

Minor Change Application
WTTI (AM)
1530 kHz
1 kW Daytime – 0.320 kW Critical Hours
Dalton, Georgia
March 2022

General and Legal

The purpose of this instant application is for WTTI (AM) 1530 kHz Dalton, GA to delete its directional antenna and operate nondirectionally with 1 kW Daytime and 0.320 kW Critical Hours utilizing the southern tower of the currently licensed two-tower directional array.

Applicant:

Hope Broadcasting, Inc.
P.O. Box 216
Dalton, GA 30722
(706) 673-2222
deborah@wttiradio.com

FCC Registration Number: 0027047661
Call Sign: WTTI
Facility ID Number: 53957

Contact Representative:

Deborah Boyd, President
Hope Broadcasting, Inc.
P.O. Box 216
Dalton, GA 30722
(706) 673-2222
deborah@wttiradio.com

Technical Representative:

George S. Crissey, Technical Consultant
Bromo Communications, Inc.
3600 Dallas Highway
Suite 230 – PMB 164
Marietta, GA 30064
(404) 636-2257
stephen@bromocom.com

Application Purpose:

Minor Change in Licensed Facility
Service Type: AM
Community of License: Dalton, GA
Facility Type: Main

Legal:

Multiple Ownership:

The applicant has no other attributable interests.

Anti-Drug Abuse Act Certification:

The applicant certifies that neither applicant nor any party to the application is subject to denial of federal benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. Section 862.

Application Certification:

I Certify that the statements in this application are true, complete, and correct to the best of my knowledge and belief, and are made in good faith. I acknowledge that all certifications and attached Exhibits are considered material representations. I hereby waive any claim to the use of any particular frequency as against the regulatory power of the United States because of the previous use of the same, whether by license or otherwise, and request an authorization in accordance with this application. (See Section 304 of the Communications Act of 1934, as amended).

Deborah Boyd
Typed or Printed Name of Person Signing

Deborah Boyd
Typed or Printed Title of Person Signing

Deborah Boyd
Signature

3-3-22
Date

WTTI (AM)
1530 kHz
1 kW Daytime – 0.320 kW Critical Hours
Dalton, Georgia
March 2022

Engineering

The purpose of this instant application is for WTTI (AM) 1530 kHz Dalton, GA to delete its directional antenna and operate nondirectionally with 1 kW Daytime and 0.320 kW Critical Hours utilizing the southern tower of the currently licensed two-tower directional array.

Frequency: 1530 kHz

Class: D

Hours of Operation: Daytime

Daytime Operation:

Power: 1 kW

Antenna Location Coordinates (NAD 27):

34° 47' 02.8" North Latitude

85° 02' 43.4" West Longitude

Nondirectional Operation:

Theoretical 305.77 mV/m per kW at 1 km

Tower:

Overall height above ground (include obstruction lighting) (meters): 49.9

Antenna structure registration: Not applicable

Height of radiator above base, if grounded (meters): 49.0

Electrical height of radiator (degrees): 90.0

Critical Hours Operation:

Power: 0.320 kW

Antenna Location Coordinates (NAD 27):

34° 47' 02.8" North Latitude

85° 02' 43.4 West Longitude

Nondirectional Operation:

Theoretical 305.77 mV/m per kW at 1 km

Tower:

Overall height above ground (include obstruction lighting) (meters): 49.9

Antenna structure registration: Not applicable

Height of radiator above base, if grounded (meters): 49.0

Electrical height of radiator (degrees): 90.0

Certification:

Broadcast Facility:

The proposed facility complies with the engineering standards and assignment requirements of 47 C.F.R. Sections 73.24(e), 73.24(g), 73.33, 73.45, 73.150, 73.152, 73.160, 73.182(a)-(i), 73.186, 73.189, 73.1650. See the attached Aerial Photo with Ground System Drawing, Proposed Daytime and Critical Hours Contour maps and Vertical Plan Sketch.

Community Coverage:

The proposed facility complies with community coverage requirements of 47 C.F.R. Section 73.24(i). The daytime 5 mV/m contour of this proposal covers 72.8% of the city of Dalton, GA, the community of license. See the attached Daytime Community Coverage map.

Interference:

The proposed facility complies with 47 C.F.R. Section 73.37 (Groundwave) and 47 C.F.R. Section 73.187 (Critical Hours). See the attached Daytime Allocation Study and Critical Hours Radiation Report.

Environmental Protection Act:

The proposed facility is excluded from environmental processing under 47 C.F.R. Section 1.1306. See the attached Radiofrequency Radiation Calculation.

The following technical exhibits are included in this application:

1. Aerial Site Photo with Ground System Drawing
2. Proposed Daytime Contour Maps
3. Proposed Critical Hours Contour Maps
4. Vertical Plan Sketch
5. Community Coverage Map
6. Daytime Allocation Study
7. Critical Hours Radiation Report
8. Radiofrequency Radiation Calculation

Ground system consists of 120 evenly spaced radials at 49.0 meters in length.

Aerial Site Photo
with Ground System
WTTI (AM)
1530 kHz
1 kW Daytime – 0.320 kW Critical Hours
Dalton, Georgia
March 2022

