August 2023
FM Translator W207BQ
Columbia, SC Channel 207D
Allocation Study

Non-Fill-In Translator ERP

The proposed facility will operate as a non-fill-in translator. The highest 30-degree-increment radial HAAT value is 285 meters on the 240-degree radial, which by reference to §73.1235(b) allows for a maximum omnidirectional ERP of 10 watts. This calculation used the 3-second terrain database.

Allocation Study

The attached spacing study shows the spacing between the proposed translator site and the location of cochannel and adjacent channel stations and proposals. This study was made with the Commission's Class A spacing requirements, and individual situations were examined to determine the lack of prohibited contour overlap per the requirements of §74.1204 of the Rules. The attached allocation study maps demonstrate compliance with the Commission's Rules for protection of FM broadcast stations and FM translators as outlined in §74.1204.

Since the proposed operation will be with less than 100 watts ERP, there are no spacing restrictions to stations which are 53 or 54 channels removed from the proposed operation.

Second- and Third-Adjacent Channel Stations

The proposed translator transmitter site is located within the 60 dBu protected contours of second-adjacent channel station WMHK 209C Columbia. The following calculation, performed using the *Living Way* methodology, demonstrates interference protection to that station.

Protected Station	Distance & Bearing to Proposal	Station ERP and HAAT on that azimuth	Station Field Strength at Proposal	Corresponding Translator Interfering Contour	Distance to Translator Interfering Contour
WMHK 209C	16.13 km 279 deg True	100 kW 394 meters	94.1 dBu F(50,50)	134.1 dBu	4.4 meters Free Space

The 134.1 dBu contour extends only 4.4 meters from the antenna per a Free Space calculation and will not reach ground level, which is 240 meters below the antenna. There is no population within

this contour. Therefore, the proposed facility is believed to satisfy the requirements of §74.1204(d) with respect to WMHK.

TV Channel 6

Section 74.1205 of the Commission's Rules specifies a threshold distance of 135 kilometers for FM translators operating on Channel 207. There is no TV Channel 6 station located within this threshold distance. The nearest (WCES-TV Wrens) is located 157 kilometers distant.

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SEARCH PARAMETERS FM Database Date: 20230811

Channel: 207A 89.3 MHz

Latitude: 34 7 7.0 (NAD83)

