0263.2	120.8	37.26	
024.0	010.1250	0160.5	039.6	212.2	006.6000	0264.6	120.3	37.42	
025.0	010.6030	0161.3	040.1	211.9	006.6000	0266.0	119.7	37.57	
026.0	011.0921	0162.5	040.6	211.6	006.6000	0267.3	119.1	37.73	
027.0	011.5921	0163.8	041.1	211.3	006.6000	0268.5	118.6	37.88	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065



Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
028.0	012.1032	0164.7	041.5	210.9	006.6000	0269.5	118.0	38.02	
029.0	012.6253	0165.1	041.9	210.6	006.6000	0270.6	117.6	38.14	
030.0	013.1585	0165.2	042.3	210.2	006.6000	0271.6	117.2	38.25	
031.0	013.6085	0165.3	042.6	209.9	006.6000	0272.6	117.0	38.34	
032.0	014.0662	0165.3	042.9	209.5	006.6000	0273.7	116.7	38.43	
033.0	014.5314	0165.2	043.2	209.1	006.6000	0274.7	116.5	38.50	
034.0	015.0042	0165.1	043.4	208.7	006.6000	0275.7	116.3	38.58	
035.0	015.4846	0165.5	043.7	208.3	006.6000	0276.8	116.0	38.66	
036.0	015.9726	0166.2	044.1	207.9	006.6000	0277.8	115.8	38.74	
037.0	016.4681	0166.5	044.4	207.5	006.6000	0278.8	115.6	38.81	
038.0	016.9711	0165.9	044.6	207.1	006.6000	0279.7	115.6	38.84	
039.0	017.4818	0164.0	044.6	206.8	006.6000	0280.6	115.7	38.83	
040.0	018.0000	0160.4	044.4	206.4	006.6000	0281.3	116.0	38.77	
041.0	018.0000	0154.9	043.8	206.1	006.6000	0281.9	116.9	38.60	
042.0	018.0000	0147.7	042.9	205.9	006.6000	0282.3	118.0	38.36	
043.0	018.0000	0139.7	041.8	205.7	006.6000	0282.7	119.1	38.11	
044.0	018.0000	0133.4	041.0	205.5	006.6000	0283.1	120.1	37.90	
045.0	018.0000	0131.1	040.7	205.2	006.6000	0283.6	120.7	37.80	
046.0	018.0000	0132.5	040.9	204.9	006.6000	0284.3	120.7	37.80	
047.0	018.0000	0135.7	041.3	204.5	006.6000	0285.1	120.6	37.84	
048.0	018.0000	0138.9	041.7	204.1	006.6000	0285.9	120.5	37.89	
049.0	018.0000	0141.1	042.0	203.7	006.6000	0286.8	120.6	37.90	
050.0	018.0000	0141.9	042.1	203.4	006.6000	0287.6	120.8	37.87	
051.0	018.0000	0141.8	042.1	203.1	006.6000	0288.4	121.2	37.81	
052.0	018.0000	0141.6	042.1	202.8	006.6000	0289.1	121.5	37.75	
053.0	018.0000	0141.8	042.1	202.5	006.6000	0289.9	121.9	37.69	
054.0	018.0000	0142.5	042.2	202.1	006.6000	0290.7	122.2	37.65	
055.0	018.0000	0143.9	042.4	201.8	006.6000	0291.5	122.4	37.61	
056.0	018.0000	0146.1	042.7	201.4	006.6000	0292.3	122.6	37.59	
057.0	018.0000	0149.3	043.1	201.0	006.6000	0293.1	122.7	37.59	
058.0	018.0000	0153.0	043.5	200.6	006.6000	0293.9	122.8	37.60	
059.0	018.0000	0156.4	044.0	200.2	006.6000	0294.7	122.9	37.58	
060.0	018.0000	0159.0	044.3	199.9	006.6000	0295.2	123.2	37.54	
061.0	018.0000	0160.7	044.5	199.5	006.6000	0295.7	123.5	37.48	
062.0	018.0000	0162.4	044.7	199.2	006.6000	0296.1	123.9	37.41	
063.0	018.0000	0164.5	044.9	198.9	006.6000	0296.5	124.3	37.34	
064.0	018.0000	0166.9	045.2	198.5	006.6000	0296.8	124.6	37.28	
065.0	018.0000	0169.0	045.4	198.2	006.6000	0297.1	125.1	37.20	
066.0	018.0000	0170.5	045.6	197.9	006.6000	0297.4	125.5	37.10	
067.0	018.0000	0171.4	045.7	197.6	006.6000	0297.6	126.1	36.99	
068.0	018.0000	0171.4	045.7	197.4	006.6000	0297.9	126.7	36.87	
069.0	018.0000	0170.8	045.6	197.2	006.6000	0298.0	127.4	36.73	
070.0	018.0000	0170.2	045.6	197.0	006.6000	0298.2	128.0	36.60	
071.0	018.0000	0170.7	045.6	196.8	006.6000	0298.4	128.6	36.47	
072.0	018.0000	0172.5	045.8	196.5	006.6000	0298.6	129.2	36.36	
073.0	018.0000	0174.8	046.0	196.2	006.6000	0298.7	129.7	36.25	
074.0	018.0000	0176.9	046.2	196.0	006.6000	0298.9	130.3	36.13	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

# EXHIBIT 18c

## FMOver Analysis -

### WTJU Proposed Minor Change vs. WHCE, Highland Springs, VA

03-11-2013 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WTJU Proposed Minor Change