Property Boundary

Studio

Tuning Box

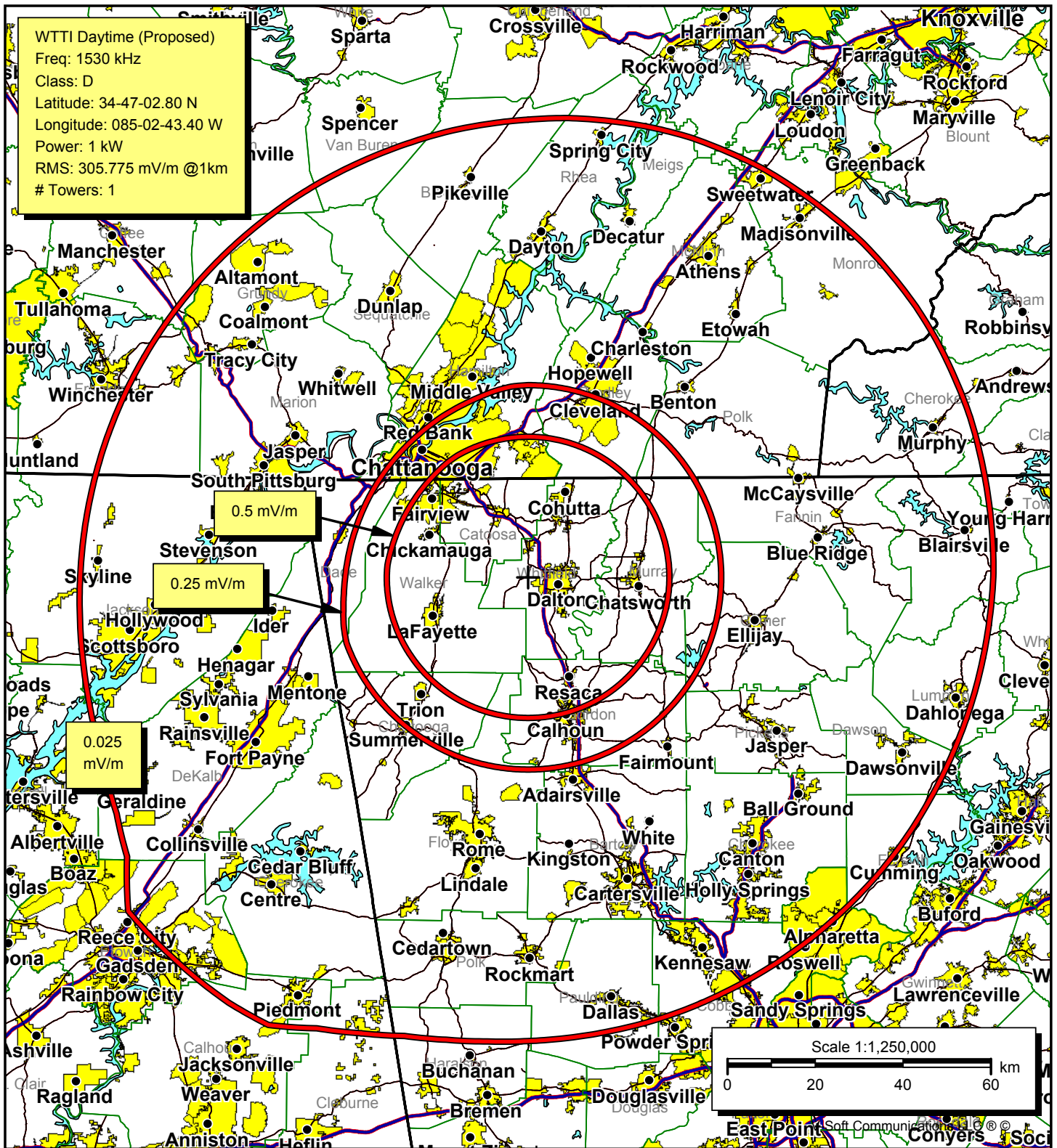
49.0 meters



0 m 15.24 m 30.48 m 45.72 m 60.96 m

Scale

Google Earth



Proposed Daytime 0.5, 0.25 and 0.025 mV/m Contours

WTTI (AM)

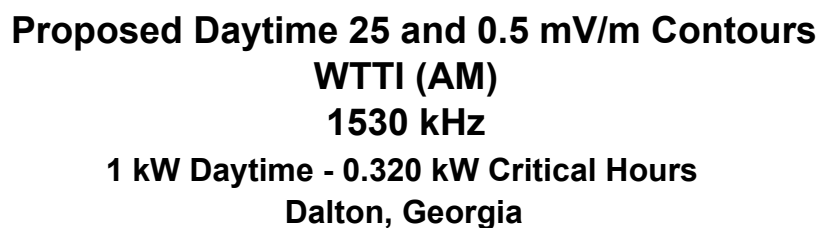
1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