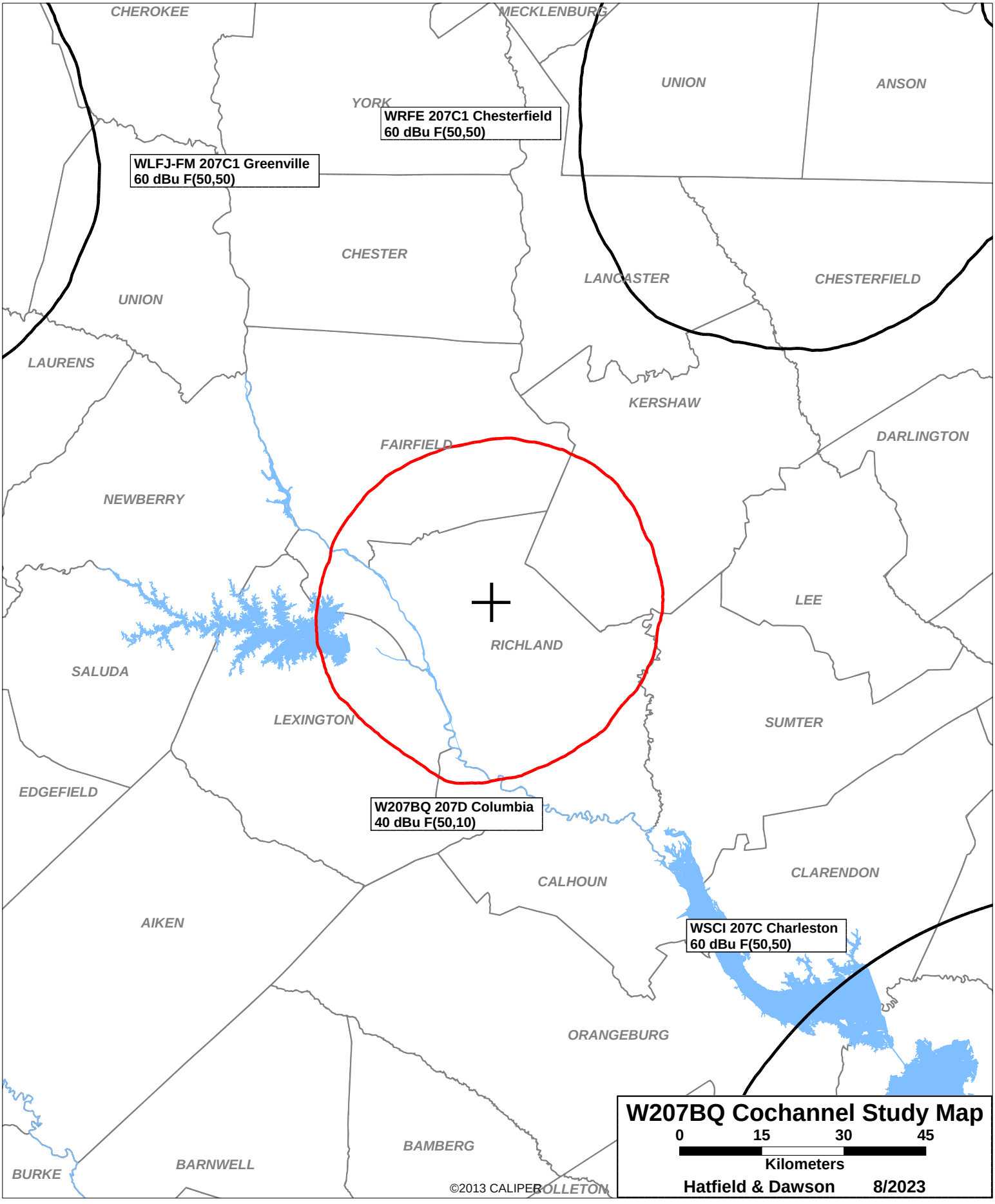
Longitude: 80 56 12.7

Safety Zone: 50 km

Job Title: W207BQ ASR 1059176

Call	City	Channel	ERP(kW)		Latitude	Bearing	Dist	Req
Status	St FCC File No.	Freq.	HAAT(m)		Longitude	deg-True	(km)	(km)
WBIJ	SALUDA	204C1	51.000	DA	33 57 22.5	258.8	90.96	75
LIC	SC BLED-20130814ABG	88.7	120.0		81 54 8.4		15.96	CLEAR
W204BR	MANNING	204D	0.050		33 39 27.6	131.3	77.38	0
LIC	SC BLFT-20001024ABW	88.7	0.0		80 18 32.3		0.00	TRANS
WZLC	SUMMERVILLE	205C1	70.000	DA	33 11 33.6	161.4	108.37	75
LIC	SC BLED-20140106DWC	88.9	96.0		80 33 50.4		33.37	CLEAR
WNSC-FM	ROCK HILL	205C1	100.000		34 50 23.5	354.7	80.36	75
LIC	SC BMLED-20060215AA	88.9	183.0		81 1 6.3		5.36	CLOSE
WLJK	AIKEN	206C1	10.000		33 24 18.5	226.6	114.99	133
LIC	SC BLED-19890814KA	89.1	419.0		81 50 14.4		-18.01	SHORT
W206BY	SUMTER	206D	0.013		33 56 56.6	110.4	53.67	0
LIC	SC BLFT-20160824AAY	89.1	0.0		80 23 33.3		0.00	TRANS
W206AR	FLORENCE	206D	0.080		34 8 38.6	88.1	101.75	0
LIC	SC BMLFT-20060411AC	89.1	0.0		79 50 3.2		0.00	TRANS
WLFJ-FM	GREENVILLE	207C1	41.000	DA	34 56 26.4	304.5	163.28	200
LIC	SC BLED-19830512AP	89.3	335.0		82 24 43.4		-36.72	SHORT
WSCI	CHARLESTON	207C	100.000	DA	32 55 28.6	138.8	175.38	226
LIC	SC BMLED-20161028AA	89.3	418.0		79 41 57.3		-50.62	SHORT
W207BQ	COLUMBIA	207D	0.038		34 7 2.5	91.7	4.70	0
LIC	SC BLFT-20120306AAT	89.3	0.0		80 53 9.3		0.00	TRANS
WRFE	CHESTERFIELD	207C1	50.000	DA	34 54 10.0	39.2	112.86	200
LIC	SC BLED-20180301AAI	89.3	188.8		80 9 13.6		-87.14	SHORT
WQAI	THOMSON	208C1	63.000	DA	33 44 32.5	254.5	152.32	133
LIC	GA BLED-20150416AAJ	89.5	145.0		82 31 16.5		19.32	CLEAR
WMHK	COLUMBIA	209C	100.000	DA	34 5 49.5	98.5	16.13	95
LIC	SC BLED-19940323KA	89.7	426.0		80 45 50.3		-78.87	SHORT
WXBT	WEST COLUMBIA	261A	5.900		34 4 7.5	245.9	13.57	10
LIC	SC BMLH-20030619AAA	100.1	100.0		81 4 16.3		3.57	CLOSE