WHCE BMLED20070914AAN

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Protected  
60 dBu

Channel = 216A  
Max ERP = 3 kW  
RCAMSL = 70 M  
N. Lat. 37 32 18.0  
W. Lng. 77 19 27.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
071.0	006.6000	0329.9	048.2	319.6	003.0000	0037.6	086.2	34.00	
072.0	006.6000	0330.4	048.2	319.4	003.0000	0037.5	085.4	34.17	
073.0	006.6000	0330.7	048.2	319.2	003.0000	0037.4	084.6	34.34	
074.0	006.6000	0330.9	048.3	319.0	003.0000	0037.2	083.8	34.49	
075.0	006.6000	0331.3	048.3	318.7	003.0000	0037.1	083.1	34.65	
076.0	006.6000	0331.9	048.3	318.5	003.0000	0037.0	082.3	34.81	
077.0	006.6000	0332.7	048.4	318.2	003.0000	0036.8	081.6	34.97	
078.0	006.6000	0333.2	048.4	317.9	003.0000	0036.7	080.8	35.11	
079.0	006.6000	0333.3	048.4	317.6	003.0000	0036.5	080.1	35.26	
080.0	006.6000	0333.1	048.4	317.3	003.0000	0036.4	079.4	35.40	
081.0	006.4178	0332.5	048.1	316.8	003.0000	0036.2	078.8	35.49	
082.0	006.2381	0331.8	047.8	316.2	003.0000	0036.0	078.3	35.59	
083.0	006.0610	0331.7	047.5	315.7	003.0000	0035.9	077.8	35.68	
084.0	005.8865	0331.8	047.3	315.2	003.0000	0035.8	077.4	35.77	
085.0	005.7145	0332.0	047.0	314.6	003.0000	0035.7	076.9	35.86	
086.0	005.5450	0332.5	046.8	314.1	003.0000	0035.7	076.4	35.95	
087.0	005.3781	0333.3	046.6	313.6	003.0000	0035.7	076.0	36.03	
088.0	005.2138	0333.8	046.3	313.0	003.0000	0035.6	075.6	36.11	
089.0	005.0520	0334.3	046.1	312.4	003.0000	0035.5	075.2	36.18	
090.0	004.8927	0334.9	045.8	311.8	003.0000	0035.4	074.9	36.24	
091.0	004.6981	0335.5	045.5	311.2	003.0000	0035.1	074.6	36.27	
092.0	004.5074	0336.3	045.2	310.6	003.0000	0034.6	074.3	36.28	
093.0	004.3206	0336.5	044.8	309.9	003.0000	0034.1	074.2	36.28	
094.0	004.1379	0336.8	044.5	309.3	003.0000	0033.4	074.0	36.25	
095.0	003.9590	0336.9	044.1	308.6	003.0000	0032.6	073.9	36.21	
096.0	003.7841	0336.5	043.7	308.0	003.0000	0031.8	073.8	36.16	
097.0	003.6132	0336.4	043.3	307.3	003.0000	0031.0	073.7	36.09	
098.0	003.4462	0336.5	042.9	306.6	003.0000	0030.0	073.7	36.02	
099.0	003.2832	0336.6	042.5	306.0	003.0000	0028.9	073.7	36.02	
100.0	003.1241	0336.7	042.1	305.3	003.0000	0027.9	073.8	36.01	
101.0	003.0000	0337.1	041.8	304.7	003.0000	0026.8	073.8	36.01	
102.0	002.8784	0336.5	041.5	304.1	003.0000	0025.8	073.8	36.00	
103.0	002.7594	0336.1	041.1	303.5	003.0000	0024.9	073.9	35.98	
104.0	002.6429	0336.1	040.8	302.8	003.0000	0024.3	074.0	35.97	
105.0	002.5289	0336.8	040.4	302.2	003.0000	0023.8	074.1	35.95	
106.0	002.4174	0338.7	040.2	301.7	003.0000	0023.5	074.1	35.94	
107.0	002.3084	0341.1	039.9	301.1	003.0000	0023.4	074.2	35.93	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
108.0	002.2019	0343.1	039.7	300.5	003.0000	0023.3	074.3	35.91	
109.0	002.0979	0344.6	039.4	300.0	003.0000	0023.3	074.5	35.88	
110.0	001.9965	0345.0	039.0	299.4	003.0000	0023.3	074.7	35.83	
111.0	002.0009	0344.1	039.0	298.9	003.0000	0023.3	074.7	35.85	
112.0	002.0052	0342.3	038.9	298.3	003.0000	0023.4	074.7	35.84	
113.0	002.0096	0339.6	038.8	297.8	003.0000	0023.4	074.7	35.83	
114.0	002.0140	0337.2	038.7	297.3	003.0000	0023.5	074.8	35.82	
115.0	002.0183	0335.4	038.6	296.8	003.0000	0023.6	074.8	35.81	
116.0	002.0227	0334.3	038.5	296.3	003.0000	0023.7	074.9	35.80	
117.0	002.0271	0333.7	038.5	295.7	003.0000	0023.8	074.9	35.80	
118.0	002.0315	0332.9	038.5	295.2	003.0000	0023.9	075.0	35.79	
119.0	002.0359	0331.6	038.4	294.7	003.0000	0024.1	075.1	35.77	
120.0	002.0403	0329.6	038.3	294.2	003.0000	0024.3	075.2	35.74	
121.0	002.1443	0327.2	038.6	293.7	003.0000	0024.5	075.0	35.77	
122.0	002.2510	0325.1	038.9	293.1	003.0000	0024.8	074.9	35.80	
123.0	002.3602	0323.6	039.2	292.6	003.0000	0025.0	074.7	35.83	
124.0	002.4720	0322.6	039.5	292.0	003.0000	0025.2	074.6	35.86	
125.0	002.5864	0321.6	039.8	291.4	003.0000	0025.4	074.4	35.89	
126.0	002.7034	0320.2	040.1	290.9	003.0000	0025.6	074.3	35.90	
127.0	002.8229	0318.5	040.3	290.3	003.0000	0025.8	074.3	35.91	
128.0	002.9451	0316.6	040.5	289.7	003.0000	0026.0	074.3	35.91	
129.0	003.0698	0315.2	040.8	289.1	003.0000	0026.3	074.3	35.91	
130.0	003.1971	0314.3	041.1	288.5	003.0000	0026.5	074.3	35.91	
131.0	003.3599	0313.3	041.4	287.9	003.0000	0026.8	074.3	35.92	
132.0	003.5268	0312.1	041.7	287.3	003.0000	0027.1	074.3	35.92	
133.0	003.6977	0310.9	042.1	286.7	003.0000	0027.4	074.3	35.91	
134.0	003.8726	0310.0	042.4	286.1	003.0000	0027.6	074.4	35.90	
135.0	004.0516	0309.3	042.7	285.4	003.0000	0027.8	074.4	35.88	
136.0	004.2346	0308.9	043.1	284.8	003.0000	0028.0	074.5	35.87	
137.0	004.4216	0308.8	043.4	284.2	003.0000	0028.1	074.6	35.85	
138.0	004.6127	0308.6	043.8	283.5	003.0000	0028.2	074.8	35.82	
139.0	004.8079	0308.0	044.1	282.9	003.0000	0028.2	075.0	35.79	
140.0	005.0070	0307.0	044.3	282.3	003.0000	0028.2	075.2	35.74	
141.0	005.1564	0306.2	044.5	281.8	003.0000	0028.2	075.6	35.68	
142.0	005.3081	0306.2	044.8	281.2	003.0000	0028.3	075.9	35.62	
143.0	005.4619	0306.3	045.0	280.6	003.0000	0028.5	076.2	35.56	
144.0	005.6179	0306.2	045.3	280.1	003.0000	0028.6	076.6	35.49	
145.0	005.7761	0305.9	045.5	279.5	003.0000	0028.7	077.0	35.41	
146.0	005.9365	0305.7	045.7	279.0	003.0000	0028.8	077.4	35.33	
147.0	006.0990	0305.3	045.9	278.5	003.0000	0028.9	077.9	35.24	
148.0	006.2638	0304.4	046.1	278.0	003.0000	0029.0	078.4	35.15	
149.0	006.4308	0303.6	046.3	277.5	003.0000	0029.2	078.9	35.05	
150.0	006.6000	0303.2	046.5	277.1	003.0000	0029.4	079.4	34.95	
151.0	006.6000	0303.0	046.5	276.7	003.0000	0029.5	080.1	34.81	
152.0	006.6000	0301.7	046.4	276.5	003.0000	0029.6	080.8	34.67	
153.0	006.6000	0299.3	046.3	276.2	003.0000	0029.6	081.6	34.52	
154.0	006.6000	0297.0	046.1	276.0	003.0000	0029.7	082.3	34.36	
155.0	006.6000	0295.5	046.0	275.8	003.0000	0029.8	083.1	34.21	
156.0	006.6000	0294.8	046.0	275.5	003.0000	0029.9	083.8	34.07	
157.0	006.6000	0294.6	046.0	275.3	003.0000	0030.0	084.5	33.92	
158.0	006.6000	0295.0	046.0	275.0	003.0000	0030.1	085.2	33.78	
159.0	006.6000	0295.9	046.0	274.8	003.0000	0030.3	085.9	33.65	
160.0	006.6000	0297.0	046.1	274.5	003.0000	0030.5	086.6	33.52	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