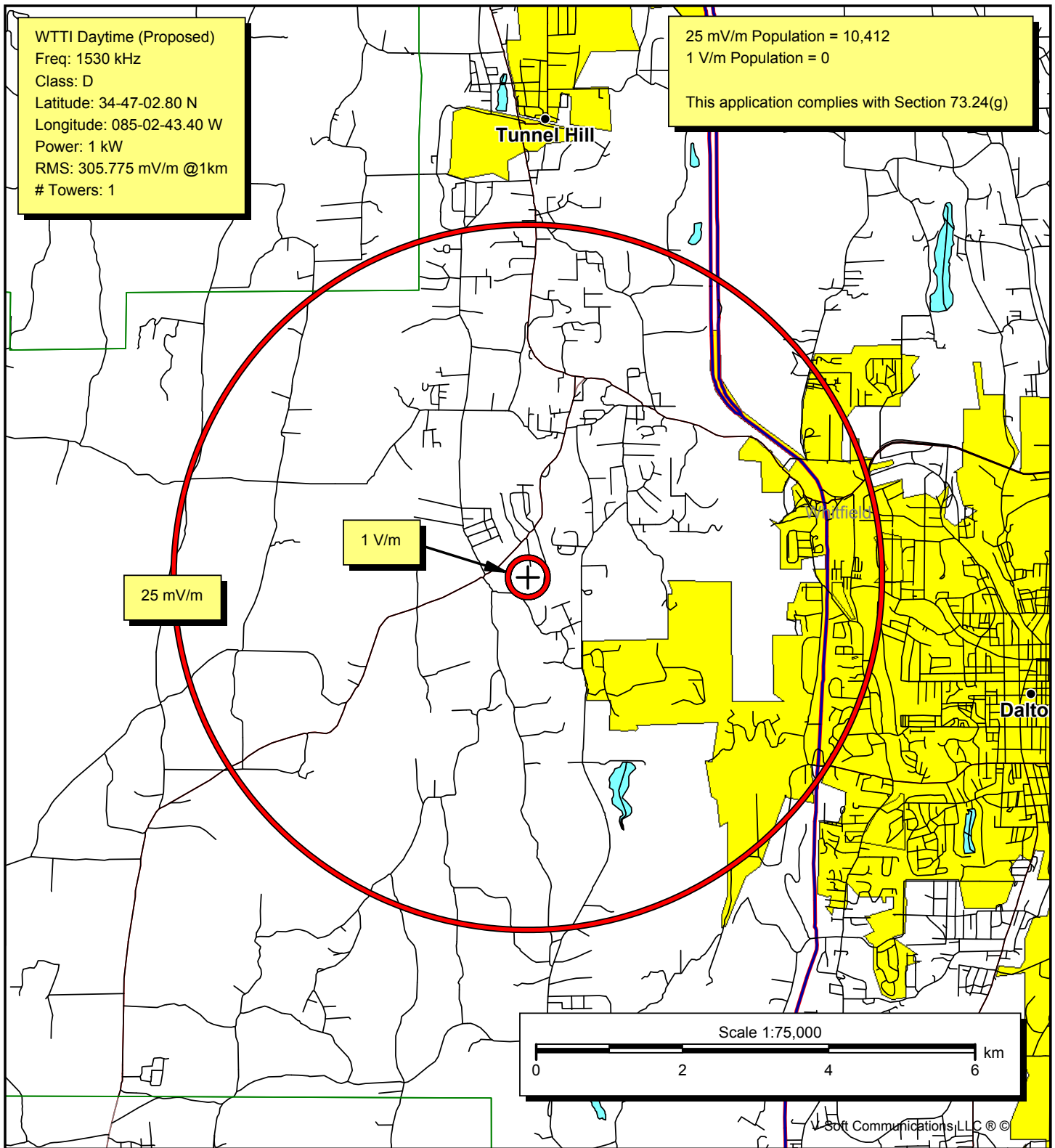
Dalton, Georgia

Bromo Communications, Inc.

March 2022



March 2022



Proposed Daytime 25 mV/m and 1 V/m Contours

WTTI (AM)

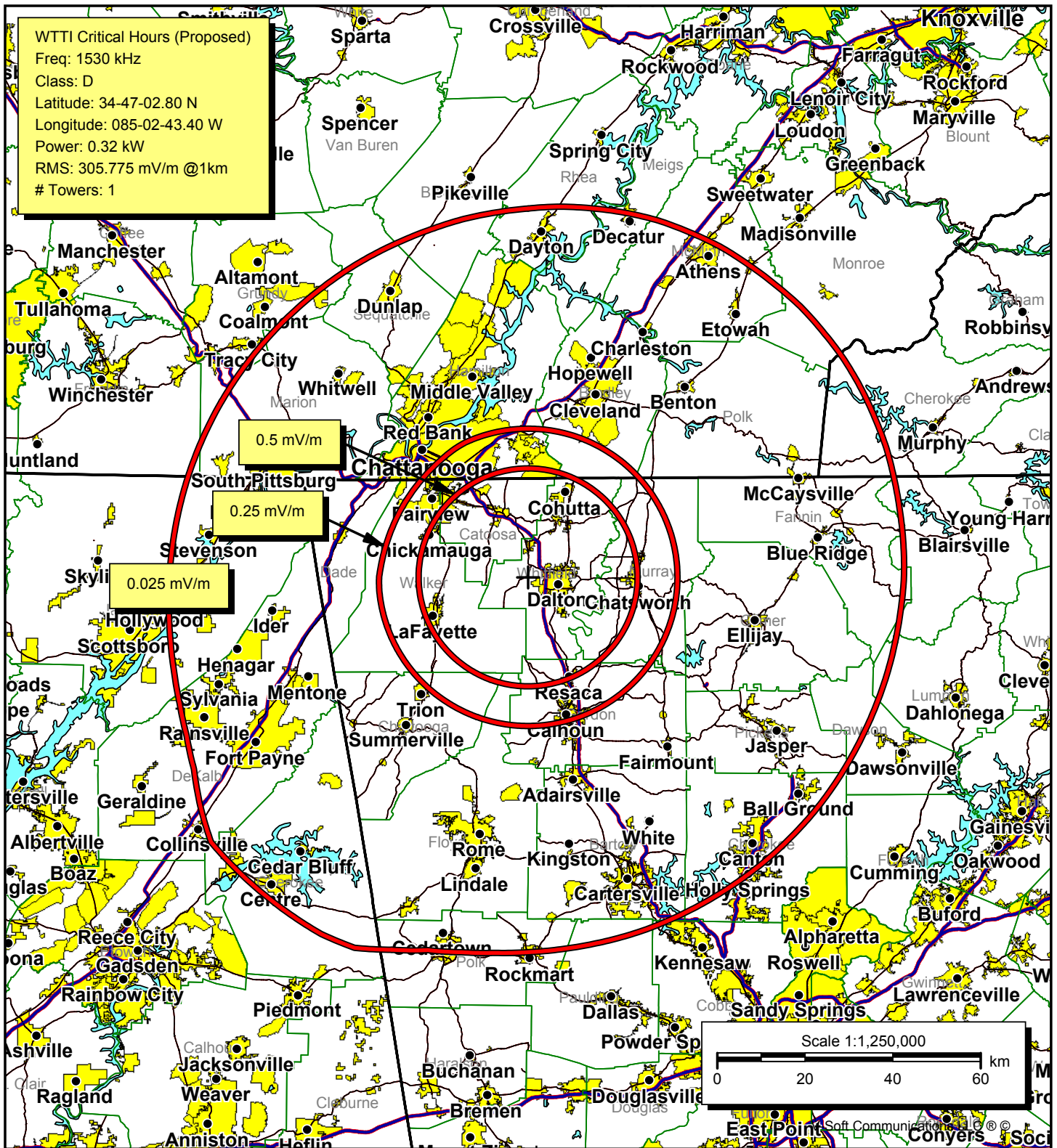
1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

Dalton, Georgia

Bromo Communications, Inc.

