

COMPREHENSIVE TECHNICAL EXHIBIT
MODIFICATION OF WKKT
CLASS CHANGE C to C1
FACILITY ID: 68207

This exhibit presents the technical details of a change in antenna location and downgrade of class of operation for WKKT from 245C to 245C1 at Statesville, North Carolina. WKKT is a pre-1964 grandfathered, short-spaced station seeking to be modified with no upgrade of allotment.

Antenna Facility

The proposed directional antenna for WKKT is to be mounted 373 meters above ground level, which is 591 meters above mean sea level upon Antenna Structure Registration Number 1005065, a developed tower site. Attached as *Figure 1* are the results of the Commissions Web Tool which calculated the antenna height above average terrain (“HAAT”) to be 391 meters at the proposed location. As this is 92 meters greater than the reference C1 height of 299 meters, the Commissions Web Tool for determining power equivalency was utilized. Attached as *Figure 2* are the results from this tool, indicating an effective operating maximum power of 52.0 kW. Attached as *Figure 3* is the pattern of the proposed directional antenna to be used for WKKT.

Spacing and Overlap Compliance

Attached as *Figure 4* is a spacing study from the present antenna location indicating non-compliance with the Commission’s Section 73.207 and 73.215 spacing rule with respect to the facilities of co-channel and adjacent channel stations WXBQ-FM, WQMG, and WWPL as well as WKBC-FM which operates on the second-adjacent channel. Thus WKKT is a “grandfathered short spaced” facility as described in Section 73.213 with these four facilities. Station WLTY has elected Section 73.215 spacing to WKKT.

Attached as *Figure 5* is a spacing study at the proposed lower class C1 facility from the proposed antenna location indicating compliance with the Commission’s Section 73.207 rule to all facilities, applications, and allocations with the exception of the facilities of co-channel and adjacent channel station facilities of stations WXBQ-FM, WQMG, and WWPL as well as WKBC-FM, a second-adjacent station facility. Please note that with respect to these four “grandfathered short spaced” facilities the proposed location will materially reduce the short spacing to each of these existing “grandfathered short spaced” facilities.

Overlap

Rules compliance to the co-channel facilities of WXBQ-FM and WWPL, first-adjacent channel WQMG, and second adjacent channel station WKBC-FM is requested via Section §73.213.

With respect to WQMG

WKKT and WQMG are first-adjacent and have been short-spaced continuously since November 16, 1964, as such they are §73.213 Grandfathered short-spaced stations. Attached as *Figure 6* is a contour map displaying the protected and interfering contours of the licensed WKKT and WQMG facilities as well as the proposed WKKT facility.

Caused Interference:

In *Figure 7* the area where the signal of WKKT as licensed and proposed exceeds a value 6 dB below the service contour of WQMG is developed, this area is known herein as the “interference zone”. These two “interference zones” are further shown in *Figure 8*, and thereby demonstrate that the proposed area predicted to receive interference lies completely within the area currently predicted to receive first-adjacent channel interference, the population and area of the “interference zone” is given in *Figure 9*. Thus with respect to interference caused to WQMG this modification meets the requirements of §73.213(a)(1).

Received Interference:

In *Figure 10* the area where the signal of WQMG exceeds a value 6 dB below the service contour of WKKT as licensed and proposed is developed, this area is known herein as the “interference zone”. These two “interference zones” are further shown in *Figure 11*, and thereby demonstrate that the area predicted to receive interference **does not** lie completely within the area currently predicted to receive first-adjacent channel interference. In *Figure 12* the area predicted to lose service as a result of new first-adjacent channel interference is highlighted as the “loss area”, and in *Figure 13* the protected contours of remaining FM services to the “loss area” are given. A tabulation of the remaining FM services is given in *Figure 14* where it is seen that the entire “loss area” will have remaining FM service from 7 stations, and that another 19 stations will provide service to some part of the “loss area”. In *Figure 15* the area and the population subject to first-adjacent channel interference is tabulated, and it is observed that area and population of the proposed “interference zone” is less than that of the licensed facility. Thus with respect to interference caused from WQMG this modification meets the requirements of §73.213(a)(2).

With respect to WXBQ-FM

WKKT and WXBQ-FM are co-channel and have been short-spaced continuously since November 16, 1964, as such they are §73.213 Grandfathered short-spaced stations. Attached as *Figure 16* is a contour map displaying the protected and interfering contours of the licensed WKKT and WXBQ-FM facilities as well as the proposed WKKT facility.

Caused Interference:

In *Figure 17* the area where the signal of WKKT as licensed and proposed exceeds a value 6 dB below the service contour of WXBQ-FM is shown, this area is known herein as the “interference zone”. Those two “interference zones” are further shown in *Figure 18*, and thereby demonstrate that the area predicted to receive interference lies completely within the area currently predicted to receive first-adjacent channel interference, the population and

area of the “interference zone” is given in *Figure 19*. Thus with respect to interference caused to WXBQ-FM this modification meets the requirements of §73.213(a)(1).

