

**NEW 212A
Harrisburg, IL**

This technical report is submitted in support of an application for a NEW 212A facility at Harrisburg, IL.

Proposed 60 dBu service:

60 dBu Population = 17,517 (2010)

60 dBu Area = 1,077 sq km (less water area)

1st NCE service = 1,262/ 256.2 sq km

2nd NCE service = 16,255/ 820.8 sq km (less water area)

1st and 2nd NCE service = 17,517/ 1,077 sq km

See exhibit E-6. NCE service areas calculated using V-Soft Probe 4, FCC 30 meter terrain and 0.05 km calculation cells.

New 212A Allocation:

An overlap study in exhibit E-1 shows the NEW 212A facility will not produce any interference overlap to other facilities at coordinates:

37 35 06.0N 088 30 47.0W NAD83.

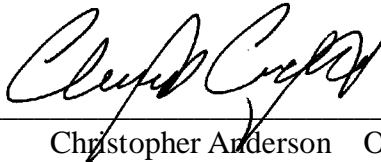
An ERI 100A, four bay, 0.5 wavelength-spaced, non-directional antenna will be mounted on the existing 125.0 meter tower, ASR #1008902, at a COR AGL of 102.1 meters, 358.1 meters AMSL, 191.8 meters HAAT (exhibit E-2) and will operate at 260 watts ERP. The 60 dBu contour encompasses 100% of the Harrisburg area complying with §73.515 (see E-3).

RF Exposure Calculation:

The RF contribution of the New 212A facility was calculated using the FMModel program (exhibit E-4). The resulting value is $0.036 \mu\text{W}/\text{cm}^2$ at a distance of 95.1 meters from the base of the tower, which is below 5% of the $200 \mu\text{W}/\text{cm}^2$ maximum permissible for general public exposure, allowing exclusion from consideration.

Conclusion:

It is submitted that the application for NEW 212A facility is in full compliance with the Commission rules and policies.