March 2022



Proposed Critical Hours 0.5, 0.25 and 0.025 mV/m Contours

WTTI (AM)

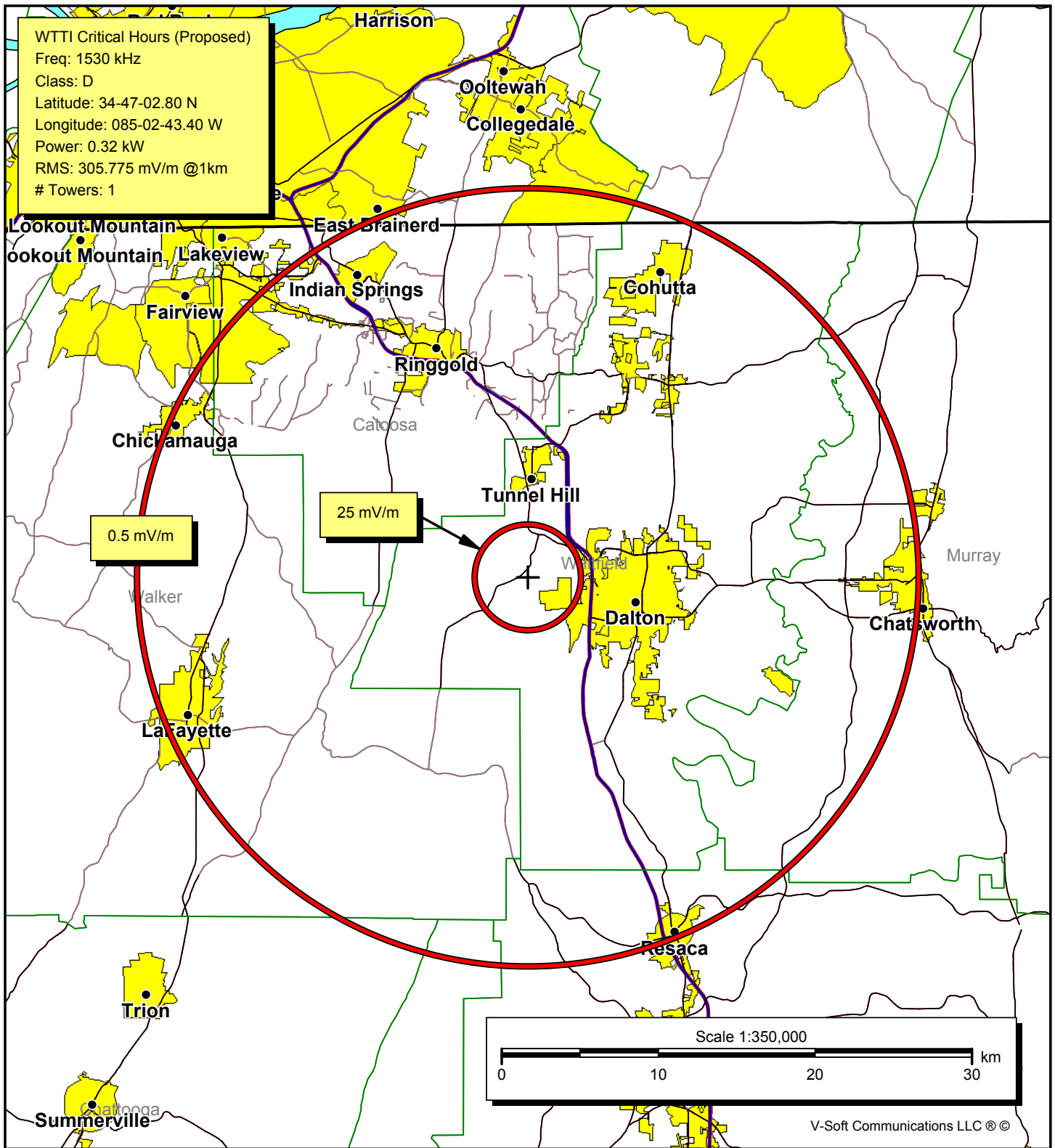
1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

Dalton, Georgia

Bromo Communications, Inc.

March 2022



Proposed Critical Hours 25 and 0.5 mV/m Contours

WTTI (AM)

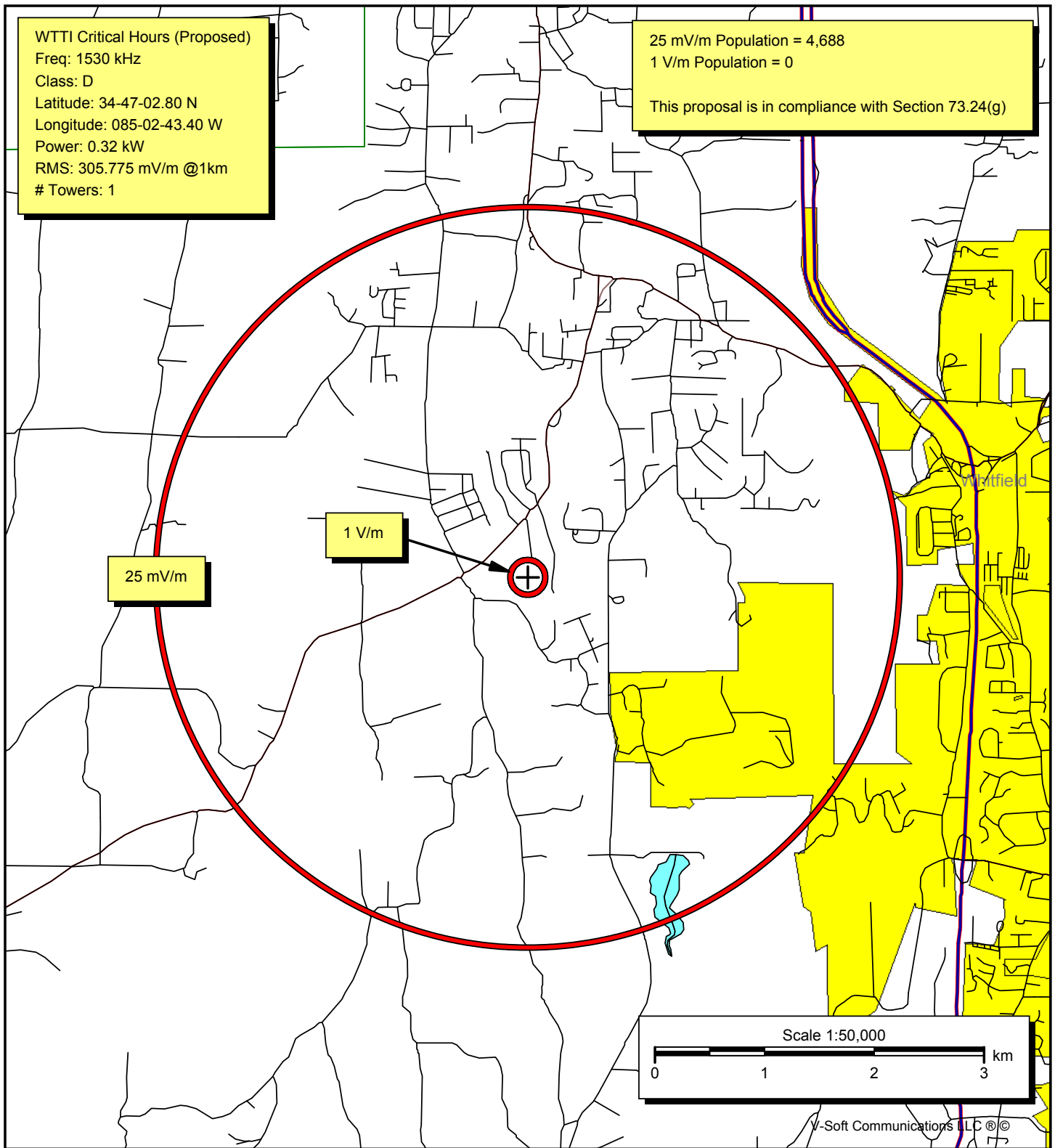
1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