Received Interference:

In *Figure 20* the area where the signal of WXBQ-FM exceeds a value 6 dB below the service contour of WKKT as licensed and proposed is shown, this area is known herein as the “interference zone”. These two “interference zones” are further shown in *Figure 21*, and thereby demonstrate that the area predicted to receive interference **does not** lie completely within the area currently predicted to receive first-adjacent channel interference. In *Figure 22* the area predicted to lose service as a result of new first-adjacent channel interference is highlighted as the “loss area”, and in *Figure 23* the protected contours of remaining FM services to the “loss area” are given, as well as by color shading, a count of the number of services to individual sections of the “loss area”, and that no area will have service from less than 8 remaining FM stations . A tabulation of the remaining FM services is given in *Figure 24* where it is seen that the entire “loss area” will have service from 4 stations and another 11 stations will provide service to some part of the “loss area”. In *Figure 25* the area and the population subject to first-adjacent channel interference is tabulated, and it is observed that area and population of the proposed “interference zone” is less than that of the licensed facility. Thus with respect to interference caused from WXBQ-FM this modification meets the requirements of §73.213(a)(2).

With respect to WWPL

WKKT and WWPL are co-channel and have been short-spaced continuously since November 16, 1964, as such they are §73.213 Grandfathered short-spaced stations. Attached as *Figure 26* is a contour map displaying the protected and interfering contours of the licensed WKKT and WWPL facilities as well as the proposed WKKT facility. As shown there is not now, nor will this proposed modification cause, any prohibited contour overlap with WWPL. Thus with respect with WWPL this modification meets the requirements of §73.213(a)(1).

With respect to WKBC-FM

WKKT and WKBC-FM are second-adjacent and have been short-spaced continuously since November 16, 1964, as such they are §73.213 Grandfathered short-spaced stations for which there is no distance or interference protection requirements pursuant to §73.213(a)(4).

Principal Community Coverage

The proposed WKKT city grade contour (3.16 mV/m, 70 dBu) does not completely encompass the city of Statesville, NC, utilizing the standard FCC method of calculating the contour. We have determined that a supplemental method of depicting city grade coverage, as noted in §73.313(e) of the Commission’s rules, is appropriate.

In *Figure 27* it is shown that the city of Statesville, NC falls in an arc between 335° and 351° from the proposed WKKT transmitter site. Analyzing individual radials from the proposed WKKT site toward Statesville, NC at 335° through 351°, we have determined

the location of the city grade contour based on the standard utilization of the Commission's 50/50 curves as shown in *Figure 27* in the color Red.

We have alternatively determined the location of the 70 dBu (3.16 mV/m) contour using the Longley-Rice coverage model, based on NBS Technical Note #101 methodology as implemented in the commercial microcomputer program "Probe4". This alternative method provides a more representative prediction of field strength than the standard methodology and is shown in *Figure 27* in the color Blue.. A summary of the data and a tabulation of the results of this report, at 1° intervals, is given in *Figure 28*.

As a threshold matter, with reference to *Figure 28*, the supplemental depiction distances in the direction of concern are in excess of thirty ("30") percent higher than the distances using the Commission's standard methodology. Based on the Staff's policy, we find that the terrain on these pertinent radials varies widely from the 3.0 to 16.0 kilometer average and, therefore, pursuant to §73.313(e), a supplemental method of depicting the city grade coverage is acceptable. Additionally the protected 60 dBu F50:50 contour of the proposed WKKT facility is depicted in the color Black as a dashed line in *Figure 27* and is inclusive of all of Statesville, NC.

Using this supplemental method, as visually demonstrated in *Figure 27*, we find that the city grade contour, in the direction of Statesville, NC, extends well beyond the city of Statesville, NC. Therefore, based on the supplemental depiction, we find that the city of Statesville, NC is completely encompassed by the city grade contour of the proposed WKKT facility in compliance with §73.315 of the Commission's rules.

Radio Frequency Fields Study

The proposed facilities were evaluated in terms of potential radio frequency radiation exposure at ground level in accordance with OET Bulletin No. 65, "Evaluating Compliance With FCC-Specified Guidelines for Human Exposure to Radio frequency Radiation."

The proposed antenna system is a Dielectric brand "DCRM" model, 8- element; half-wave spaced antenna mounted 373 meters above ground. As this element type is modeled in the FM Model program has been set to calculate values for a "Dielectric DCRM" type of antenna element array, operated with an effective radiated power of 52.0 Kilowatts in both the horizontal and vertical. At 2 meters above the surface, at 925 meters from the base of the tower, this proposal will contribute worst case, 0.15 microwatts per square centimeter, or 0.015 percent of the allowable ANSI limit for controlled exposure, and 0.075 percent of the allowable limit for uncontrolled exposure. This figure is less than 5% of the applicable FCC exposure limit at all locations extending out from the base of the tower. Section 1.1307(b)(3) excludes applications when the calculated level is predicted to be less than 5% of the applicable exposure limit. It is therefore believed that this proposal is in compliance with OET Bulletin Number 65 as required by the Federal Communications Commission.

Further, the applicant will see that signs are posted in the vicinity of the tower, warning of potential radio frequency hazards at the site. The site itself is restricted from public access. The applicant will cooperate with other users of the tower to reduce power of the facility, or discontinue operation, as necessary to limit human exposure to levels less than specified by the Federal Communications Commission should anyone be required to climb the tower for maintenance or inspection.