Christopher Anderson October 12, 2021
andersce@bham.rr.com

E-1 New 212A Overlap Study

REFERENCE		CH# 212A - 90.3 MHz, Pwr= 0.26 kW, HAAT= 191.8 M, COR= 358.1 M								DISPLAY DATES	
37 35 06.00 N.		Average Protected F(50-50)= 18.31 km								DATA 10-12-21	
88 30 47.00 W.		Omni-directional								SEARCH 10-12-21	
CH CITY	CALL	TYPE STATE	ANT	AZI <--	DIST FILE #	LAT LNG	PWR(kW) HAAT(M)	INT(km) COR(M)	PRO(km) LICENSEE	*IN* (Overlap in km)	*OUT*
212B Olney	WUSI	LIC _CN IL		13.4 193.6	143.32 BLED19921113KD	38 50 18.10 88 07 46.10	25.000 144	121.4 294	45.4 Board Of Trustees	1.4	34.9 Of South
211A Ledbetter	WKYP	LIC _CN KY		188.6 8.5	60.26 BLED20100901ACD	37 02 56.20 88 36 52.20	1.200 168	37.5 278	24.9 Educational Media Foundati	4.3	7.9
211A Marion	WAWJ	LIC _VN IL		298.9 118.5	62.81 BLED20001201AAO	37 51 23.20 89 08 22.30	3.000 105	37.1 223	24.3 American Family Associatio	6.0	9.2
211A Wadesville	WSDM	LIC DVN IN		52.8 233.2	64.54 BLED20061013AAA	37 56 03.20 87 55 35.10	6.000 87	32.3 199	20.6 The Innovation Center Inc	14.1	16.1
213C3 Benton	WVHM	LIC _CN KY		163.4 343.6	90.03 BLED20120208ADQ	36 48 31.20 88 13 26.10	16.500 102	55.4 233	35.7 Heartland Ministries, Inc.	16.5	26.5
212B1 Sparta	WMSH	LIC DCN IL		289.3 108.4	126.66 BLED20120322AFH	37 57 11.20 89 52 37.40	5.200 136	81.2 277	27.3 Covenant Network	26.0	38.0
212B Sparta	WMSH	CP DCN IL		289.3 108.4	126.65 0000112343	37 57 11.00 89 52 37.00	33.000 185	80.1 326	27.6 Covenant Network	27.1	37.6
212D Brentwood	W212BZ	LIC _CN KY		103.5 284.1	94.97 BLFT20071106ACG	37 22 51.20 87 28 04.00	0.019 87	19.6 219	5.9 Way Media , Inc.	57.0	31.7
212C Nashville	WPLN-FM	LIC _CN TN		138.8 319.8	227.20 BMLED20181105ACD	36 02 08.20 86 50 55.00	80.000 345	175.9 580	75.8 Nashville Public Radio	32.8	92.8
211D Crossville	W211B	LIC _CN IL		33.1 213.4	77.45 BLFT20000712ABC	38 10 04.10 88 01 46.10	0.038 74	9.8 192	6.8 Family Worship Center Chur	47.7	41.0
212A Owensboro	WKWC	LIC _CN KY		81.4 262.3	123.48 BLED20020409AAG	37 44 32.10 87 07 26.90	5.000 25	64.0 147	15.0 Kentucky Wesleyan College	41.3	54.4
213A Mount Vernon	WAPO	LIC _CN IL		335.4 155.2	88.83 BLED20050207ADI	38 18 39.20 88 56 11.20	1.100 62	23.2 206	15.6 American Family Associatio	45.5	43.5
215C3 Bluford	WVYN	LIC _CN IL		351.8 171.7	71.28 BLED20110527ADY	38 13 10.20 88 37 47.20	11.000 64	2.6 199	25.8 Pure Word Radio, Inc.	48.2	44.0
266D Paducah	W266CO	LIC _CN KY		190.1 10.1	54.83 BLFT20170117AAV	37 05 55.20 88 37 19.20	0.100 43	107.5 152	42.4 Withers Broadcasting Compa	9.5R	45.3M
215C2 Madisonville	WKMD	LIC DCN KY		105.4 286.0	91.40 BLED20100308ACQ	37 21 47.20 87 30 56.00	20.500 122	4.3 258	41.5 Board Of Regents, Murray S	68.6	48.6
06 -- Evansville	W06DG-D	CP _CY IN		73.7 254.5	108.28 BNPDTL-20090825AZX	35 58 55.20 86 34 57.90	3.000	10.6 214	20.3	30.8R	77.4M
06 -- Lebanon	WDHC-LD	CP DCN KY		142.9 323.6	179.25 0000150869	35 58 55.20 86 34 57.90	3.000	11.1 431	33.2	44.3R	135.0M
06 -- Lebanon	WDHC-LD	LI DHN KY		134.4 315.3	190.91 0000146037	35 58 55.20 86 34 57.90	0.600	11.1 180	1.4	12.5R	178.5M
06 -- Lebanon	WDHC-LD	APP DHN KY		149.0 329.6	196.02 0000158186	35 58 55.20 86 34 57.90	0.505	11.1 255	1.6	12.7R	183.3M

Terrain database is FCC 30 meter , R= 73.215 qualifying spacings or FCC minimum Spacings in KM, M= Margin in KM
In & Out distances between contours are shown at closest points. Reference zone= - Zone 1, Co to 3rd adjacent.
All separation margins (if shown) include rounding. Call signs with strikeout need not be protected.
Ant Column: (D= DA Standard, Z= DA 73.215, N= Not DA 73.215, _= Omni), Polarization (C,H,V,E), Beamtilt(Y,N,X)
"***"affixed to 'IN' or 'OUT' values = site inside restricted contour.
« = Station meets FCC minimum distance spacing for its class.