Dalton, Georgia

Bromo Communications, Inc.

March 2022



Proposed Critical Hours 25 mV/m and 1 V/m Contours

WTTI (AM)

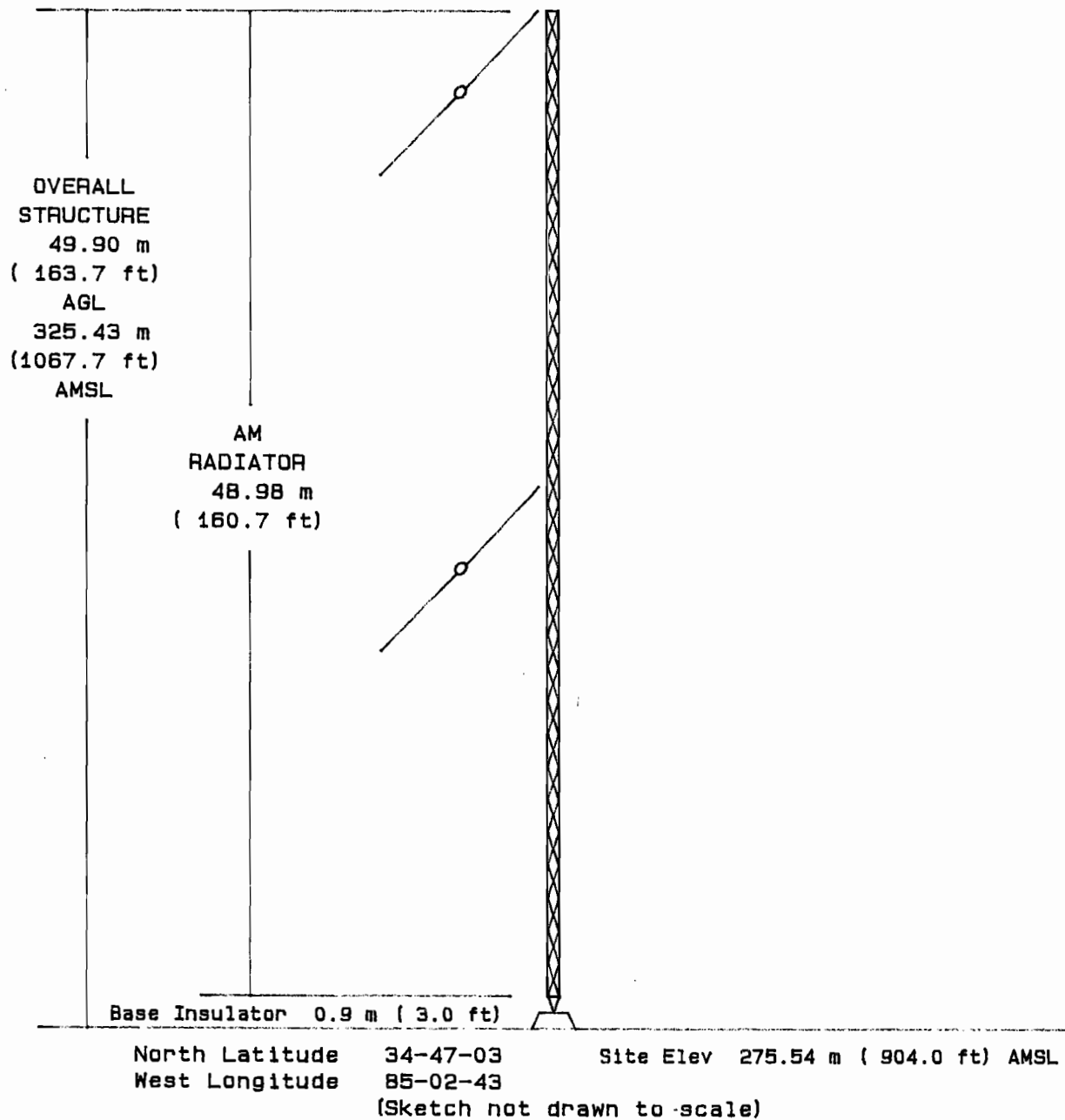
1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

Dalton, Georgia

Bromo Communications, Inc.