Figures and Exhibits

Figure 1 - Proposed Antenna HAAT Calculation

Antenna Height Above Average Terrain (HAAT) Calculations (HAAT) Results Aud... Page 1 of 1

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Antenna Height Above Average Terrain Calculations -- Input

Latitude **35 17 14.5 North**
Longitude **80 41 44.8 West** (NAD 27)

Height of antenna radiation center above mean sea level [RCAMSL] = **591.0** meters
Number of Evenly Spaced Radials = 8 0° is referenced to True North

Results:

Calculated HAAT= 391. meters
(Antenna Height Above Average Terrain)
using the 30 second FCC/NGDC terrain data)

Antenna Radiation Center Heights Above Individual Radials:

0.0°	394.8 meters
45.0°	406.1 meters
90.0°	414.3 meters
135.0°	394.4 meters
180.0°	389.5 meters
225.0°	375.6 meters
270.0°	377.6 meters
315.0°	376.1 meters

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http://transition.fcc.gov/fcc-bin/haat_calculator?dlat=35&mplat=17&slat=14.5&ns=1&dlon... 2/10/2014

Figure 2 – Class C1 Equivalency Determination

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FMpower Results



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FMpower Results

Class C1 facilities for Equivalency Determination:

Reference ERP = 100.000 kW
Reference HAAT = 299.0 meters
F(50,50) 60 dBu protected contour at 72.3 km distance

Equivalent ERP (rounded per 47 CFR 73.212) = 52.000 kW

. . . at . **391.0 meters HAAT**

Unrounded ERP = 51.963 kW for 391.0 meters HAAT

Class C1 stations are authorized in NC.

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Related items: [FM and TV Propagation Curves](#).
This document may be accessed at <http://www.fcc.gov/mb/audio/bickel/fmpower.html>

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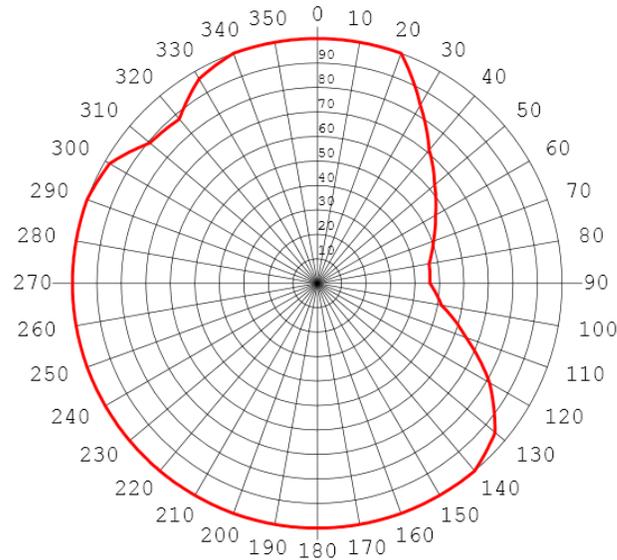
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Figure 3 - Proposed Antenna Pattern

Proposed WKKT Antenna Pattern



Azi	Rel	dBk	kW	dB	Azi	Rel	dBk	kW	dB
0	1.000	17.16	52.0	0.00	180	1.000	17.16	52.0	0.00
10	1.000	17.16	52.0	0.00	190	1.000	17.16	52.0	0.00
20	1.000	17.16	52.0	0.00	200	1.000	17.16	52.0	0.00
30	0.841	15.66	36.8	-1.50	210	1.000	17.16	52.0	0.00
40	0.711	14.20	26.3	-2.96	220	1.000	17.16	52.0	0.00
50	0.626	13.09	20.4	-4.07	230	1.000	17.16	52.0	0.00
60	0.558	12.09	16.2	-5.07	240	1.000	17.16	52.0	0.00
70	0.505	11.23	13.3	-5.93	250	1.000	17.16	52.0	0.00
80	0.464	10.49	11.2	-6.67	260	1.000	17.16	52.0	0.00
90	0.460	10.42	11.0	-6.74	270	1.000	17.16	52.0	0.00
100	0.515	11.40	13.8	-5.76	280	1.000	17.16	52.0	0.00
110	0.646	13.36	21.7	-3.80	290	1.000	17.16	52.0	0.00
120	0.812	15.35	34.3	-1.81	300	0.979	16.98	49.8	-0.18
130	0.948	16.70	46.7	-0.46	310	0.892	16.17	41.4	-0.99
140	1.000	17.16	52.0	0.00	320	0.876	16.01	39.9	-1.15
150	1.000	17.16	52.0	0.00	330	0.965	16.85	48.4	-0.31
160	1.000	17.16	52.0	0.00	340	1.000	17.16	52.0	0.00
170	1.000	17.16	52.0	0.00	350	1.000	17.16	52.0	0.00

Rotation Angle = 0

Figure 4 - As Licensed Antenna Location Spacing Study

WKKT As Licensed
 Capstar Tx Llc

REFERENCE 35 31 57.0 N. CLASS = C DISPLAY DATES
 80 47 47.0 W. Current Spacings to 3rd Adj. DATA 01-13-15
 ----- Channel 245 - 96.9 MHz ----- SEARCH 01-13-15