==== END OF FM SPACING STUDY FOR CHANNEL 207 ====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UNION
ANSON
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60 dBu F(50,50)
WLFJ-FM 207C1 Greenville
60 dBu F(50,50)
CHESTER
LANCASTER
CHESTERFIELD
UNION
LAURENS
KERSHAW
FAIRFIELD
DARLINGTON
NEWBERRY
LEE
RICHLAND
SALUDA
LEXINGTON
SUMTER
EDGEFIELD
W207BQ 207D Columbia
40 dBu F(50,10)
CALHOUN
CLARENDON
AIKEN
WSCI 207C Charleston
60 dBu F(50,50)
ORANGEBURG
BAMBERG
BURKE
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©2013 CALIPER
COLLETON
W207BQ Cochannel Study Map
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Kilometers
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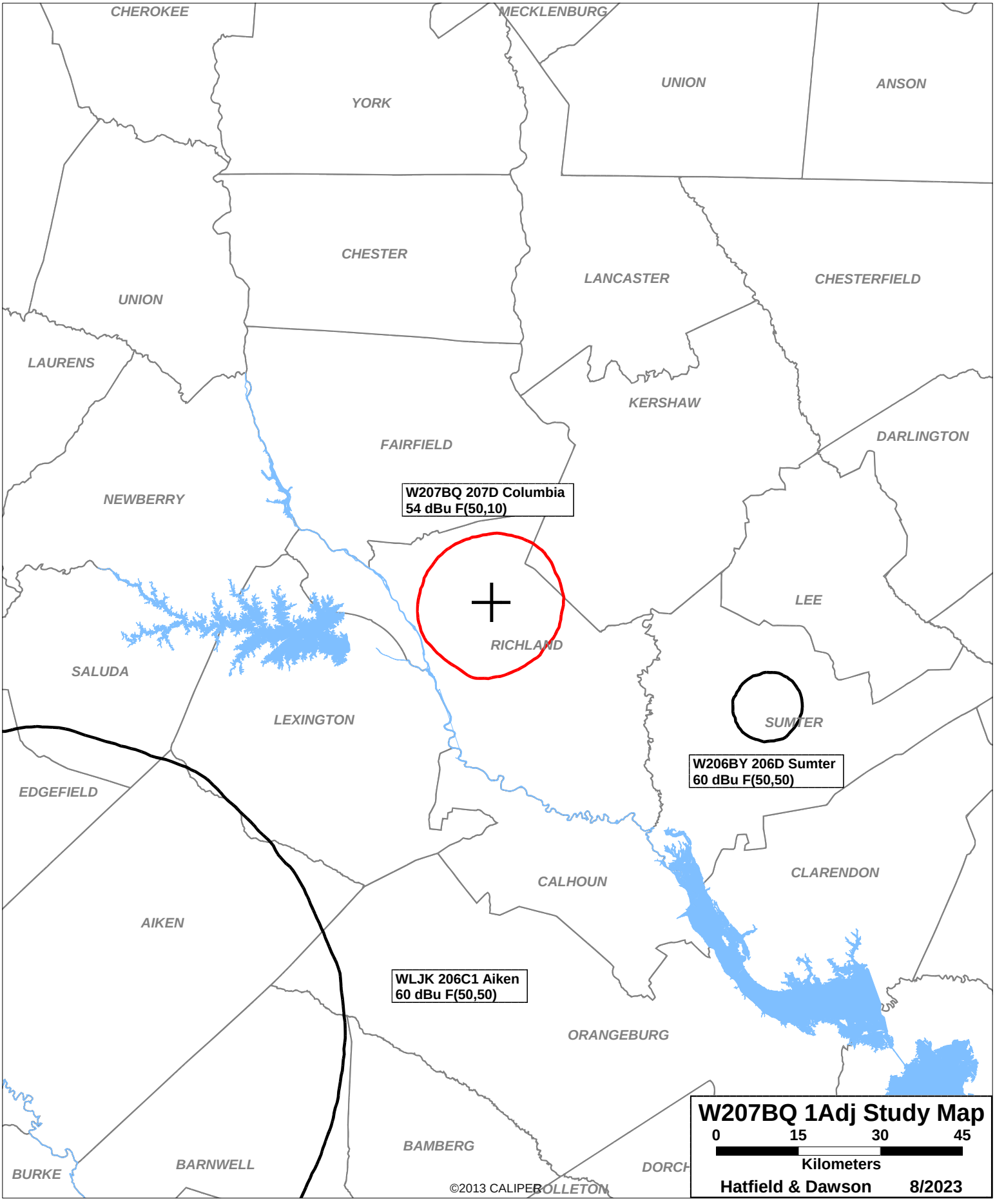