March 2022



Vertical Plan Sketch

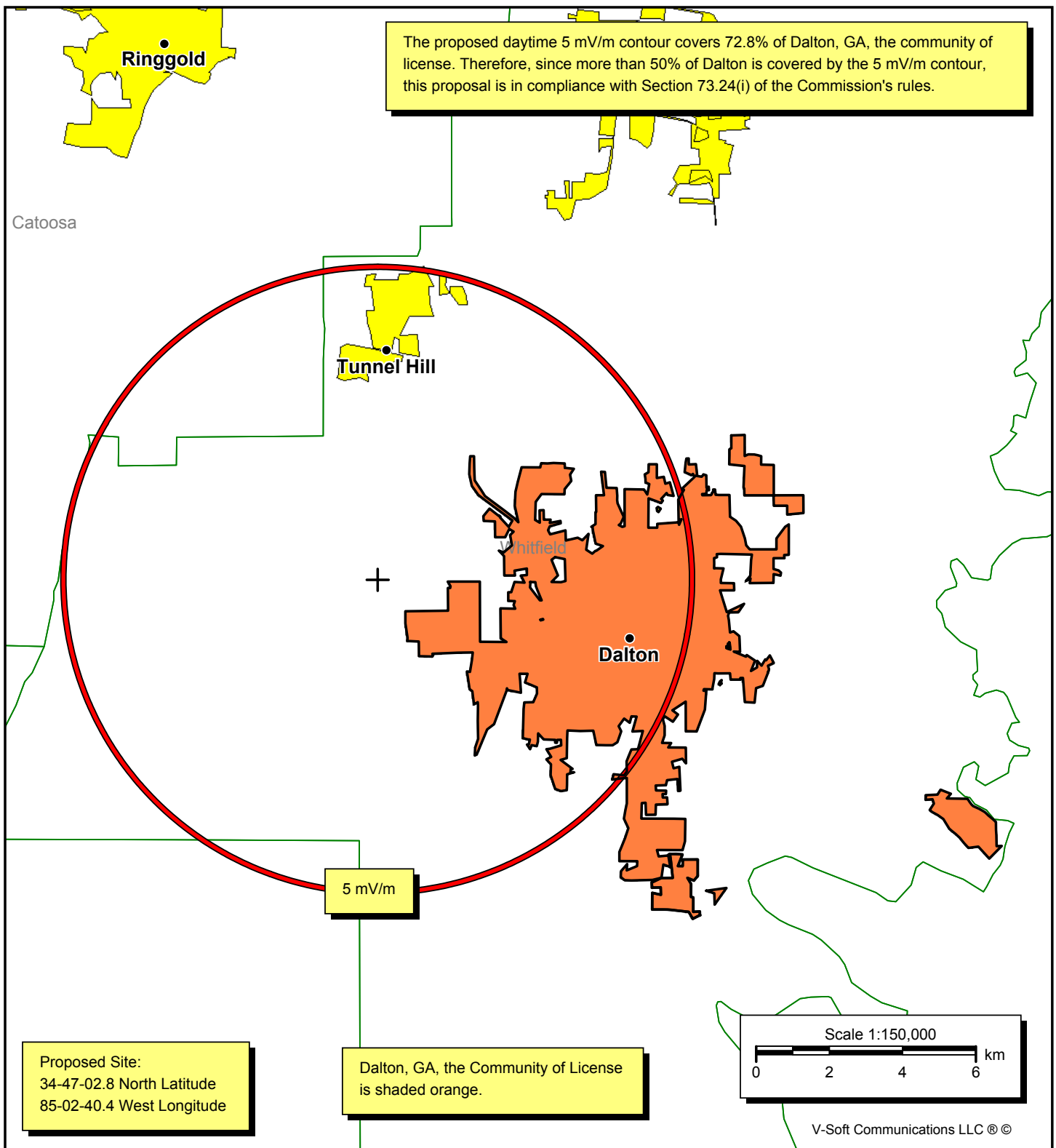
SITE ELEVATION - 276 m (904 ft) AMSL
TOP OF STRUCTURE - 50 m (164 ft) AGL
325 m (1068 ft) AMSL

AM Radiator - 49 m (161 ft)

FIGURES ROUNDED TO NEAREST METER (FOOT) .

WTTI (AM)
1530 kHz
1 kW Daytime – 0.320 kW Critical Hours
Dalton, Georgia
March 2022

BROMO BROADCAST
COMMUNICATIONS TECHNICAL CONSULTANTS



Daytime Community Coverage

WTTI (AM)

1530 kHz

1 kW Daytime - 0.320 kW Critical Hours

Dalton, Georgia

Bromo Communications, Inc.

March 2022

AM Daytime Study

Reference Station:

Call: WTTI

Freq: 1530 kHz

DALTON, GA, US

Lat: 34-47-02.80 N

Power: 1.0 kW

Lng: 085-02-43.40 W

Theo RMS: 305.77 mV/m @ 1km

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swrch	TL Swrch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	90.0	0	0	0.0	0.0	0.0	0.0

Call	Freq	City	ST	Dist	Azi	In	Out
WTTI	1530	DALTON	GA	0.2	24.3	-3220.75	-8185.00
WDCY	1520	DOUGLASVILLE	GA	117.9	163.9	44.58	44.28
WVSM	1500	RAINSVILLE	AL	79.7	246.4	71.01	71.01
WBRY	1540	WOODBURY	TN	151.3	319.8	82.29	83.16
WAZX	1550	SMYRNA	GA	109.2	160.3	86.25	86.25
WDPC	1500	DALLAS	GA	95.3	167.8	87.21	87.21
WCKY	1530	CINCINNATI	OH	477.1	4.8	169.48	101.05
WLOR	1550	HUNTSVILLE	AL	147.3	272.5	117.70	117.70
WKVQ	1540	EATONTON	GA	221.1	137.6	121.00	123.65
WTBI	1540	PICKENS	SC	212.6	88.4	126.00	129.03
WJJT	1540	JELICO	TN	215.9	22.7	150.87	148.34
WASC	1530	SPARTANBURG	SC	282.8	87.2	152.84	151.38
WTLM	1520	OPELIKA	AL	238.5	188.4	167.43	165.43
WWDX	1530	HUNTINGDON	TN	336.1	292.7	185.67	202.81
WOGR	1540	CHARLOTTE	NC	385.7	83.1	316.79	314.99
WNWS	1520	BROWNSVILLE	TN	393.2	282.2	328.63	328.06
WBNL	1540	BOONVILLE	IN	415.4	330.6	336.78	339.24
WDSL	1520	MOCKSVILLE	NC	427.2	74.8	347.66	348.74
WFIC	1530	COLLINSVILLE	VA	510.6	66.7	385.67	379.17
WLLQ	1530	CHAPEL HILL	NC	564.5	78.3	385.78	415.58
WYMM	1530	JACKSONVILLE	FL	579.7	148.6	415.19	439.09
KVDW	1530	ENGLAND	AR	636.5	265.6	437.08	493.93

WTTI (AM) Radio Station Critical Hours Radiation Report

Call: WTTI
 Freq: 1530 kHz
 DALTON, GA, US
 Hours: C
 Lat: 34-47-02.80 N
 Lng: 085-02-43.40 W
 Power: 0.32 kW
 Theo RMS: 305.77 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	90.0	0	0	0.0	0.0	0.0	0.0

Interpolation factors for 1530 kHz:

K(500) = 0.000
 K(1000) = 0.117
 K(1600) = 0.883

 Call: KFBK
 Freq: 1530 kHz
 SACRAMENTO, CA, US
 Hours: D
 Lat: 38-50-54 N
 Lng: 121-28-58 W
 Power: 50.0 kW - Custom Q Value Used: 97.5
 Theo RMS: 3545.89 mV/m @ 1km @ 50.0 kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	0.0	0	3	180.0	0.0	0.0	0.0
2	0.420	12.0	170.0	78.0	0.0	0	3	180.0	0.0	0.0	0.0

Permissible radiation calculated using FCC 73.190 curves.
 Calculations performed using distance to the class A station's 0.1 mV/m contour.