Call	Channel	Location		Azi	Dist	FCC	Margin
WKKT	LIC-D 245C	Statesville	NC	0.0	0.00	290.0	-290.0
WXBQ-FM	LIC-D 245C	Bristol	VA	310.1	156.80	290.0	-133.2
Pre-1964 Short Co-Channel: See also 1964 calls WOPI-FM Bristol, Tennessee							
WQMG	LIC-D 246C0	Greensboro	NC	61.2	96.08	220.0	-123.9
Pre-1964 Short 1st Adjacent Channel							
WWPL	LIC 245C0	Goldsboro	NC	92.8	242.01	281.0	-39.0
Pre-1964 Short Co-Channel							
WKBC-FM	LIC-D 247C	North Wilkesboro	NC	333.7	67.37	105.0	-37.6
Pre-1964 Short 2nd Adjacent Channel							
WLTY	LIC-Z 244C3	Cayce	SC	186.7	170.59	176.0	-5.4
73.215 Short							
WIWF	LIC-D 245C	Charleston	SC	160.5	306.44	290.0	16.4
WKRX	LIC 244A	Roxboro	NC	59.6	186.74	165.0	21.7
WCOS-FM	LIC 248C1	Columbia	SC	188.8	156.32	105.0	51.3
WTHB-FM	LIC-N 245C3	Wrens	GA	209.4	288.47	237.0	51.5

 RSV-R = reserved - needs protection, RSV-A = allocation.