CHEROKEE
MECKLENBURG
YORK
UNION
ANSON
CHESTER
LANCASTER
CHESTERFIELD
UNION
LAURENS
KERSHAW
FAIRFIELD
DARLINGTON
NEWBERRY
W207BQ 207D Columbia
54 dBu F(50,10)
LEE
RICHLAND
SALUDA
LEXINGTON
SUMTER
W206BY 206D Sumter
60 dBu F(50,50)
EDGEFIELD
CALHOUN
CLARENDON
AIKEN
WLJK 206C1 Aiken
60 dBu F(50,50)
ORANGEBURG
BAMBERG
BARNWELL
BURKE
DORCH
COLLETON
©2013 CALIPER
W207BQ 1Adj Study Map
0 15 30 45
Kilometers
Hatfield & Dawson 8/2023

August 2023
FM Translator W207BQ
Columbia, SC Channel 207D
RF Exposure Study

Facilities Proposed

The proposed operation will be on Channel 207D (89.3 MHz) with an effective radiated power of 10 watts. Operation is proposed with an antenna to be mounted on an existing tower with FCC Antenna Structure Registration Number 1059176.

RF Exposure Calculations

The power density calculations shown below were made using the techniques outlined in OET Bulletin No. 65. "Ground level" calculations in this report have been made at a reference height of 2 meters above ground to provide a worst-case estimate of exposure for persons standing on the ground in the vicinity of the tower. The equation shown below was used to calculate the ground level power density figures from each antenna.

$$S(\mu W / cm^2) = \frac{33.4 \times AdjERP(Watts)}{D^2}$$

Where: *AdjERP(Watts)* is the maximum lobe effective radiated power times the element pattern factor times the array pattern factor.