Class A Azimuth (deg)	Reference Azimuth (deg)	Distance to 0.1 mV (km)/(mi)	Max Vert Angle (deg)	Max Rad Below Ang (mV/m@1km)	Permiss Radiation (mV/m@1km)	Margin (mV/m@1km)
181.08	283.00	3300.4 / 2050.8	0.0	172.97	3339.4	3166.4
146.81	284.00	3126.7 / 1942.9	0.0	172.97	3007.9	2834.9
138.67	285.00	3112.7 / 1934.1	0.0	172.97	2995.5	2822.5
128.82	286.00	3104.0 / 1928.7	0.0	172.97	2993.8	2820.9
117.10	287.00	3103.9 / 1928.7	0.0	172.97	3009.1	2836.1
100.86	288.00	3099.4 / 1925.9	0.0	172.97	3016.9	2844.0
83.42	289.00	3063.8 / 1903.8	0.0	172.97	2966.4	2793.4
67.94	290.00	3075.7 / 1911.1	0.0	172.97	3006.8	2833.9
51.81	291.00	3096.9 / 1924.3	0.0	172.97	3066.4	2893.5
35.55	292.00	3128.3 / 1943.8	0.0	172.97	3147.3	2974.3
12.86	293.00	3201.6 / 1989.4	0.0	172.97	3315.9	3142.9

Class A Azimuth (deg)	Reference Azimuth (deg)	Distance to 0.1 mV (km)/ (mi)	K(1000) Value (mV/m@1km)	K(1600) Value (mV/m@1km)	Permiss Radiation (mV/m@1km)
181.08	283.00	3300.4 / 2050.8	7471.76	2793.57	3339.4
146.81	284.00	3126.7 / 1942.9	6746.26	2514.11	3007.9
138.67	285.00	3112.7 / 1934.1	6712.61	2504.58	2995.5
128.82	286.00	3104.0 / 1928.7	6704.75	2503.73	2993.8
117.10	287.00	3103.9 / 1928.7	6736.00	2516.88	3009.1
100.86	288.00	3099.4 / 1925.9	6751.28	2523.71	3016.9
83.42	289.00	3063.8 / 1903.8	6638.96	2481.32	2966.4
67.94	290.00	3075.7 / 1911.1	6728.67	2515.29	3006.8
51.81	291.00	3096.9 / 1924.3	6859.86	2565.43	3066.4
35.55	292.00	3128.3 / 1943.8	7037.30	2633.52	3147.3
12.86	293.00	3201.6 / 1989.4	7408.03	2775.44	3315.9

Call: WCKY
Freq: 1530 kHz
CINCINNATI, OH, US
Hours: D
Lat: 39-04-07 N
Lng: 084-36-20 W
Power: 50.0 kW
Theo RMS: 405.55 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swch	TL Swch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	196.0	0	0	0.0	0.0	0.0	0.0

Permissible radiation calculated using FCC 73.190 curves.
Calculations performed using distance to the class A station's 0.1 mV/m contour.

Class A Azimuth (deg)	Reference Azimuth (deg)	Distance to 0.1 mV (km)/ (mi)	Max Vert Angle (deg)	Max Rad Below Ang (mV/m@1km)	Permiss Radiation (mV/m@1km)	Margin (mV/m@1km)
191.71	0.00	287.4 / 178.6	39.1	172.97	191.8	18.8
190.20	1.00	286.7 / 178.1	39.2	172.97	190.5	17.5
188.70	2.00	286.1 / 177.8	39.2	172.97	189.2	16.3
187.20	3.00	285.7 / 177.5	39.3	172.97	188.1	15.1
185.71	4.00	285.5 / 177.4	39.3	172.97	187.0	14.0
184.22	5.00	285.6 / 177.4	39.3	172.97	186.0	13.0
182.73	6.00	285.8 / 177.6	39.3	172.97	185.0	12.0
181.24	7.00	286.0 / 177.7	39.2	172.97	184.1	11.1
179.81	8.00	284.9 / 177.0	39.3	172.97	182.8	9.8
178.42	9.00	283.8 / 176.3	39.5	172.97	181.5	8.5
177.11	10.00	282.1 / 175.3	39.6	172.97	180.1	7.1
175.88	11.00	280.2 / 174.1	39.8	172.97	178.7	5.7
174.69	12.00	278.6 / 173.1	40.0	172.97	177.4	4.4
173.49	13.00	277.7 / 172.5	40.1	172.97	176.3	3.3
172.04	14.00	279.5 / 173.7	39.9	172.97	176.0	3.0
170.53	15.00	281.9 / 175.2	39.6	172.97	175.8	2.8
168.98	16.00	284.5 / 176.8	39.4	172.97	175.7	2.8
167.34	17.00	287.7 / 178.7	39.1	172.97	175.8	2.8
165.62	18.00	291.3 / 181.0	38.7	172.97	176.0	3.0
163.81	19.00	295.2 / 183.4	38.3	172.97	176.3	3.3
161.79	20.00	300.3 / 186.6	37.8	172.97	176.8	3.8
159.51	21.00	306.6 / 190.5	37.2	172.97	177.7	4.7