# Page 3 of 4

03-11-2013

Terrain Data: FCC NGDC 30 Sec

FMOVER Analysis

WHCE BMLD20070914AAN

WTJU Proposed Minor Change

Channel = 216A  
Max ERP = 3 kW  
RCAMSL = 70 M  
N. Lat. 37 32 18.0  
W. Lng. 77 19 27.0  
Protected  
60 dBu

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Interfering  
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
251.0	003.0000	0035.7	014.3	121.4	002.1823	0326.4	103.7	38.66	
252.0	003.0000	0035.8	014.3	121.3	002.1737	0326.6	103.5	38.71	
253.0	003.0000	0036.0	014.3	121.2	002.1656	0326.8	103.3	38.76	
254.0	003.0000	0036.1	014.4	121.1	002.1564	0327.0	103.1	38.81	
255.0	003.0000	0035.9	014.3	121.0	002.1448	0327.2	103.0	38.85	
256.0	003.0000	0035.6	014.3	120.9	002.1323	0327.5	102.8	38.87	
257.0	003.0000	0035.3	014.2	120.8	002.1197	0327.8	102.7	38.90	
258.0	003.0000	0035.1	014.2	120.7	002.1077	0328.1	102.5	38.93	
259.0	003.0000	0035.2	014.2	120.6	002.0978	0328.3	102.4	38.97	
260.0	003.0000	0035.5	014.2	120.5	002.0890	0328.5	102.2	39.02	
261.0	003.0000	0035.7	014.3	120.4	002.0798	0328.7	102.0	39.07	
262.0	003.0000	0035.9	014.3	120.3	002.0700	0328.9	101.8	39.12	
263.0	003.0000	0036.1	014.4	120.2	002.0595	0329.2	101.6	39.16	
264.0	003.0000	0036.1	014.3	120.1	002.0477	0329.4	101.4	39.19	
265.0	003.0000	0036.8	014.5	120.0	002.0405	0329.6	101.2	39.26	
266.0	003.0000	0038.0	014.7	120.0	002.0401	0329.7	100.8	39.36	
267.0	003.0000	0039.2	015.0	119.9	002.0399	0329.8	100.5	39.47	
268.0	003.0000	0039.4	015.0	119.8	002.0394	0330.1	100.3	39.54	
269.0	003.0000	0037.7	014.7	119.6	002.0384	0330.6	100.5	39.50	
270.0	003.0000	0035.9	014.3	119.3	002.0374	0331.0	100.6	39.46	
271.0	003.0000	0034.1	014.0	119.1	002.0365	0331.4	100.8	39.42	
272.0	003.0000	0032.4	013.7	118.9	002.0356	0331.7	101.0	39.38	
273.0	003.0000	0031.6	013.5	118.8	002.0349	0332.0	101.0	39.38	
274.0	003.0000	0030.9	013.4	118.6	002.0342	0332.2	101.0	39.38	
275.0	003.0000	0030.1	013.2	118.5	002.0335	0332.4	101.1	39.38	
276.0	003.0000	0029.7	013.2	118.3	002.0330	0332.6	101.0	39.40	
277.0	003.0000	0029.4	013.2	118.2	002.0324	0332.7	100.9	39.43	
278.0	003.0000	0029.0	013.2	118.1	002.0319	0332.8	100.8	39.46	
279.0	003.0000	0028.8	013.2	118.0	002.0314	0333.0	100.7	39.49	
280.0	003.0000	0028.6	013.2	117.8	002.0308	0333.1	100.7	39.52	
281.0	003.0000	0028.4	013.2	117.7	002.0303	0333.2	100.6	39.54	
282.0	003.0000	0028.2	013.2	117.6	002.0297	0333.3	100.5	39.56	
283.0	003.0000	0028.2	013.2	117.5	002.0292	0333.4	100.5	39.58	
284.0	003.0000	0028.1	013.2	117.3	002.0286	0333.5	100.4	39.60	
285.0	003.0000	0027.9	013.2	117.2	002.0280	0333.6	100.4	39.62	
286.0	003.0000	0027.6	013.2	117.1	002.0275	0333.7	100.3	39.64	
287.0	003.0000	0027.2	013.2	117.0	002.0269	0333.8	100.3	39.65	
288.0	003.0000	0026.8	013.2	116.8	002.0263	0333.8	100.2	39.67	
289.0	003.0000	0026.3	013.2	116.7	002.0257	0333.9	100.2	39.68	
290.0	003.0000	0025.9	013.2	116.6	002.0252	0334.0	100.2	39.69	
291.0	003.0000	0025.5	013.2	116.4	002.0246	0334.1	100.1	39.70	
292.0	003.0000	0025.2	013.2	116.3	002.0240	0334.1	100.1	39.71	
293.0	003.0000	0024.8	013.2	116.2	002.0234	0334.2	100.1	39.71	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
294.0	003.0000	0024.4	013.2	116.0	002.0229	0334.3	100.1	39.72	
295.0	003.0000	0024.0	013.2	115.9	002.0223	0334.4	100.1	39.72	
296.0	003.0000	0023.7	013.2	115.8	002.0217	0334.5	100.1	39.73	
297.0	003.0000	0023.5	013.2	115.6	002.0211	0334.6	100.1	39.73	
298.0	003.0000	0023.4	013.2	115.5	002.0205	0334.7	100.1	39.73	
299.0	003.0000	0023.3	013.2	115.4	002.0200	0334.9	100.1	39.73	
300.0	003.0000	0023.3	013.2	115.2	002.0194	0335.1	100.1	39.73	
301.0	003.0000	0023.3	013.2	115.1	002.0188	0335.2	100.1	39.73	
302.0	003.0000	0023.7	013.2	115.0	002.0182	0335.4	100.1	39.72	
303.0	003.0000	0024.4	013.2	114.8	002.0176	0335.6	100.2	39.72	
304.0	003.0000	0025.6	013.2	114.7	002.0171	0335.8	100.2	39.72	
305.0	003.0000	0027.3	013.2	114.6	002.0165	0336.0	100.2	39.71	
306.0	003.0000	0029.0	013.2	114.4	002.0159	0336.3	100.3	39.71	
307.0	003.0000	0030.5	013.3	114.3	002.0153	0336.5	100.2	39.73	
308.0	003.0000	0031.9	013.6	114.1	002.0146	0336.8	100.1	39.79	
309.0	003.0000	0033.0	013.8	114.0	002.0139	0337.2	099.9	39.85	
310.0	003.0000	0034.1	014.0	113.8	002.0132	0337.6	099.8	39.90	
311.0	003.0000	0034.9	014.1	113.7	002.0125	0337.9	099.7	39.93	
312.0	003.0000	0035.4	014.2	113.5	002.0118	0338.3	099.7	39.95	
313.0	003.0000	0035.6	014.3	113.4	002.0112	0338.6	099.7	39.95	
314.0	003.0000	0035.7	014.3	113.2	002.0106	0339.0	099.8	39.94	
315.0	003.0000	0035.8	014.3	113.1	002.0100	0339.3	099.9	39.92	
316.0	003.0000	0035.9	014.3	112.9	002.0094	0339.7	099.9	39.92	
317.0	003.0000	0036.3	014.4	112.8	002.0087	0340.1	100.0	39.92	
318.0	003.0000	0036.7	014.5	112.6	002.0081	0340.5	100.0	39.92	
319.0	003.0000	0037.3	014.6	112.5	002.0074	0340.9	100.0	39.93	
320.0	003.0000	0037.8	014.7	112.3	002.0067	0341.4	100.0	39.94	
321.0	003.0000	0038.2	014.8	112.2	002.0060	0341.8	100.1	39.94	
322.0	003.0000	0038.4	014.8	112.0	002.0054	0342.2	100.2	39.92	
323.0	003.0000	0038.4	014.8	111.9	002.0048	0342.5	100.3	39.89	
324.0	003.0000	0038.1	014.7	111.8	002.0044	0342.7	100.5	39.84	
325.0	003.0000	0037.2	014.6	111.7	002.0041	0342.9	100.8	39.76	
326.0	003.0000	0035.6	014.3	111.7	002.0039	0342.9	101.2	39.65	
327.0	003.0000	0033.6	013.9	111.7	002.0040	0342.9	101.6	39.52	
328.0	003.0000	0031.5	013.5	111.7	002.0040	0342.9	102.1	39.38	
329.0	003.0000	0029.8	013.2	111.7	002.0040	0342.9	102.4	39.28	
330.0	003.0000	0028.7	013.2	111.6	002.0035	0343.1	102.6	39.24	
331.0	003.0000	0028.2	013.2	111.5	002.0031	0343.3	102.7	39.20	
332.0	003.0000	0028.2	013.2	111.4	002.0026	0343.5	102.9	39.17	
333.0	003.0000	0028.6	013.2	111.3	002.0022	0343.6	103.0	39.13	
334.0	003.0000	0029.2	013.2	111.2	002.0018	0343.8	103.2	39.09	
335.0	003.0000	0029.9	013.2	111.1	002.0014	0343.9	103.3	39.05	
336.0	003.0000	0030.6	013.3	111.0	002.0008	0344.1	103.4	39.03	
337.0	003.0000	0031.4	013.5	110.8	002.0001	0344.3	103.5	39.02	
338.0	003.0000	0032.3	013.6	110.7	001.9995	0344.5	103.5	39.00	
339.0	003.0000	0033.2	013.8	110.5	001.9988	0344.6	103.6	38.99	
340.0	003.0000	0034.0	014.0	110.4	001.9981	0344.8	103.7	38.97	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