Figure 6 - Licensed and Proposed Prohibited Contour Overlap with WQMG

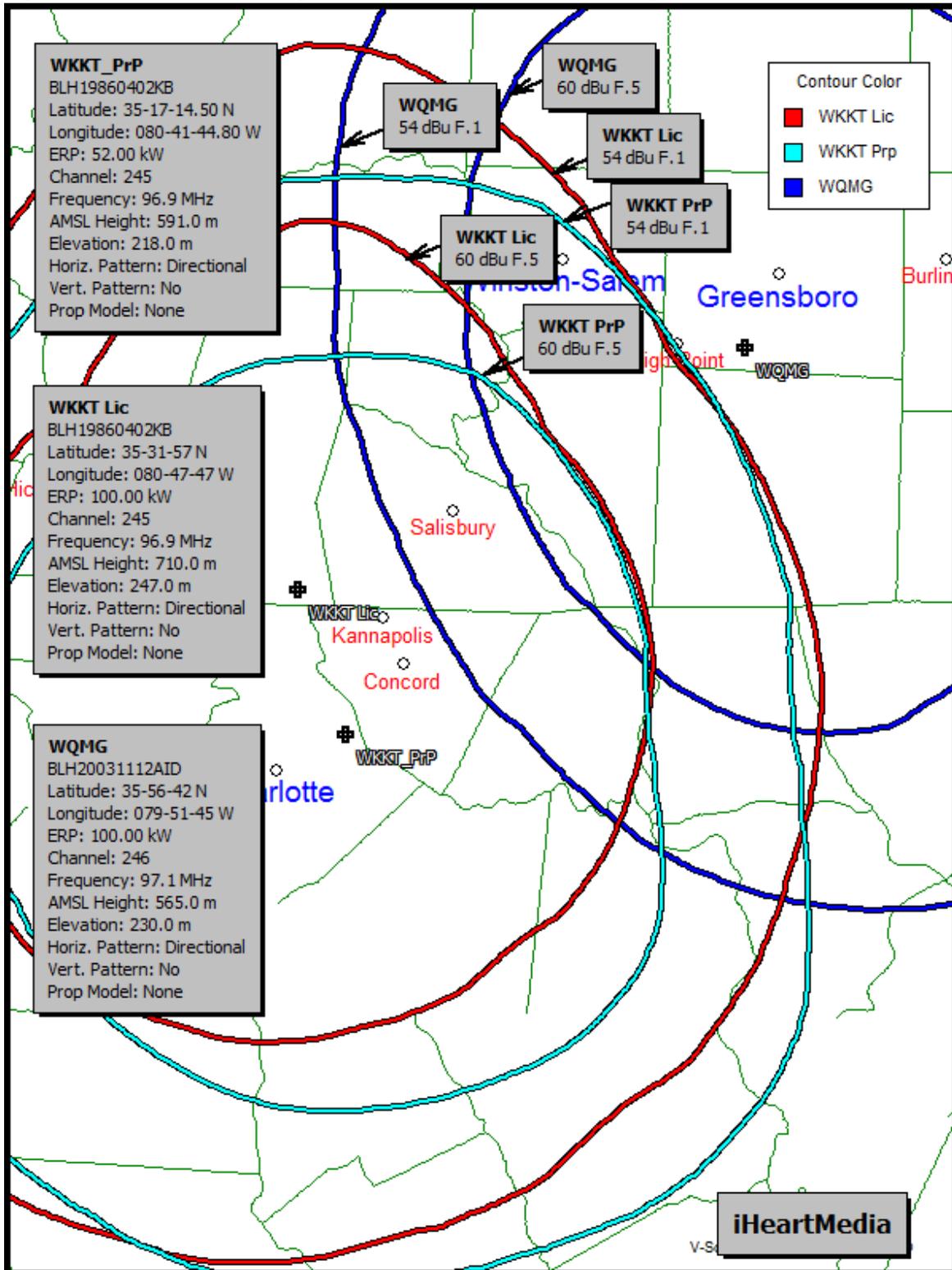


Figure 7 - Licensed and Proposed Interference Zone to WQMG

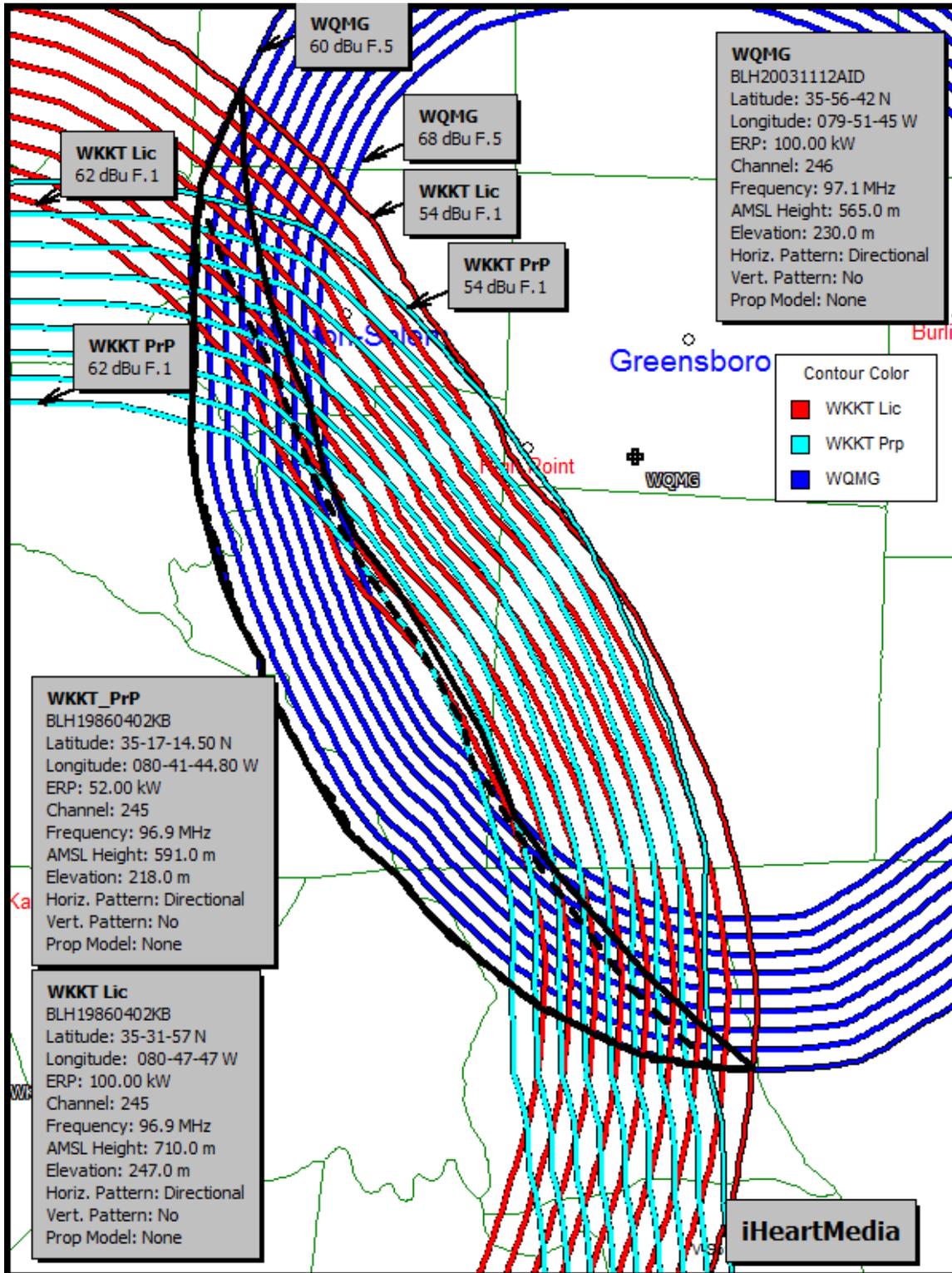


Figure 8 – Comparison of Licensed and Proposed Interference Zone to WQMG

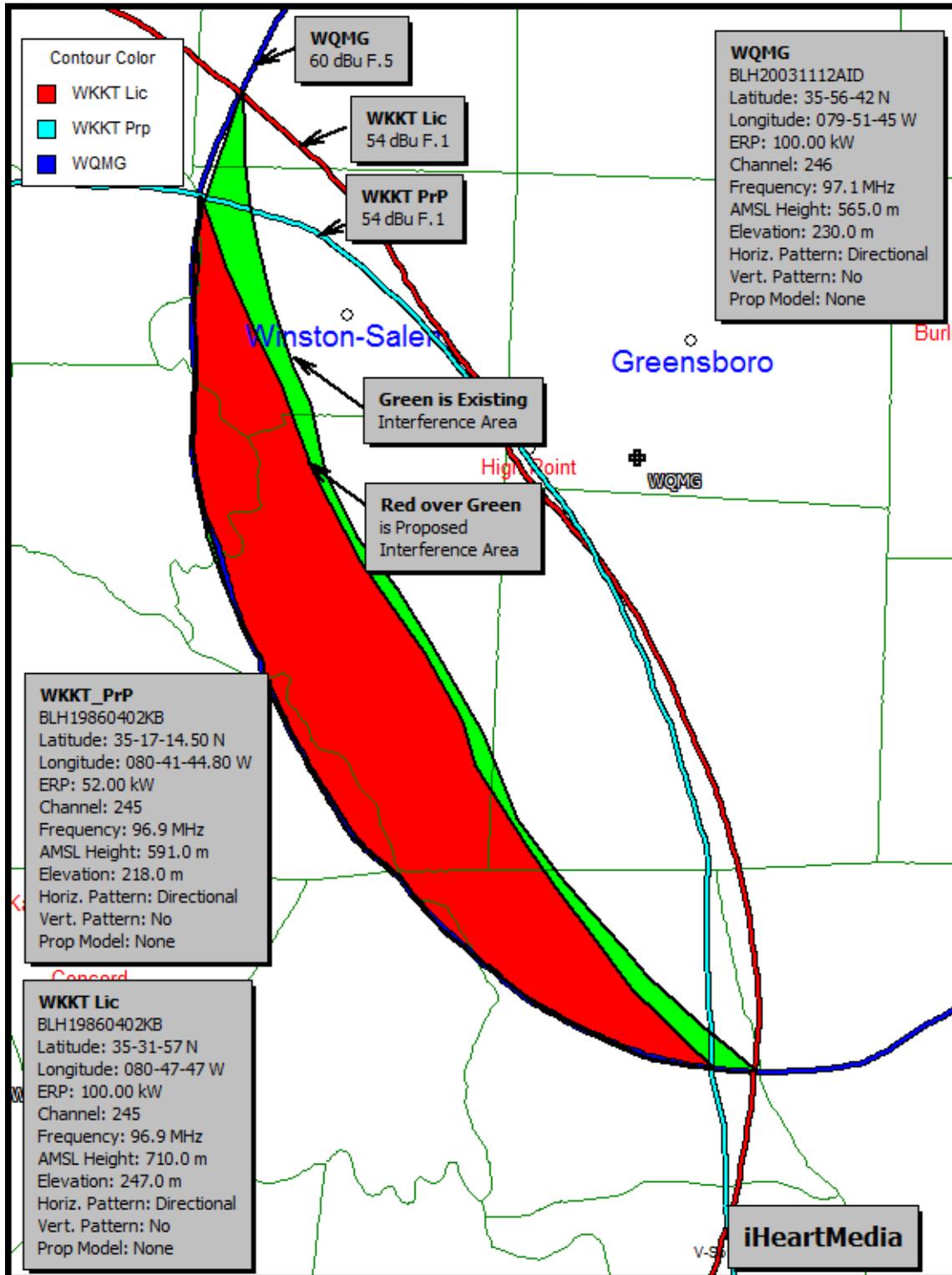


Figure 9 - Population and Area of Licensed and Proposed Interference Zone to WQMG

Polygon Population Report - Licensed Interference "Area" Zone to WQMG

Population Database: 2010 US Census (PL)

Total Population: 171,142
Housing Units: 79,357
Polygon Area: 1747.16 sq. km

Polygon Population Report - Proposed Interference "Area" Zone to WQMG

Population Database: 2010 US Census (PL)

Total Population: 129,398
Housing Units: 60,141
Polygon Area: 1443.62 sq. km

WKKT into WQMG	Population	Area
Interference From Licensed Facility	171,142	1,747
Interference From Proposed Facility	129,398	1,444
Gain	41,744	304