E-1 NEW 212A - WUSI Interference Plot

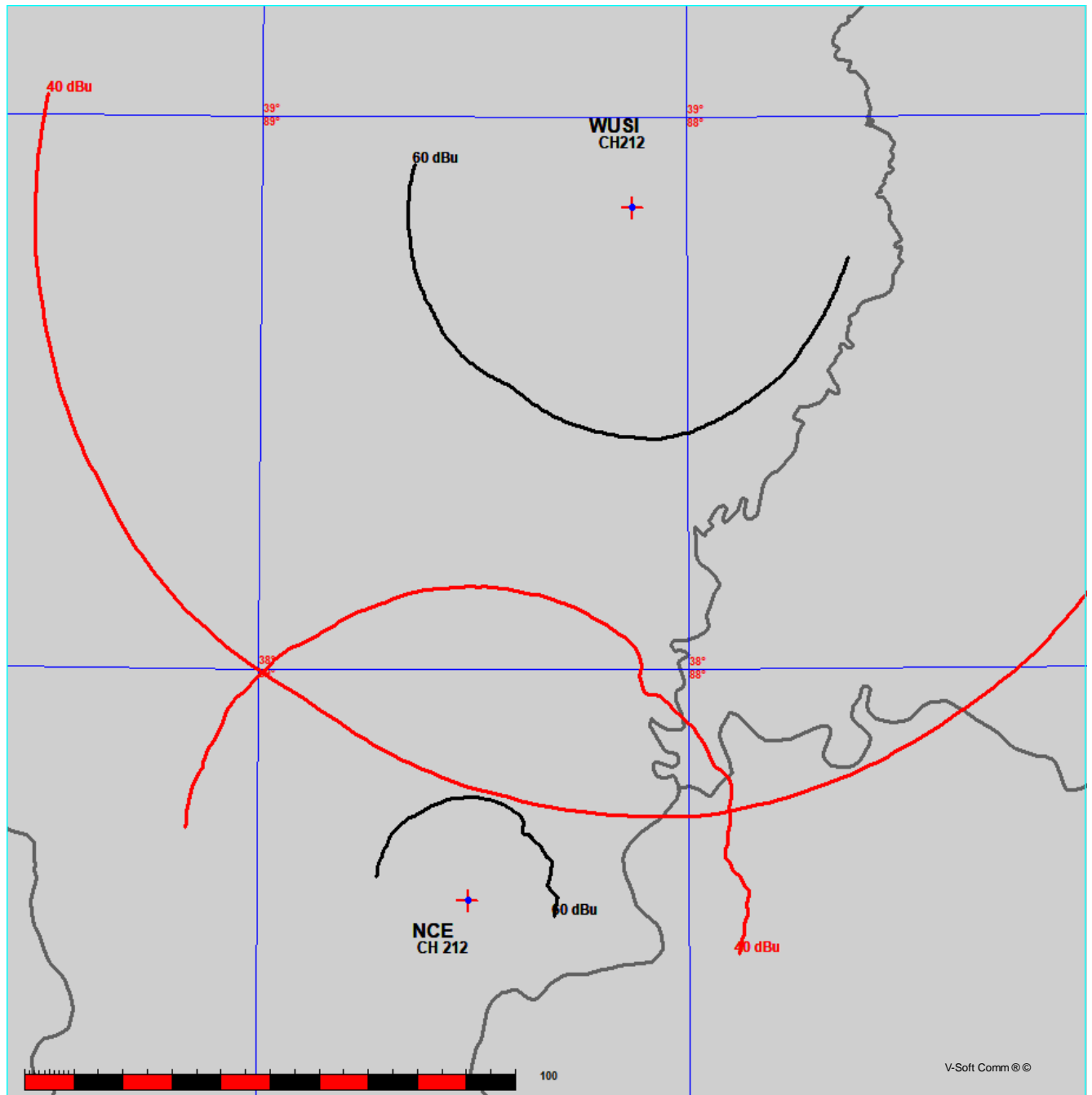
FMCommander Single Allocation Study - 10-24-2021 - FCC 30 meter
NCE's Overlaps (In= 1.37 km, Out= 34.9 km)

NCE CH 212 A

Lat= 37 35 06.00, Lng= 88 30 47.00
0.26 kW 191.8 m HAAT, 358.1 m COR
Prot.= 60 dBu, Intef.= 40 dBu

WUSI CH 212 B BLED19921113KD

Lat= 38 50 18.10, Lng= 88 07 46.10
25.0 kW 144 m HAAT, 294 m COR
Prot.= 60 dBu, Intef.= 40 dBu



E-1 FMOver From WUSI

10-24-2021 Terrain Data: FCC 30 meter FMOver Analysis

NCE

WUSI BLED19921113KD

Channel = 212A
Max ERP = 0.26 kW
RCAMSL = 358.1 m
N. Lat. 37 35 06.00
W. Lng. 88 30 47.00
Protected
60 dBu