## Exhibit 18d - 1st-Adjacent-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: WTJU Power Inc\_Mar2013.fmj  
Master Database: 2013\_Mar\_11.fmd  
Lat: N37:59:08 Lon: W078:28:49 NAD-27  
Scale: 1:1500000  
Channel: 216 Class: B

rfInvestigator Version 3.5.25  
by rfSoftware, Inc.  
Date: 3/11/2013 05:31:11 PM

### PROPOSED

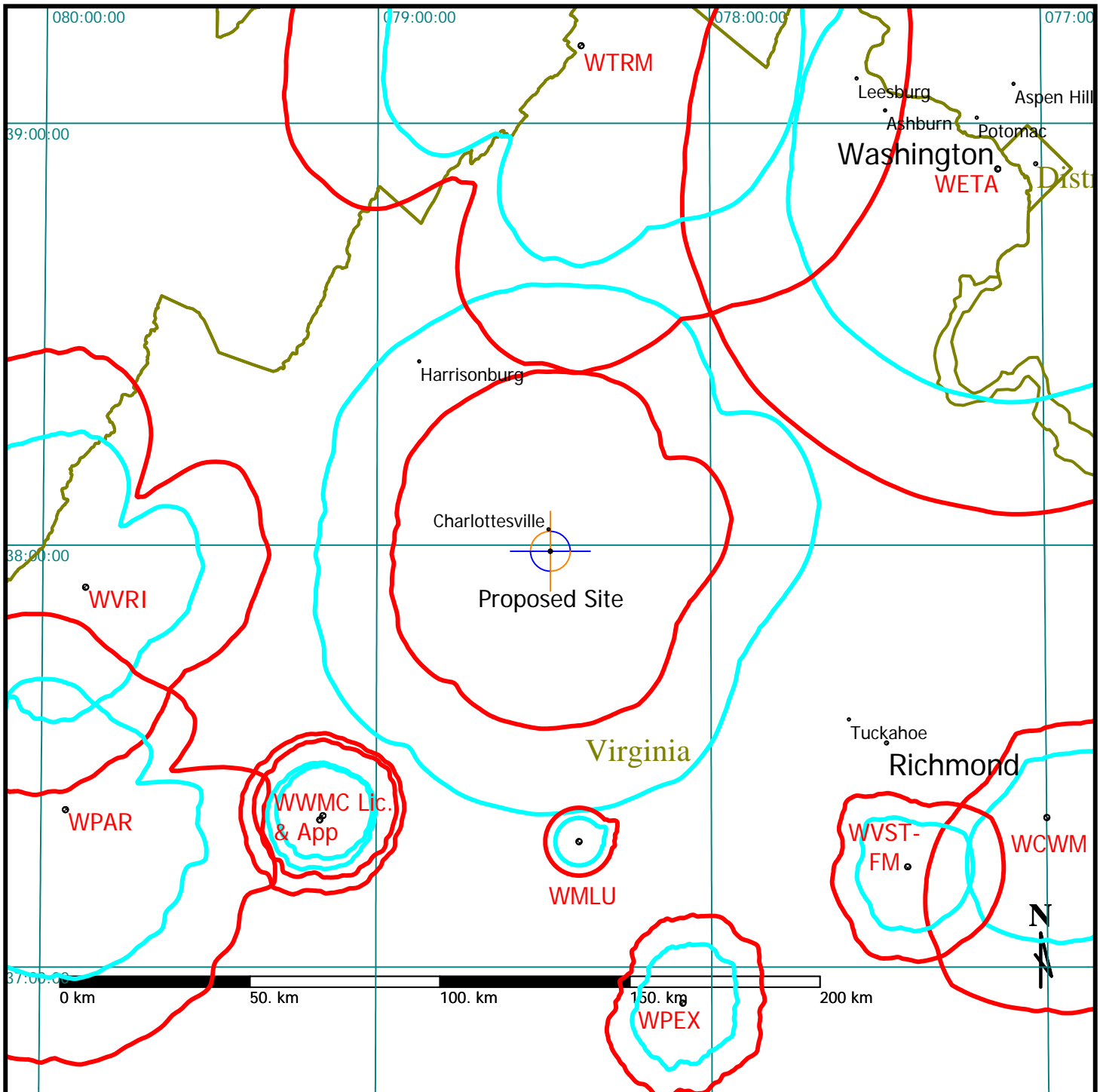
Protected: 60dBu F(50,50)