Figure 10 – Licensed and Proposed Interference Zone From WQMG

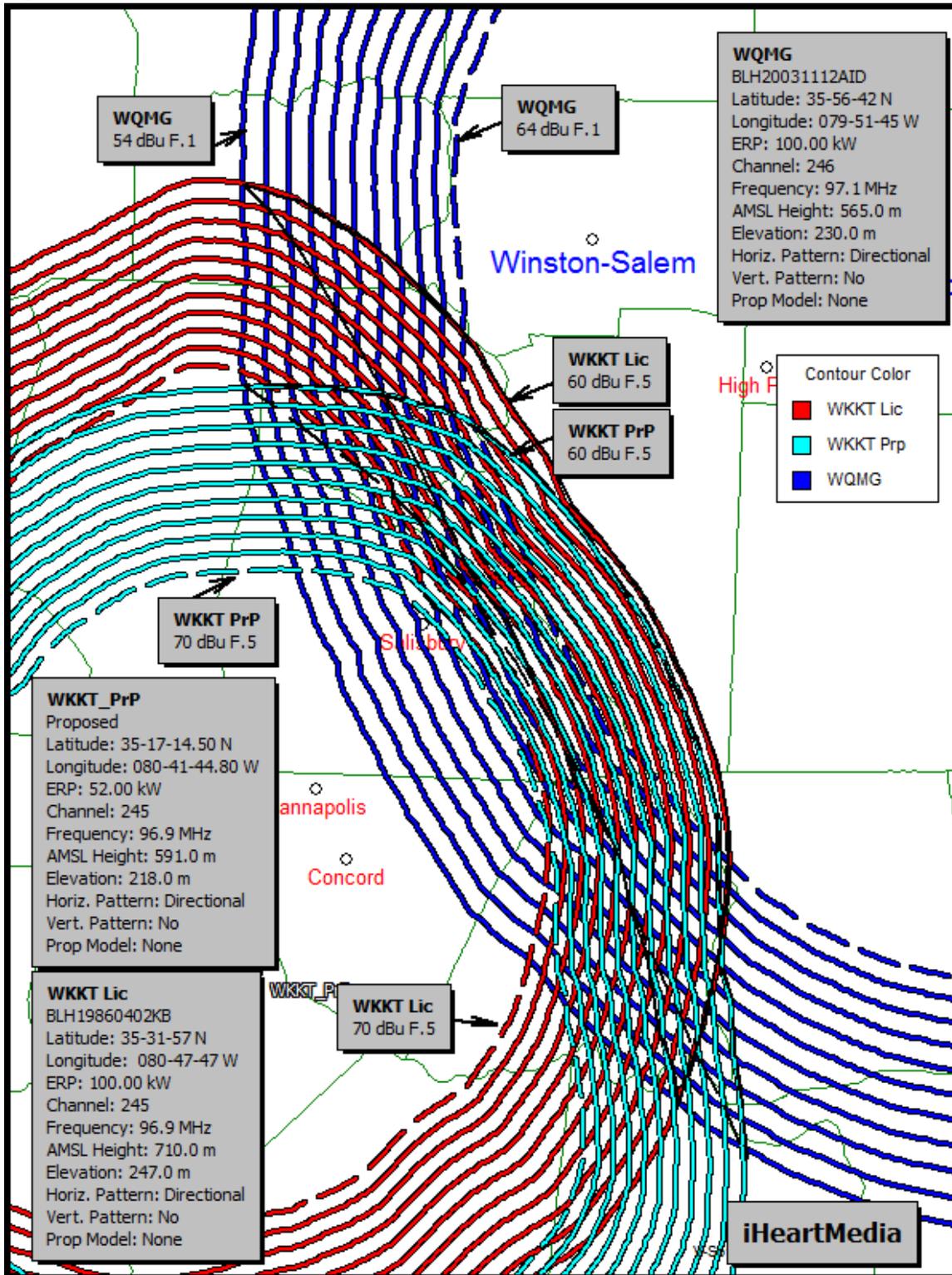


Figure 11 – Comparison of Licensed and Proposed Interference Zone From WQMG