Channel = 212B
Max ERP = 25 kW
RCAMSL = 294 m
N. Lat. 38 50 18.10
W. Lng. 88 07 46.10
Interfering
40 dBu

Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Azimuth (degrees)	ERP (kW)	HAAT (m)	Dist (km)	Actual (dBu)	IX (km)
322.0	000.2600	0234.4	020.2	200.5	025.0000	0143.1	131.7	38.00	
323.0	000.2600	0234.6	020.2	200.5	025.0000	0143.2	131.4	38.06	
324.0	000.2600	0234.5	020.2	200.4	025.0000	0143.2	131.1	38.12	
325.0	000.2600	0232.1	020.1	200.2	025.0000	0143.1	130.8	38.16	
326.0	000.2600	0230.1	020.0	200.1	025.0000	0143.1	130.6	38.20	
327.0	000.2600	0228.8	020.0	200.0	025.0000	0143.1	130.3	38.25	
328.0	000.2600	0227.4	019.9	199.9	025.0000	0143.1	130.1	38.30	
329.0	000.2600	0226.4	019.9	199.8	025.0000	0143.3	129.9	38.35	
330.0	000.2600	0225.4	019.8	199.7	025.0000	0143.3	129.6	38.40	
331.0	000.2600	0226.2	019.9	199.6	025.0000	0143.5	129.3	38.46	
332.0	000.2600	0226.4	019.9	199.5	025.0000	0143.5	129.1	38.51	
333.0	000.2600	0227.5	019.9	199.4	025.0000	0143.6	128.8	38.56	
334.0	000.2600	0227.9	019.9	199.3	025.0000	0143.6	128.5	38.61	
335.0	000.2600	0229.6	020.0	199.2	025.0000	0143.7	128.2	38.67	
336.0	000.2600	0231.0	020.1	199.1	025.0000	0143.8	128.0	38.73	
337.0	000.2600	0230.7	020.1	199.0	025.0000	0144.0	127.7	38.78	
338.0	000.2600	0231.4	020.1	198.9	025.0000	0144.0	127.5	38.83	
339.0	000.2600	0232.7	020.2	198.8	025.0000	0144.0	127.2	38.88	
340.0	000.2600	0232.4	020.1	198.7	025.0000	0144.0	127.0	38.92	
341.0	000.2600	0232.3	020.1	198.5	025.0000	0144.0	126.8	38.96	
342.0	000.2600	0232.1	020.1	198.4	025.0000	0144.3	126.6	39.00	
343.0	000.2600	0232.4	020.1	198.3	025.0000	0144.4	126.4	39.05	
344.0	000.2600	0232.8	020.2	198.1	025.0000	0144.5	126.1	39.09	
345.0	000.2600	0233.8	020.2	198.0	025.0000	0144.5	125.9	39.13	
346.0	000.2600	0236.3	020.3	197.9	025.0000	0144.7	125.6	39.19	
347.0	000.2600	0236.7	020.3	197.8	025.0000	0144.8	125.4	39.23	
348.0	000.2600	0238.8	020.4	197.7	025.0000	0145.0	125.2	39.28	
349.0	000.2600	0239.9	020.5	197.5	025.0000	0145.2	125.0	39.33	
350.0	000.2600	0240.3	020.5	197.4	025.0000	0145.4	124.8	39.37	
351.0	000.2600	0241.2	020.5	197.2	025.0000	0145.5	124.6	39.40	
352.0	000.2600	0241.1	020.5	197.1	025.0000	0145.5	124.5	39.43	
353.0	000.2600	0240.8	020.5	196.9	025.0000	0145.4	124.3	39.46	
354.0	000.2600	0240.7	020.5	196.8	025.0000	0145.3	124.2	39.48	
355.0	000.2600	0240.4	020.5	196.6	025.0000	0145.3	124.1	39.50	
356.0	000.2600	0240.6	020.5	196.5	025.0000	0145.3	123.9	39.52	
357.0	000.2600	0240.2	020.5	196.3	025.0000	0145.3	123.8	39.54	
358.0	000.2600	0240.0	020.5	196.2	025.0000	0145.3	123.7	39.57	
359.0	000.2600	0240.0	020.5	196.0	025.0000	0145.3	123.6	39.59	
000.0	000.2600	0241.6	020.5	195.8	025.0000	0145.3	123.4	39.62	
001.0	000.2600	0242.0	020.5	195.7	025.0000	0145.3	123.3	39.63	
002.0	000.2600	0241.8	020.5	195.5	025.0000	0145.2	123.3	39.65	
003.0	000.2600	0242.8	020.6	195.4	025.0000	0145.2	123.1	39.67	
004.0	000.2600	0243.2	020.6	195.2	025.0000	0145.1	123.0	39.68	
005.0	000.2600	0243.4	020.6	195.0	025.0000	0145.2	123.0	39.70	
006.0	000.2600	0242.7	020.6	194.9	025.0000	0145.2	122.9	39.71	