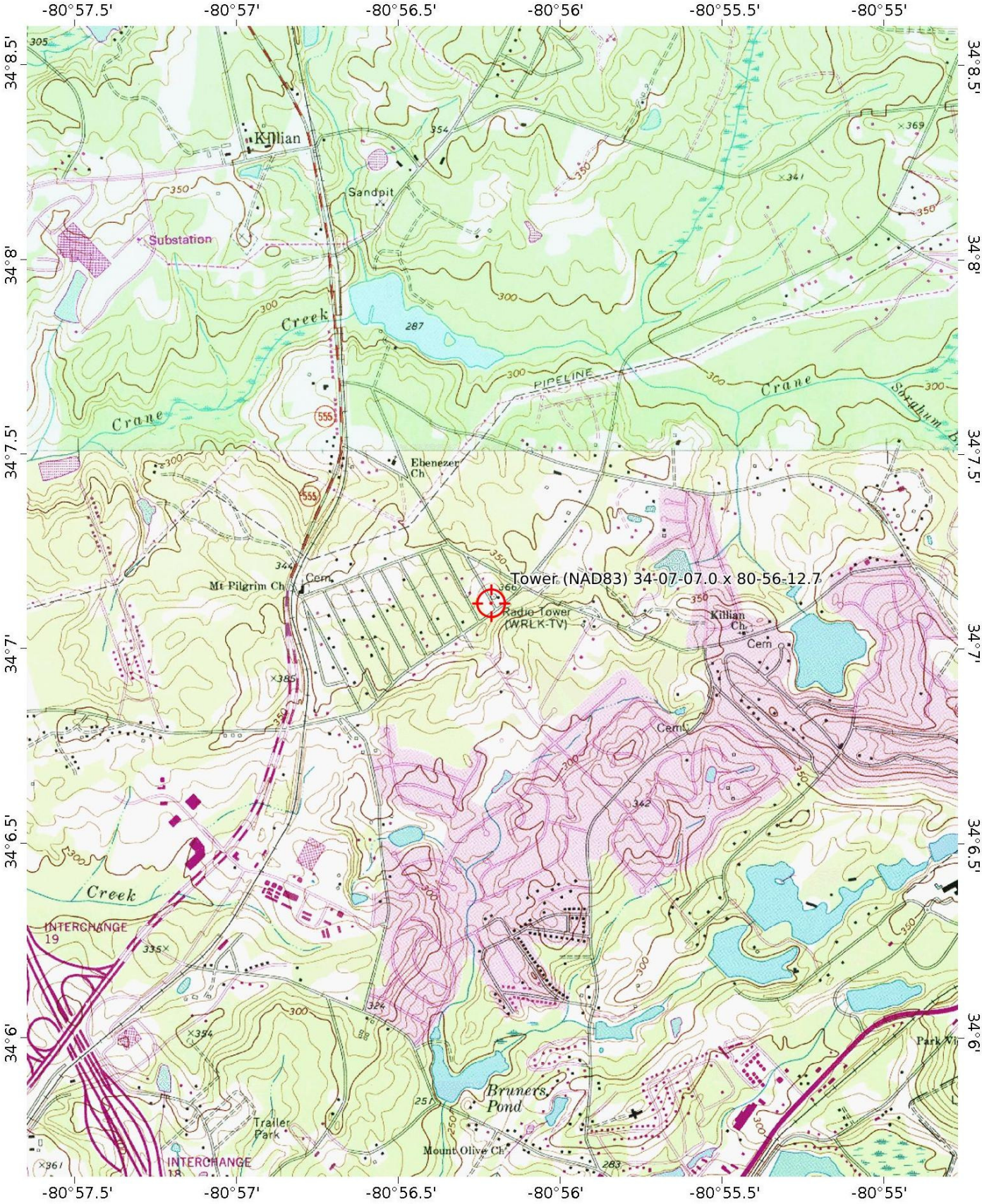
D is the distance in meters from the center of radiation to the calculation point.

Ground level power densities have been calculated for locations extending from the base of the tower to a distance of 500 meters. Values past this point are increasingly negligible.