Interfering: 54dBu F(50,10)

### AFFECTED

Protected: 60dBu F(50,50)

Interfering: 54dBu F(50,10)



# EXHIBIT 18e

## FMOver Analysis -

### WTJU Proposed Minor Change vs. WTRM, Winchester, VA

03-11-2013 Terrain Data: FCC NGDC 30 Sec FMOver Analysis

WTJU Proposed Minor Change

WTRM BLED20051207ABI

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Protected  
60 dBu

Channel = 217B  
Max ERP = 5.6 kW  
RCAMSL = 812 M  
N. Lat. 39 11 02.0  
W. Lng. 78 23 15.0  
Interfering  
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
318.0	006.6000	0284.2	045.3	201.1	003.5087	0482.3	106.5	44.91	
319.0	006.6000	0285.4	045.4	201.0	003.5162	0483.2	105.8	45.14	
320.0	006.6000	0287.1	045.5	200.9	003.5253	0484.2	105.0	45.39	
321.0	006.6000	0288.6	045.6	200.7	003.5352	0485.4	104.3	45.64	
322.0	006.6000	0289.4	045.6	200.5	003.5470	0486.7	103.6	45.89	
323.0	006.6000	0289.4	045.6	200.2	003.5607	0488.3	102.9	46.14	
324.0	006.6000	0288.9	045.6	200.0	003.5779	0490.1	102.3	46.40	
325.0	006.6000	0288.0	045.5	199.7	003.6287	0492.1	101.6	46.69	
326.0	006.6000	0287.4	045.5	199.4	003.6806	0494.2	101.0	46.98	
327.0	006.6000	0286.9	045.5	199.1	003.7335	0496.3	100.4	47.27	
328.0	006.6000	0286.9	045.5	198.8	003.7860	0498.4	099.8	47.57	
329.0	006.6000	0287.4	045.5	198.6	003.8380	0500.4	099.2	47.85	
330.0	006.6000	0288.2	045.6	198.3	003.8910	0502.3	098.5	48.14	
331.0	006.6000	0289.1	045.6	198.0	003.9454	0504.1	097.9	48.42	
332.0	006.6000	0290.0	045.7	197.7	004.0024	0505.8	097.3	48.70	
333.0	006.6000	0290.6	045.7	197.4	004.0631	0507.4	096.7	48.97	
334.0	006.6000	0290.9	045.7	197.0	004.1280	0508.8	096.1	49.23	
335.0	006.6000	0291.3	045.7	196.7	004.1947	0510.0	095.6	49.49	
336.0	006.6000	0292.1	045.8	196.3	004.2619	0511.1	095.0	49.74	
337.0	006.6000	0293.2	045.9	196.0	004.3301	0512.0	094.4	49.99	
338.0	006.6000	0294.5	046.0	195.6	004.4005	0512.8	093.9	50.24	
339.0	006.6000	0296.1	046.1	195.3	004.4721	0513.5	093.3	50.49	
340.0	006.6000	0298.2	046.2	194.9	004.5440	0514.0	092.7	50.75	
341.0	006.6000	0301.1	046.4	194.6	004.6157	0514.5	092.1	51.00	
342.0	006.6000	0303.6	046.5	194.2	004.6923	0514.6	091.6	51.25	
343.0	006.6000	0305.3	046.6	193.8	004.7756	0514.6	091.1	51.48	
344.0	006.6000	0306.3	046.7	193.4	004.8645	0514.5	090.6	51.70	
345.0	006.6000	0306.9	046.7	192.9	004.9580	0514.2	090.2	51.91	
346.0	006.6000	0307.7	046.8	192.5	005.0533	0513.7	089.7	52.11	
347.0	006.6000	0308.8	046.8	192.0	005.1510	0512.9	089.3	52.30	
348.0	006.6000	0310.0	046.9	191.6	005.2507	0511.8	088.9	52.49	
349.0	006.6000	0309.9	046.9	191.1	005.3583	0510.7	088.6	52.65	
350.0	006.6000	0309.0	046.9	190.6	005.4706	0509.3	088.4	52.79	
351.0	006.6000	0309.1	046.9	190.1	005.5824	0507.6	088.1	52.93	
352.0	006.6000	0311.2	047.0	189.6	005.6000	0505.2	087.7	53.01	
353.0	006.6000	0314.5	047.2	189.1	005.6000	0502.6	087.3	53.10	
354.0	006.6000	0316.4	047.3	188.6	005.6000	0500.7	086.9	53.16	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
355.0	006.6000	0317.7	047.4	188.1	005.6000	0499.1	086.7	53.22	
356.0	006.6000	0317.8	047.4	187.6	005.6000	0497.8	086.5	53.25	
357.0	006.6000	0316.8	047.4	187.0	005.6000	0496.2	086.4	53.24	
358.0	006.6000	0315.8	047.3	186.5	005.6000	0496.9	086.3	53.28	
359.0	006.6000	0314.8	047.2	185.9	005.6000	0498.8	086.3	53.33	
000.0	006.6000	0315.3	047.3	185.4	005.6000	0501.3	086.1	53.43	
001.0	006.6000	0315.9	047.3	184.8	005.6000	0504.1	086.0	53.52	
002.0	006.6000	0316.2	047.3	184.3	005.6000	0507.3	086.0	53.61	
003.0	006.6000	0316.4	047.3	183.7	005.6000	0511.1	085.9	53.70	
004.0	006.6000	0316.6	047.3	183.2	005.6000	0514.5	085.9	53.77	
005.0	006.6000	0316.7	047.4	182.6	005.6000	0517.7	085.9	53.84	
006.0	006.6000	0316.6	047.3	182.1	005.6000	0520.9	086.0	53.89	
007.0	006.6000	0316.8	047.4	181.5	005.6000	0523.0	086.1	53.91	
008.0	006.6000	0318.1	047.4	181.0	005.6000	0524.2	086.1	53.94	
009.0	006.6000	0320.3	047.6	180.4	005.6000	0525.2	086.0	53.97	
010.0	006.6000	0322.1	047.7	179.9	005.5686	0526.1	086.1	53.95	
011.0	006.6000	0323.3	047.8	179.3	005.4513	0527.1	086.1	53.86	
012.0	006.6000	0324.2	047.8	178.7	005.3365	0528.0	086.3	53.74	
013.0	006.6000	0324.8	047.9	178.2	005.2239	0528.7	086.4	53.61	
014.0	006.6000	0325.7	047.9	177.7	005.1126	0530.8	086.6	53.51	
015.0	006.6000	0326.8	048.0	177.1	005.0027	0533.4	086.8	53.42	
016.0	006.6000	0327.5	048.0	176.6	004.8959	0536.0	087.0	53.31	
017.0	006.6000	0326.6	048.0	176.1	004.7962	0538.5	087.3	53.16	
018.0	006.6000	0324.6	047.9	175.6	004.7025	0540.8	087.8	52.99	
019.0	006.6000	0322.7	047.7	175.1	004.6114	0542.9	088.2	52.81	
020.0	006.6000	0322.1	047.7	174.6	004.5189	0544.5	088.6	52.64	
021.0	006.6000	0322.6	047.7	174.2	004.4251	0545.7	088.9	52.47	
022.0	006.6000	0323.5	047.8	173.7	004.3325	0546.6	089.3	52.30	
023.0	006.6000	0323.9	047.8	173.2	004.2440	0547.3	089.6	52.11	
024.0	006.6000	0323.2	047.8	172.7	004.1618	0548.1	090.1	51.90	
025.0	006.6000	0321.6	047.7	172.3	004.0862	0548.7	090.6	51.67	
026.0	006.6000	0319.7	047.5	171.9	004.0144	0549.0	091.2	51.43	
027.0	006.6000	0318.2	047.4	171.5	003.9441	0549.3	091.7	51.19	
028.0	006.6000	0316.8	047.4	171.2	003.8758	0549.7	092.3	50.96	
029.0	006.6000	0315.0	047.2	170.8	003.8119	0550.2	092.9	50.72	
030.0	006.6000	0312.2	047.1	170.5	003.7546	0550.7	093.6	50.48	
031.0	006.6000	0308.5	046.8	170.2	003.7040	0551.1	094.3	50.22	
032.0	006.6000	0304.0	046.5	169.9	003.6616	0551.3	095.0	49.96	
033.0	006.6000	0298.4	046.2	169.7	003.6291	0551.5	095.8	49.70	
034.0	006.6000	0291.7	045.8	169.5	003.6037	0551.7	096.7	49.43	
035.0	006.6000	0283.7	045.3	169.4	003.5861	0551.8	097.6	49.16	
036.0	006.6000	0275.2	044.7	169.3	003.5725	0551.9	098.5	48.89	
037.0	006.6000	0267.5	044.2	169.2	003.5585	0552.0	099.5	48.63	
038.0	006.6000	0260.6	043.8	169.1	003.5431	0552.1	100.3	48.38	
039.0	006.6000	0254.7	043.4	169.0	003.5257	0552.2	101.1	48.15	
040.0	006.6000	0249.7	043.1	168.9	003.5062	0552.3	101.9	47.92	
041.0	006.6000	0245.7	042.8	168.7	003.4845	0552.5	102.7	47.70	
042.0	006.6000	0241.4	042.5	168.6	003.4657	0552.7	103.4	47.48	
043.0	006.6000	0235.2	042.1	168.5	003.4568	0552.7	104.3	47.25	
044.0	006.6000	0227.0	041.6	168.6	003.4596	0552.7	105.2	47.01	
045.0	006.6000	0218.3	041.0	168.6	003.4678	0552.6	106.1	46.78	
046.0	006.6000	0210.8	040.4	168.6	003.4734	0552.6	107.0	46.55	
047.0	006.6000	0205.8	040.0	168.6	003.4690	0552.6	107.8	46.34	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065