E-1 FMOver Continued

007.0	000.2600	0242.4	020.6	194.7	025.0000	0145.4	122.9	39.72
008.0	000.2600	0242.2	020.6	194.5	025.0000	0145.4	122.9	39.72
009.0	000.2600	0241.6	020.5	194.4	025.0000	0145.5	122.9	39.73
010.0	000.2600	0241.4	020.5	194.2	025.0000	0145.2	122.8	39.72
011.0	000.2600	0241.0	020.5	194.0	025.0000	0145.3	122.8	39.73
012.0	000.2600	0240.9	020.5	193.9	025.0000	0145.3	122.8	39.73
013.0	000.2600	0241.3	020.5	193.7	025.0000	0145.4	122.8	39.74
014.0	000.2600	0242.0	020.5	193.5	025.0000	0145.6	122.8	39.75
015.0	000.2600	0241.4	020.5	193.4	025.0000	0145.6	122.8	39.74
016.0	000.2600	0240.5	020.5	193.2	025.0000	0145.6	122.9	39.73
017.0	000.2600	0239.9	020.5	193.0	025.0000	0145.7	122.9	39.72
018.0	000.2600	0240.1	020.5	192.9	025.0000	0145.8	122.9	39.72
019.0	000.2600	0239.6	020.4	192.7	025.0000	0145.8	123.0	39.71
020.0	000.2600	0238.8	020.4	192.5	025.0000	0145.8	123.1	39.70
021.0	000.2600	0238.0	020.4	192.4	025.0000	0146.0	123.2	39.69
022.0	000.2600	0237.4	020.4	192.2	025.0000	0146.1	123.2	39.68
023.0	000.2600	0236.1	020.3	192.1	025.0000	0146.1	123.4	39.65
024.0	000.2600	0234.7	020.2	191.9	025.0000	0146.2	123.5	39.63
025.0	000.2600	0233.9	020.2	191.8	025.0000	0146.3	123.6	39.62
026.0	000.2600	0233.8	020.2	191.6	025.0000	0146.6	123.7	39.61
027.0	000.2600	0232.8	020.2	191.4	025.0000	0146.6	123.8	39.58
028.0	000.2600	0231.8	020.1	191.3	025.0000	0146.6	124.0	39.56
029.0	000.2600	0230.8	020.1	191.1	025.0000	0146.8	124.1	39.53
030.0	000.2600	0229.5	020.0	191.0	025.0000	0147.0	124.3	39.51
031.0	000.2600	0229.6	020.0	190.9	025.0000	0146.9	124.4	39.49
032.0	000.2600	0228.6	020.0	190.7	025.0000	0147.0	124.5	39.46
033.0	000.2600	0226.1	019.9	190.6	025.0000	0147.1	124.8	39.42
034.0	000.2600	0223.0	019.7	190.5	025.0000	0147.2	125.0	39.37
035.0	000.2600	0219.0	019.6	190.3	025.0000	0147.3	125.3	39.32
036.0	000.2600	0211.4	019.2	190.3	025.0000	0147.4	125.8	39.24