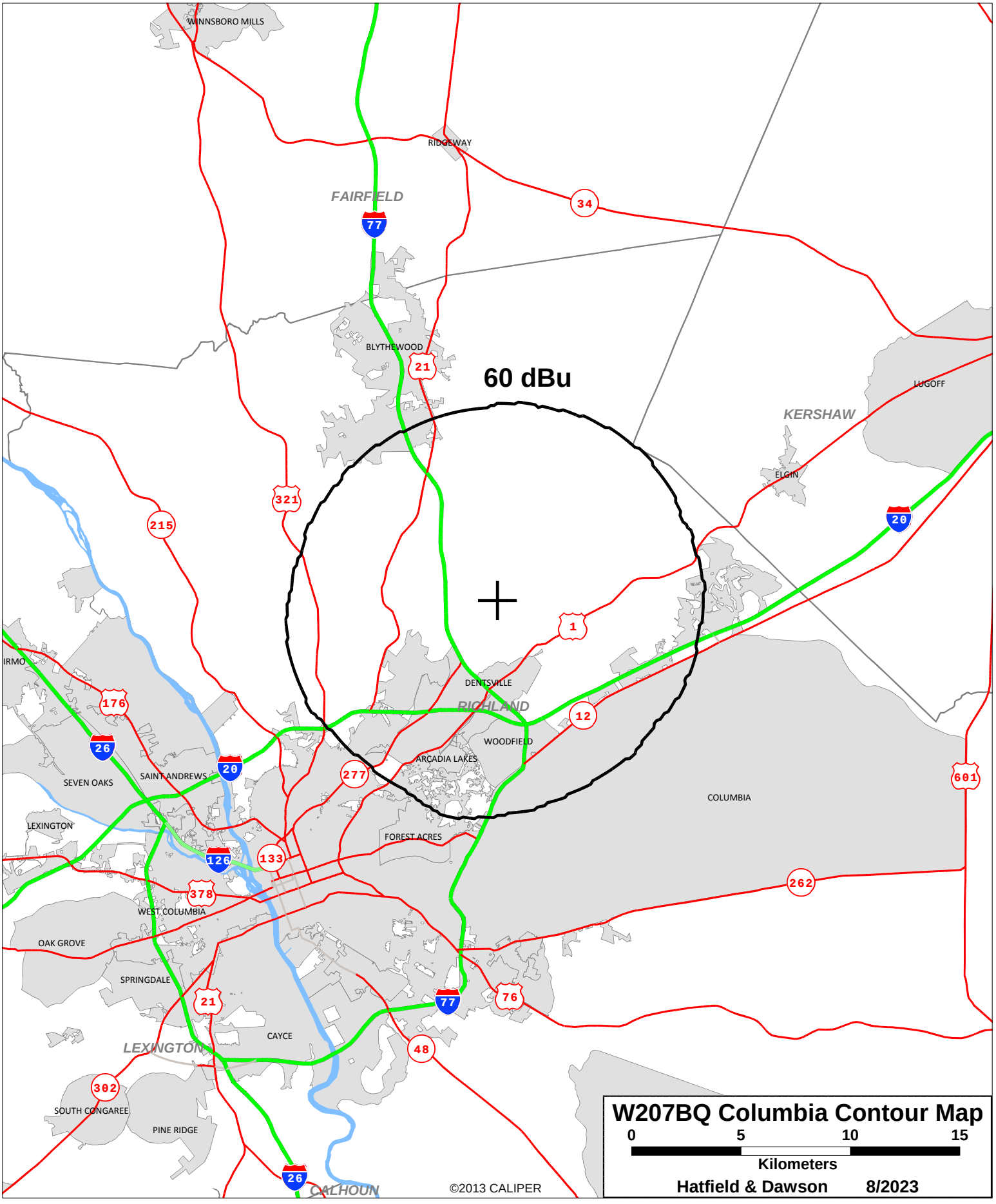
Calculations of the power density produced by the antenna system have been made assuming that the antenna will radiate 100% power straight down to a point 2 meters above ground at the base of the tower (i.e. 238 meters below the antenna). Under this worst-case assumption, the highest calculated ground level power density from this translator alone occurs at the base of the antenna support structure. At this point the power density is calculated to be 0.01 μW/cm², which is <0.1% of 200 μW/cm² (the FCC standard for uncontrolled environments).

These calculations show that the maximum calculated power density produced at two meters above ground level by the proposed operation alone is less than 5% of the applicable FCC exposure limit at all locations between 1 and 500 meters from the base of the antenna support structure. Section 1.1307 of the Commission's Rules exempts applications for new facilities or modifications to existing facilities from the requirement of preparing an environmental assessment when the calculated emissions from the applicants proposed facility are predicted to be less than 5% of the applicable FCC exposure limit. Therefore, the proposed facility is in compliance with Section 1.1301 *et seq* and no further analysis of RF exposure at this site is required in this application.

The permittee/licensee in coordination with other users of the site must reduce power or cease operation as necessary to protect persons having access to the site, tower or antenna from radiofrequency exposure in excess of FCC guidelines.



Hatfield & Dawson Consulting Engineers



W207BQ Columbia Contour Map

0 5 10 15

Kilometers

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