# Page 3 of 4

03-11-2013

Terrain Data: FCC NGDC 30 Sec

FMOVER Analysis

WTRM BLED20051207ABI

WTJU Proposed Minor Change

Channel = 217B  
Max ERP = 5.6 kW  
RCAMSL = 812 M  
N. Lat. 39 11 02.0  
W. Lng. 78 23 15.0  
Protected  
60 dBu

Channel = 216B  
Max ERP = 6.6 kW  
RCAMSL = 451 M  
N. Lat. 37 59 08.0  
W. Lng. 78 28 49.0  
Interfering  
54 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
138.0	004.8060	0537.5	057.2	026.9	006.6000	0318.3	101.8	43.79	
139.0	004.7110	0535.4	056.8	026.5	006.6000	0319.0	100.9	44.08	
140.0	004.6170	0533.6	056.5	026.1	006.6000	0319.6	100.1	44.35	
141.0	004.4298	0533.5	056.1	025.7	006.6000	0320.4	099.4	44.60	
142.0	004.2464	0535.0	055.8	025.2	006.6000	0321.1	098.7	44.86	
143.0	004.0670	0537.5	055.5	024.8	006.6000	0321.9	097.9	45.11	
144.0	003.8914	0539.8	055.2	024.4	006.6000	0322.6	097.2	45.35	
145.0	003.7197	0541.3	054.8	024.0	006.6000	0323.3	096.6	45.57	
146.0	003.5518	0542.4	054.4	023.5	006.6000	0323.7	096.0	45.77	
147.0	003.3878	0543.4	054.0	022.9	006.6000	0323.9	095.4	45.95	
148.0	003.2278	0544.3	053.6	022.4	006.6000	0323.7	094.9	46.11	
149.0	003.0715	0545.6	053.2	021.9	006.6000	0323.4	094.4	46.26	
150.0	002.9192	0547.2	052.8	021.3	006.6000	0322.9	093.9	46.39	
151.0	002.8565	0549.1	052.6	020.9	006.6000	0322.6	093.2	46.58	
152.0	002.7944	0551.2	052.5	020.5	006.6000	0322.3	092.6	46.77	
153.0	002.7330	0553.5	052.4	020.1	006.6000	0322.1	092.0	46.96	
154.0	002.6723	0556.2	052.3	019.7	006.6000	0322.1	091.4	47.14	
155.0	002.6123	0558.4	052.2	019.2	006.6000	0322.4	090.8	47.33	
156.0	002.5530	0559.5	052.1	018.7	006.6000	0323.1	090.3	47.51	
157.0	002.4944	0558.9	051.8	018.2	006.6000	0324.1	089.9	47.67	
158.0	002.4364	0557.5	051.5	017.6	006.6000	0325.3	089.6	47.82	
159.0	002.3791	0556.2	051.2	017.1	006.6000	0326.4	089.2	47.96	
160.0	002.3225	0555.9	050.9	016.5	006.6000	0327.2	088.9	48.10	
161.0	002.4438	0556.7	051.5	016.3	006.6000	0327.4	087.9	48.41	
162.0	002.5682	0558.3	052.1	016.0	006.6000	0327.5	086.9	48.73	
163.0	002.6956	0559.0	052.6	015.7	006.6000	0327.5	086.0	49.02	
164.0	002.8261	0558.2	053.0	015.3	006.6000	0327.2	085.2	49.29	
165.0	002.9598	0556.8	053.4	014.9	006.6000	0326.8	084.4	49.54	
166.0	003.0965	0556.2	053.8	014.5	006.6000	0326.3	083.5	49.79	
167.0	003.2363	0555.1	054.2	014.1	006.6000	0325.8	082.8	50.03	
168.0	003.3791	0553.4	054.5	013.6	006.6000	0325.3	082.0	50.25	
169.0	003.5251	0552.2	054.9	013.1	006.6000	0324.9	081.3	50.48	
170.0	003.6742	0551.2	055.2	012.6	006.6000	0324.5	080.6	50.70	
171.0	003.8485	0549.9	055.6	012.0	006.6000	0324.2	079.9	50.93	
172.0	004.0270	0549.0	056.0	011.5	006.6000	0323.8	079.1	51.15	
173.0	004.2095	0547.7	056.4	010.9	006.6000	0323.2	078.5	51.36	
174.0	004.3960	0546.0	056.7	010.3	006.6000	0322.4	077.9	51.54	
175.0	004.5865	0543.4	057.0	009.7	006.6000	0321.6	077.3	51.69	
176.0	004.7811	0538.9	057.2	009.0	006.6000	0320.3	076.9	51.79	
177.0	004.9798	0534.0	057.3	008.3	006.6000	0318.6	076.6	51.84	
178.0	005.1825	0529.3	057.4	007.6	006.6000	0317.4	076.3	51.90	
179.0	005.3892	0527.6	057.7	006.8	006.6000	0316.7	075.9	52.03	
180.0	005.6000	0525.9	058.0	006.1	006.6000	0316.6	075.5	52.16	