037.0	000.2600	0201.4	018.8	190.2	025.0000	0147.4	126.3	39.13
038.0	000.2600	0185.9	018.1	190.2	025.0000	0147.4	127.1	38.99
039.0	000.2600	0179.8	017.8	190.2	025.0000	0147.5	127.5	38.92
040.0	000.2600	0174.8	017.5	190.1	025.0000	0147.6	127.9	38.85
041.0	000.2600	0171.7	017.4	190.0	025.0000	0147.7	128.2	38.80
042.0	000.2600	0174.8	017.5	189.9	025.0000	0148.0	128.2	38.80
043.0	000.2600	0181.4	017.9	189.7	025.0000	0148.1	128.1	38.82
044.0	000.2600	0184.9	018.0	189.5	025.0000	0148.1	128.1	38.82
045.0	000.2600	0183.3	018.0	189.4	025.0000	0148.2	128.4	38.77
046.0	000.2600	0185.8	018.1	189.3	025.0000	0148.2	128.5	38.75
047.0	000.2600	0185.5	018.1	189.2	025.0000	0148.3	128.7	38.72
048.0	000.2600	0185.7	018.1	189.1	025.0000	0148.3	128.9	38.68
049.0	000.2600	0186.7	018.1	189.0	025.0000	0148.3	129.0	38.65
050.0	000.2600	0188.3	018.2	188.8	025.0000	0148.3	129.2	38.62
051.0	000.2600	0189.5	018.2	188.7	025.0000	0148.4	129.3	38.59
052.0	000.2600	0190.4	018.3	188.6	025.0000	0148.5	129.5	38.56
053.0	000.2600	0192.2	018.4	188.5	025.0000	0148.5	129.7	38.52
054.0	000.2600	0192.1	018.4	188.4	025.0000	0148.5	129.9	38.48
055.0	000.2600	0190.9	018.3	188.3	025.0000	0148.6	130.2	38.43
056.0	000.2600	0190.6	018.3	188.2	025.0000	0148.6	130.4	38.38
057.0	000.2600	0191.9	018.4	188.1	025.0000	0148.6	130.6	38.34
058.0	000.2600	0190.4	018.3	188.0	025.0000	0148.6	130.9	38.29
059.0	000.2600	0190.0	018.3	187.9	025.0000	0148.7	131.2	38.24
060.0	000.2600	0188.5	018.2	187.9	025.0000	0148.7	131.5	38.18
061.0	000.2600	0188.1	018.2	187.8	025.0000	0148.8	131.7	38.13
062.0	000.2600	0188.0	018.2	187.7	025.0000	0148.9	132.0	38.09
063.0	000.2600	0193.3	018.4	187.5	025.0000	0149.1	132.1	38.07
064.0	000.2600	0197.8	018.6	187.4	025.0000	0149.3	132.3	38.04
065.0	000.2600	0199.8	018.7	187.3	025.0000	0149.3	132.5	38.00
066.0	000.2600	0201.1	018.8	187.2	025.0000	0149.4	132.8	37.95