157.07	22.00	313.3 /	194.7	36.6	172.97	178.7	5.7
153.97	23.00	322.9 /	200.7	35.8	172.97	180.4	7.5
149.00	24.00	340.0 /	211.2	34.3	172.97	184.0	11.0
141.72	25.00	364.3 /	226.3	32.4	172.97	189.4	16.4
124.07	26.00	420.2 /	261.1	28.7	172.97	203.0	30.0
242.77	339.00	406.8 /	252.8	29.5	172.97	204.2	31.2
240.53	340.00	399.8 /	248.4	30.0	172.97	203.2	30.2
236.59	341.00	387.2 /	240.6	30.8	172.97	200.7	27.8
231.19	342.00	369.9 /	229.8	32.0	172.97	196.9	23.9
226.96	343.00	356.9 /	221.7	33.0	172.97	194.3	21.3
223.40	344.00	346.4 /	215.2	33.8	172.97	192.4	19.4
220.32	345.00	337.8 /	209.9	34.5	172.97	190.9	18.0
217.59	346.00	330.5 /	205.4	35.1	172.97	189.9	16.9
215.08	347.00	324.2 /	201.5	35.7	172.97	189.1	16.1
212.75	348.00	318.6 /	198.0	36.1	172.97	188.5	15.6
210.57	349.00	313.7 /	194.9	36.6	172.97	188.1	15.2
208.51	350.00	309.4 /	192.2	37.0	172.97	187.9	14.9
206.59	351.00	305.7 /	189.9	37.3	172.97	187.9	14.9
204.74	352.00	302.4 /	187.9	37.6	172.97	187.9	15.0
202.96	353.00	299.5 /	186.1	37.9	172.97	188.1	15.1
201.24	354.00	296.9 /	184.5	38.2	172.97	188.4	15.4
199.58	355.00	294.7 /	183.1	38.4	172.97	188.8	15.8
197.95	356.00	292.8 /	181.9	38.6	172.97	189.2	16.3
196.36	357.00	291.1 /	180.9	38.7	172.97	189.8	16.8
194.79	358.00	289.7 /	180.0	38.9	172.97	190.4	17.4
193.24	359.00	288.4 /	179.2	39.0	172.97	191.1	18.1

Class A Azimuth (deg)	Reference Azimuth (deg)	Distance to 0.1 mV (km)/ (mi)		K(1000) Value (mV/m@1km)	K(1600) Value (mV/m@1km)	Permiss Radiation (mV/m@1km)
-----	-----	-----	-----	-----	-----	-----
191.71	0.00	287.4 /	178.6	474.50	154.47	191.8
190.20	1.00	286.7 /	178.1	471.83	153.33	190.5
188.70	2.00	286.1 /	177.8	469.35	152.25	189.2
187.20	3.00	285.7 /	177.5	467.06	151.23	188.1
185.71	4.00	285.5 /	177.4	464.94	150.28	187.0
184.22	5.00	285.6 /	177.4	462.98	149.38	186.0
182.73	6.00	285.8 /	177.6	461.17	148.55	185.0
181.24	7.00	286.0 /	177.7	459.35	147.72	184.1
179.81	8.00	284.9 /	177.0	456.61	146.60	182.8
178.42	9.00	283.8 /	176.3	453.92	145.52	181.5
177.11	10.00	282.1 /	175.3	450.88	144.34	180.1
175.88	11.00	280.2 /	174.1	447.71	143.13	178.7
174.69	12.00	278.6 /	173.1	444.86	142.05	177.4
173.49	13.00	277.7 /	172.5	442.50	141.14	176.3
172.04	14.00	279.5 /	173.7	441.98	140.85	176.0
170.53	15.00	281.9 /	175.2	441.80	140.69	175.8
168.98	16.00	284.5 /	176.8	441.77	140.60	175.7
167.34	17.00	287.7 /	178.7	442.05	140.62	175.8
165.62	18.00	291.3 /	181.0	442.61	140.75	176.0
163.81	19.00	295.2 /	183.4	443.38	140.97	176.3
161.79	20.00	300.3 /	186.6	444.83	141.42	176.8
159.51	21.00	306.6 /	190.5	446.99	142.13	177.7
157.07	22.00	313.3 /	194.7	449.44	142.95	178.7
153.97	23.00	322.9 /	200.7	453.54	144.35	180.4
149.00	24.00	340.0 /	211.2	461.96	147.27	184.0
141.72	25.00	364.3 /	226.3	474.65	151.70	189.4
124.07	26.00	420.2 /	261.1	506.52	162.90	203.0
242.77	339.00	406.8 /	252.8	509.52	163.82	204.2
240.53	340.00	399.8 /	248.4	507.34	163.04	203.2

236.59	341.00	387.2 /	240.6	501.56	161.01	200.7
231.19	342.00	369.9 /	229.8	492.56	157.87	196.9
226.96	343.00	356.9 /	221.7	486.36	155.71	194.3
223.40	344.00	346.4 /	215.2	481.77	154.14	192.4
220.32	345.00	337.8 /	209.9	478.33	152.98	190.9
217.59	346.00	330.5 /	205.4	475.75	152.15	189.9
215.08	347.00	324.2 /	201.5	473.72	151.52	189.1
212.75	348.00	318.6 /	198.0	472.13	151.08	188.5
210.57	349.00	313.7 /	194.9	470.92	150.78	188.1
208.51	350.00	309.4 /	192.2	470.06	150.64	187.9
206.59	351.00	305.7 /	189.9	469.61	150.65	187.9
204.74	352.00	302.4 /	187.9	469.38	150.76	187.9
202.96	353.00	299.5 /	186.1	469.35	150.96	188.1
201.24	354.00	296.9 /	184.5	469.55	151.26	188.4
199.58	355.00	294.7 /	183.1	469.99	151.64	188.8
197.95	356.00	292.8 /	181.9	470.58	152.09	189.2
196.36	357.00	291.1 /	180.9	471.34	152.61	189.8
194.79	358.00	289.7 /	180.0	472.24	153.18	190.4
193.24	359.00	288.4 /	179.2	473.30	153.80	191.1

Bromo Communications, Inc.

Radiofrequency Radiation Calculation
WTTI (AM)
1530 kHz
1 kW Daytime – 0.320 kW Critical Hours
Dalton, Georgia
March 2022

This Radiofrequency Radiation Calculation is performed for WTTI (AM). WTTI (AM) is modifying its facility to change its operation to non-directional, using the southern tower of the former directional array. There are no proposed changes to the structure.

There is a fence at a minimum of 2 meters from the base of the existing tower. The AM radiator is 0.25 wavelength. Table 2, "Predicted Distances for Compliance with FCC Limits: 0.25 Wavelength" was consulted. This table requires a 1 kW station to protect the public at a distance of 1 meter. Given that the fence restricts persons to a distance of 2 meters, it is thought that this proposal is in compliance with FCC Radiofrequency requirements.