**BROWN BROADCAST SERVICES**  
INCORPORATED

Michael D. Brown

3740 S.W. Comus St.

Portland, Oregon 97219-7418

503-245-6065

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
181.0	005.6000	0524.2	057.9	005.4	006.6000	0316.6	075.5	52.16	
182.0	005.6000	0521.2	057.7	004.6	006.6000	0316.7	075.6	52.12	
183.0	005.6000	0515.5	057.4	003.8	006.6000	0316.6	075.9	52.01	
184.0	005.6000	0509.5	057.0	003.1	006.6000	0316.5	076.3	51.88	
185.0	005.6000	0503.3	056.6	002.4	006.6000	0316.2	076.7	51.73	
186.0	005.6000	0498.5	056.3	001.6	006.6000	0316.2	077.0	51.61	
187.0	005.6000	0496.1	056.2	000.9	006.6000	0315.8	077.3	51.52	
188.0	005.6000	0498.8	056.3	000.2	006.6000	0315.4	077.2	51.52	
189.0	005.6000	0502.1	056.5	359.5	006.6000	0315.0	077.2	51.53	
190.0	005.6000	0507.3	056.8	358.7	006.6000	0315.0	077.1	51.57	
191.0	005.3771	0510.4	056.6	358.0	006.6000	0315.8	077.5	51.46	
192.0	005.1588	0512.8	056.4	357.4	006.6000	0316.5	078.0	51.31	
193.0	004.9450	0514.2	056.0	356.7	006.6000	0317.0	078.5	51.14	
194.0	004.7357	0514.7	055.6	356.2	006.6000	0317.6	079.2	50.93	
195.0	004.5310	0513.9	055.2	355.6	006.6000	0318.0	080.0	50.69	
196.0	004.3307	0512.0	054.6	355.1	006.6000	0317.8	080.8	50.41	
197.0	004.1350	0508.9	054.0	354.7	006.6000	0317.3	081.7	50.08	
198.0	003.9438	0504.0	053.2	354.3	006.6000	0316.8	082.8	49.72	
199.0	003.7572	0497.3	052.4	353.9	006.6000	0316.4	084.0	49.33	
200.0	003.5750	0490.0	051.5	353.7	006.6000	0316.0	085.2	48.93	
201.0	003.5171	0483.3	051.0	353.3	006.6000	0315.3	086.1	48.63	
202.0	003.4597	0476.4	050.4	352.9	006.6000	0314.4	086.9	48.31	
203.0	003.4027	0468.7	049.8	352.6	006.6000	0313.4	087.9	47.98	
204.0	003.3462	0459.2	049.1	352.4	006.6000	0312.6	088.9	47.63	
205.0	003.2901	0447.7	048.4	352.2	006.6000	0311.9	090.0	47.26	
206.0	003.2346	0433.7	047.4	352.1	006.6000	0311.5	091.3	46.86	
207.0	003.1795	0417.0	046.4	352.0	006.6000	0311.3	092.6	46.44	
208.0	003.1249	0398.1	045.3	352.0	006.6000	0311.3	093.9	46.01	
209.0	003.0707	0376.6	044.1	352.1	006.6000	0311.4	095.4	45.57	
210.0	003.0170	0352.3	042.7	352.2	006.6000	0312.0	096.9	45.10	
211.0	003.0707	0324.8	041.3	352.4	006.6000	0312.5	098.5	44.64	
212.0	003.1249	0294.3	039.8	352.6	006.6000	0313.4	100.1	44.15	
213.0	003.1795	0262.0	038.0	353.0	006.6000	0314.4	101.9	43.62	
214.0	003.2346	0228.2	036.0	353.4	006.6000	0315.6	103.9	43.04	
215.0	003.2901	0196.2	033.6	354.0	006.6000	0316.4	106.1	42.41	
216.0	003.3462	0170.9	031.6	354.5	006.6000	0317.1	108.0	41.86	
217.0	003.4027	0157.3	030.4	354.7	006.6000	0317.3	109.2	41.51	
218.0	003.4597	0155.2	030.3	354.5	006.6000	0317.1	109.6	41.39	
219.0	003.5171	0158.5	030.8	354.2	006.6000	0316.6	109.7	41.35	
220.0	003.5750	0161.9	031.2	353.8	006.6000	0316.2	109.8	41.32	
221.0	003.7572	0163.1	031.7	353.4	006.6000	0315.6	109.8	41.28	
222.0	003.9438	0160.0	031.8	353.2	006.6000	0315.1	110.2	41.16	
223.0	004.1350	0156.6	031.8	353.0	006.6000	0314.6	110.6	41.03	
224.0	004.3307	0157.3	032.2	352.7	006.6000	0313.5	110.8	40.95	
225.0	004.5310	0166.0	033.5	352.0	006.6000	0311.0	110.4	40.97	
226.0	004.7357	0186.5	035.8	350.8	006.6000	0308.9	109.6	41.13	
227.0	004.9450	0215.3	038.4	349.5	006.6000	0309.4	108.7	41.41	