E-2 New 212A HAAT Calculation

N. Lat. = 37-35-06.0 W. Lng. = 88-30-47.0

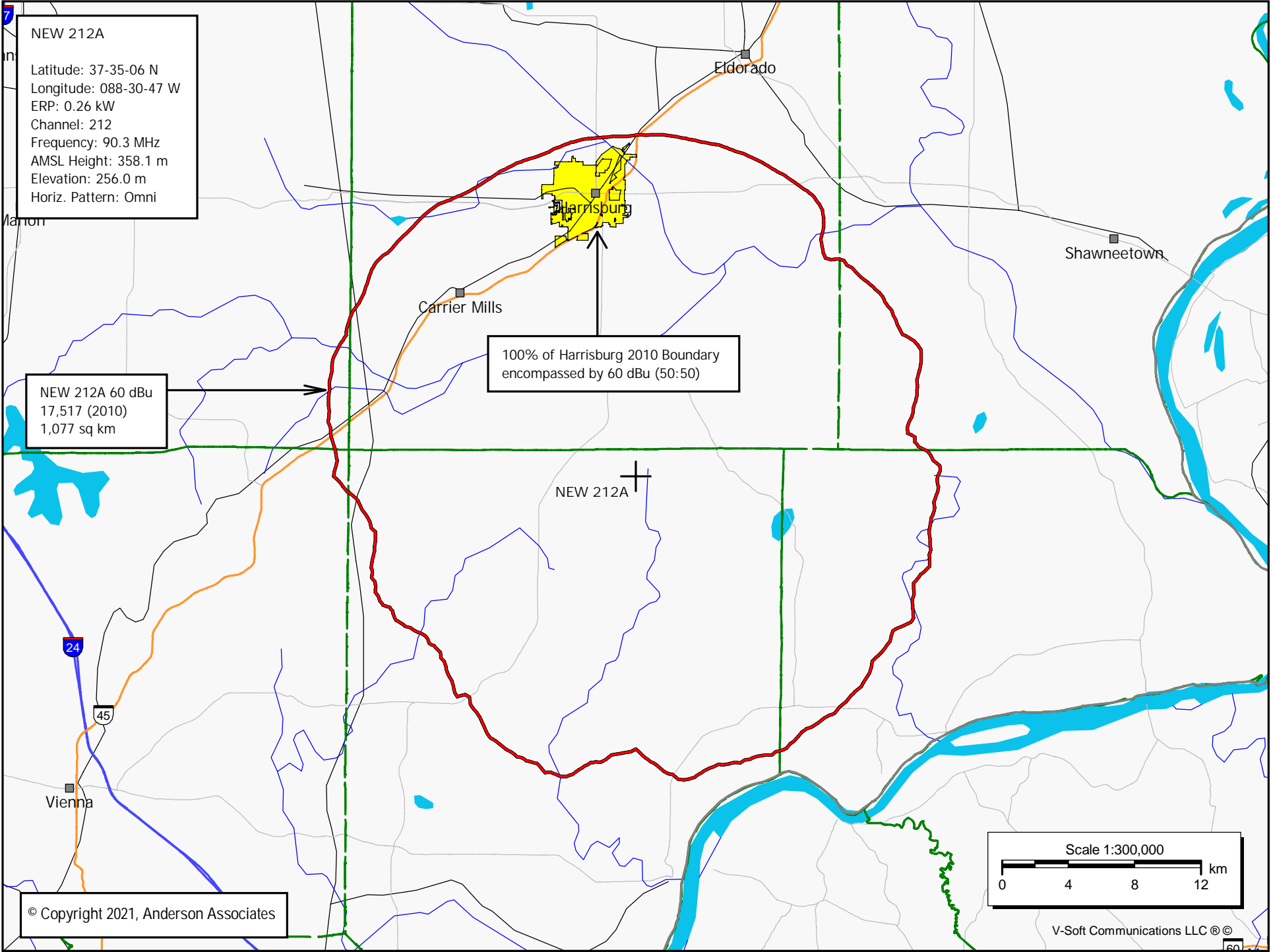
HAAT and Distance to Contour,

FCC, FM 2-10 Miles, 51 points Method - FCC 30 Meter Terrain

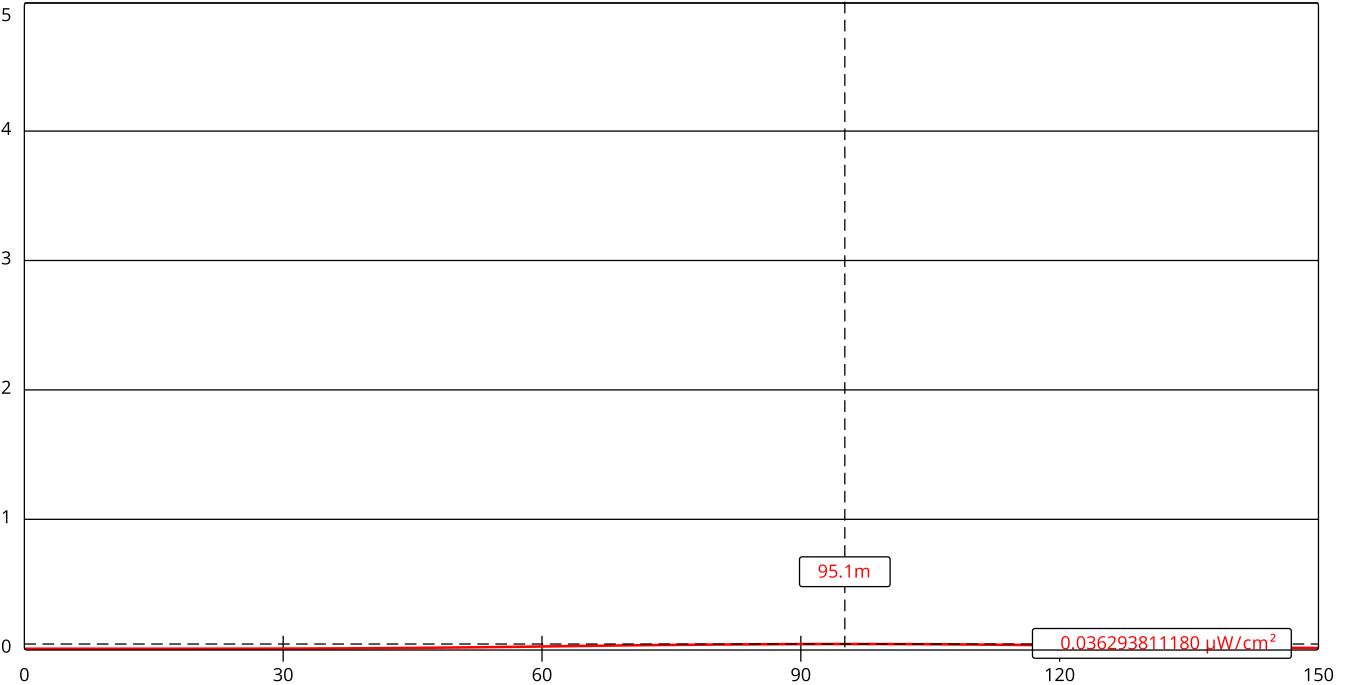
Azi.	AV EL	HAAT	ERP kW	60-F5
000	116.5	241.6	0.2600	20.53
045	174.8	183.3	0.2600	17.96
090	170.4	187.7	0.2600	18.16
135	163.2	194.9	0.2600	18.49
180	203.0	155.1	0.2600	16.40
225	206.6	151.5	0.2600	16.17
270	170.0	188.1	0.2600	18.18
315	126.1	232.0	0.2600	20.13

Ave El= 166.33 M HAAT= 191.77 M AMSL= 358.1

E-3 Harrisburg 212A 60 dBu



E-4 New 212A RF Calculation



Channel Selection	Channel 212 (90.3 MHz) ▾		
Antenna Type +	EPA Type 4: Two-Piece Spiral ▾		
Height (m)	<input type="text" value="102.1"/>	Distance (m)	<input type="text" value="150"/>
ERP-H (W)	<input type="text" value="260"/>	ERP-V (W)	<input type="text" value="260"/>
Num of Elements	<input type="text" value="4"/>	Element Spacing (λ)	<input type="text" value="0.5"/>
Num of Points	<input type="text" value="500"/>		

E-5 New 212A Tower ASR

ASR Registration 1008902

Registration Detail

Reg Number	1008902	Status	Constructed
File Number	A0010589	Constructed	09/01/1993
EMI	No	Dismantled	