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Portland, Oregon 97219-7418

503-245-6065

## Exhibit 18f - 2nd & 3rd-Adjacent-Channel Contour Protection

Brown Broadcast Services, Inc.  
Job: WTJU Power Inc\_Mar2013.fmj  
Master Database: 2013\_Mar\_11.fmd  
Lat: N37:59:08 Lon: W078:28:49 NAD-27  
Scale: 1:1000000  
Channel: 216 Class: B

rfInvestigator Version 3.5.25  
by rfSoftware, Inc.  
Date: 3/11/2013 05:44:38 PM

### PROPOSED

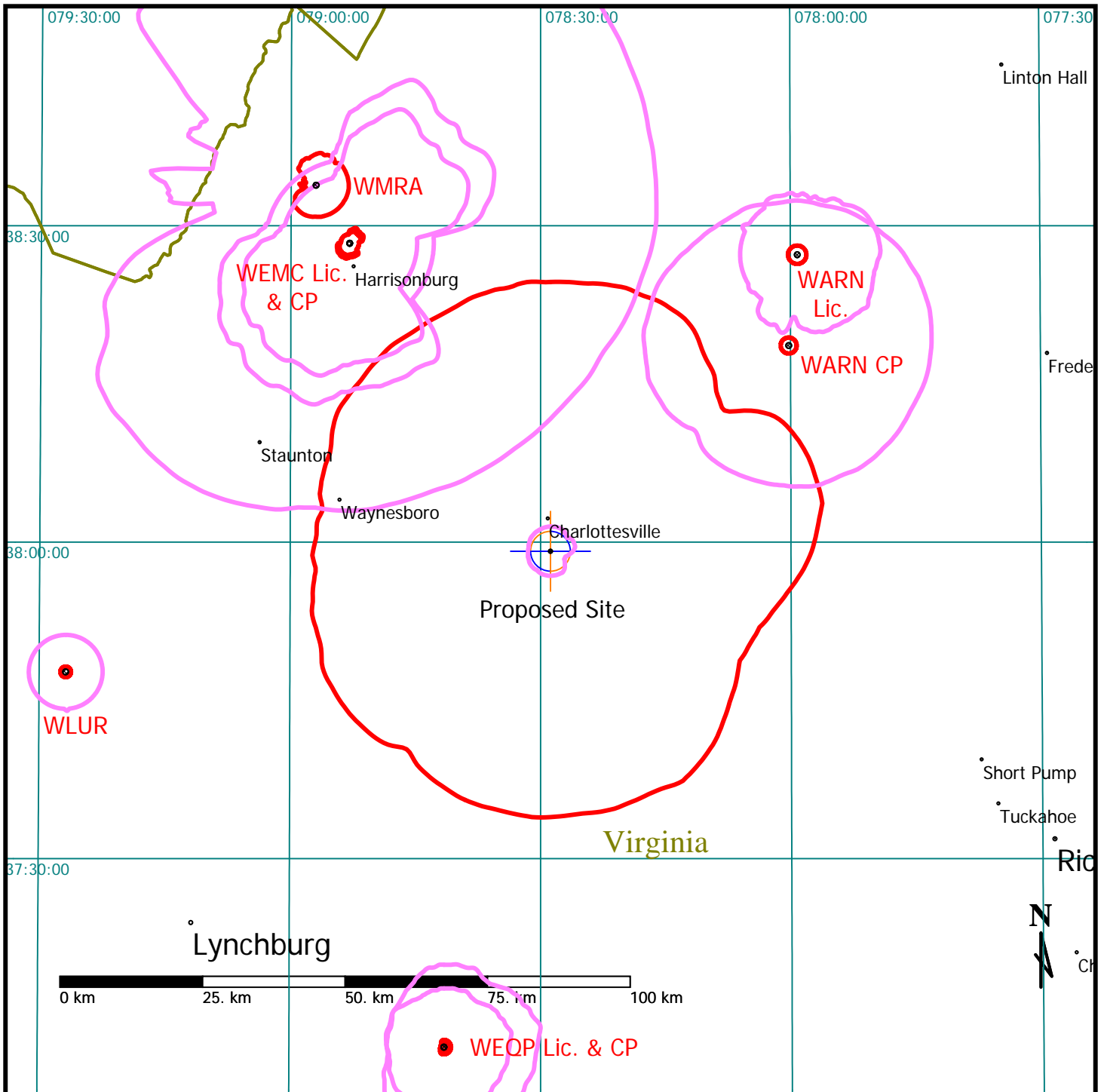
Protected: 60dBu F(50,50)

Interfering: 100dBu F(50,10)

### AFFECTED

Protected: 60dBu F(50,50)

Interfering: 100dBu F(50,10)



## **EXHIBIT 24**

### **ENVIRONMENTAL PROTECTION ACT / NIER ANALYSIS**

The applicant proposes mounting a new antenna on an existing 24 meter tower. The proposed center of radiation is 20m AGL. A Shively 6810 3-element, 1 wave-spaced antenna is anticipated. Calculations were made using FM Model for Windows. FM Model predicted a peak exposure of  $128\mu\text{w}/\text{cm}^2$ , at 9.6 meters from the tower. This represents 64.0% of the Maximum Permissible Exposure (MPE) of  $200\mu\text{w}/\text{cm}^2$  for uncontrolled environments.

The proposal is within 200 meters of other broadcast facilities and applications. The applicant hereby requests that a Construction Permit be granted with the condition that RF measurements be conducted before Program Test Authority is granted. If the results of the measurements reveal that there are areas that exceed the MPE requirements for controlled or uncontrolled areas, the applicant will take all necessary measures, including but not limited to fencing and signage, to fully comply with the RF exposure limits.

The site will be posted with appropriate RF exposure warning signs. If tower climbing by authorized personnel becomes necessary, transmitter power will be reduced or operation will cease, as necessary, and in full cooperation with the other RF emitters, so as to not exceed the RF exposure limits.