NEPA	No		

Antenna Structure

Structure Type TOWER - Free standing or Guyed Structure used for Commu

Location (in NAD83 Coordinates)

Lat/Long	37-35-06.0 N 088-30-47.0 W	Address	HWY 145 S 16 KM S
City, State	HARRISBURG , IL		
Zip	62928	County	POPE
Center of AM Array		Position of Tower in Array	

Heights (meters)

Elevation of Site Above Mean Sea Level	Overall Height Above Ground (AGL)
256.0	125.0
Overall Height Above Mean Sea Level	Overall Height Above Ground w/o Appurtenances
381.0	125.0

Painting and Lighting Specifications

FAA Chapters 3, 4, 5, 13

Paint and Light in Accordance with FAA Circular Number 70/7460-1H

FAA Notification

FAA Study	93-AGL-2887-OE	FAA Issue Date	09/30/1993
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Owner & Contact Information

FRN	0006147888	Owner Entity Type
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Owner

ROY WALKER COMMUNICATIONS INC
Attention To: MIKE BROWN
441 CHURCH CAMP RD
MAKANDA , IL 62958

P: (618)529-3301
F:
E:

Contact

P:
F:
E:

Last Action Status

Status	Constructed	Received	11/25/1996
Purpose	New	Entered	11/27/1996
Mode	Mail In (Manual)		

Related Applications

11/25/1996 A0010589 - New (NE)

E-6 Harrisburg 212A NCE Services