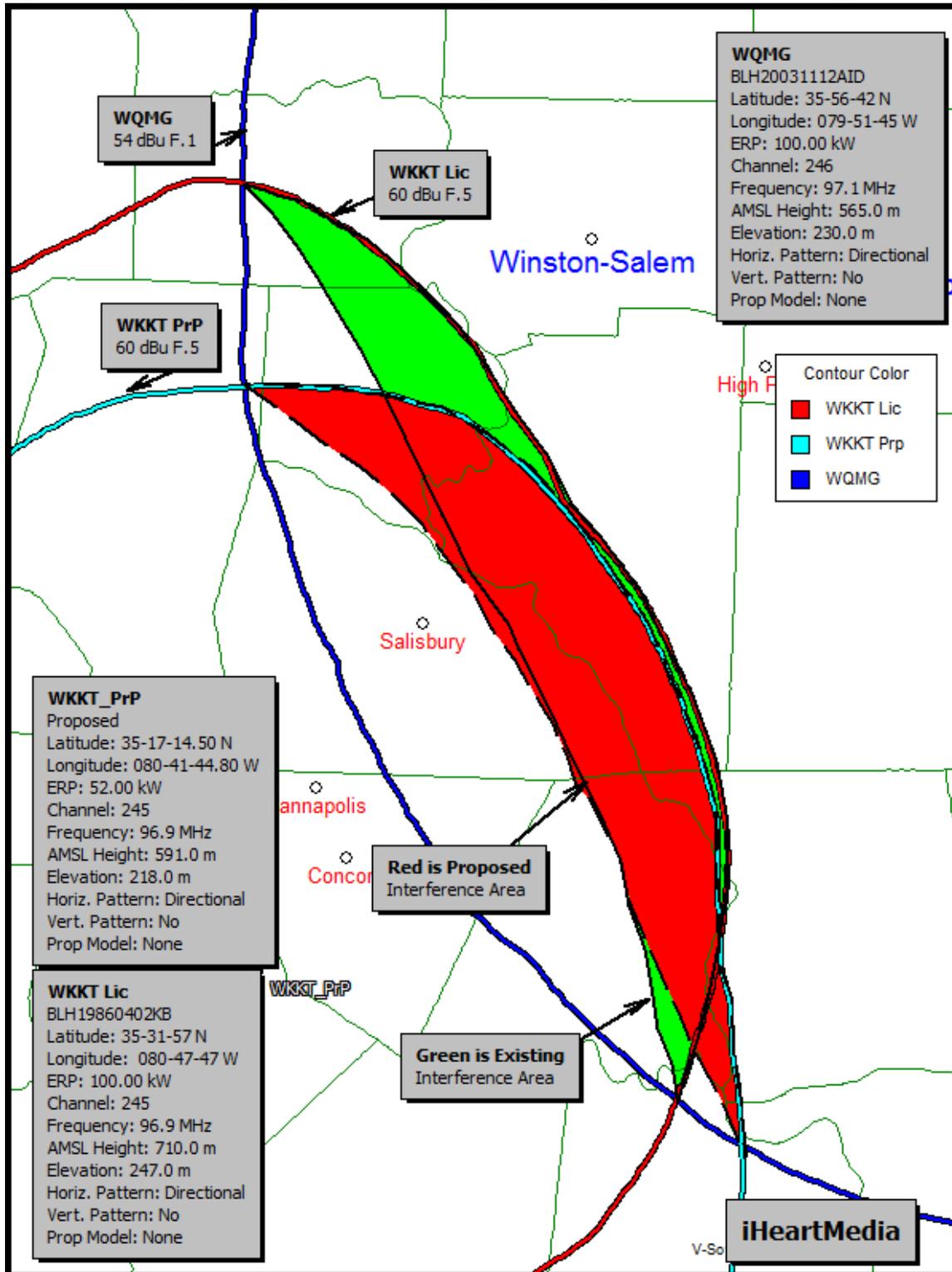


Figure 12 - WKKT Loss Area From WQMG

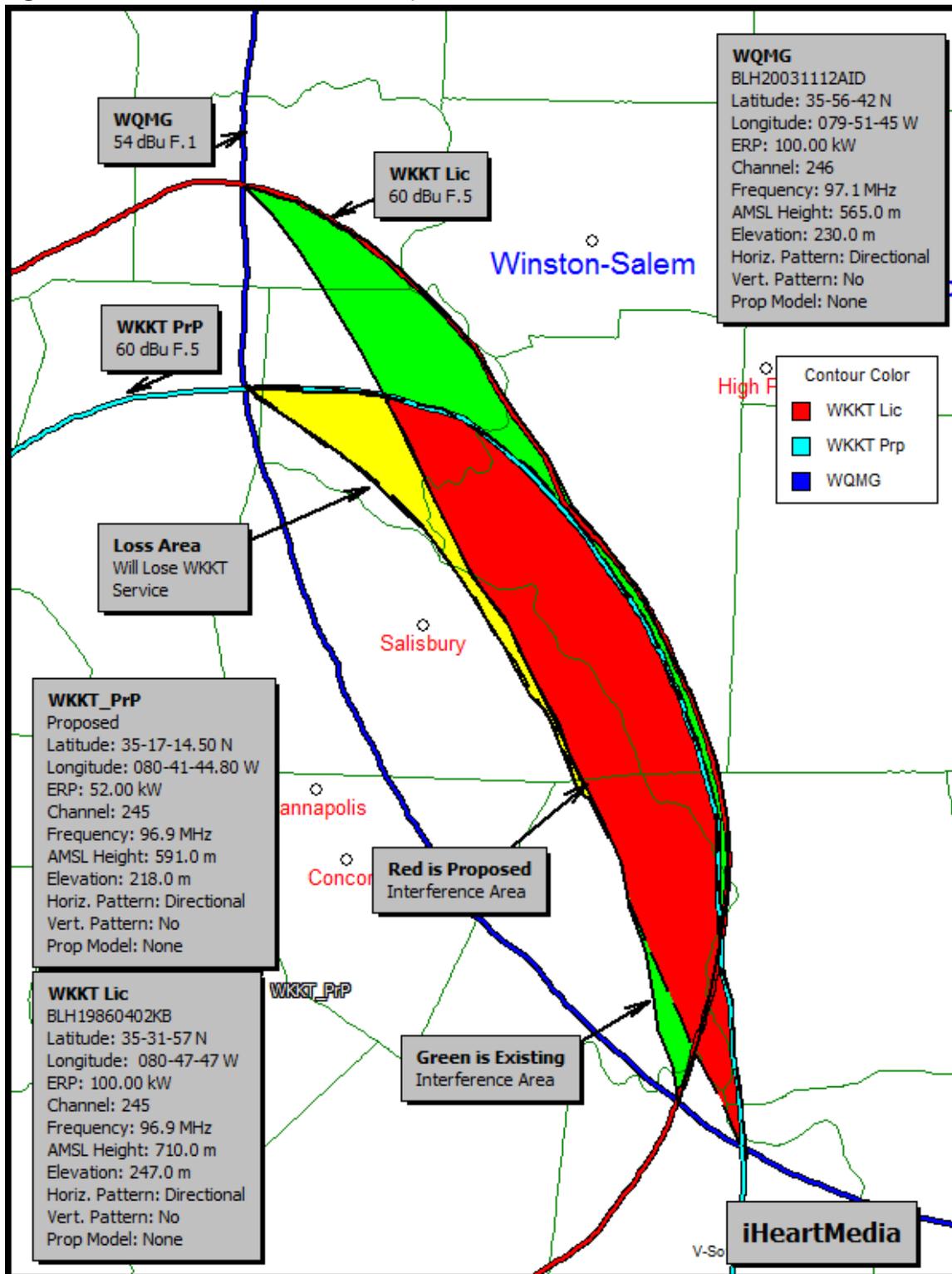


Figure 13 - Map of Services to WKKT Loss Area From WQMG

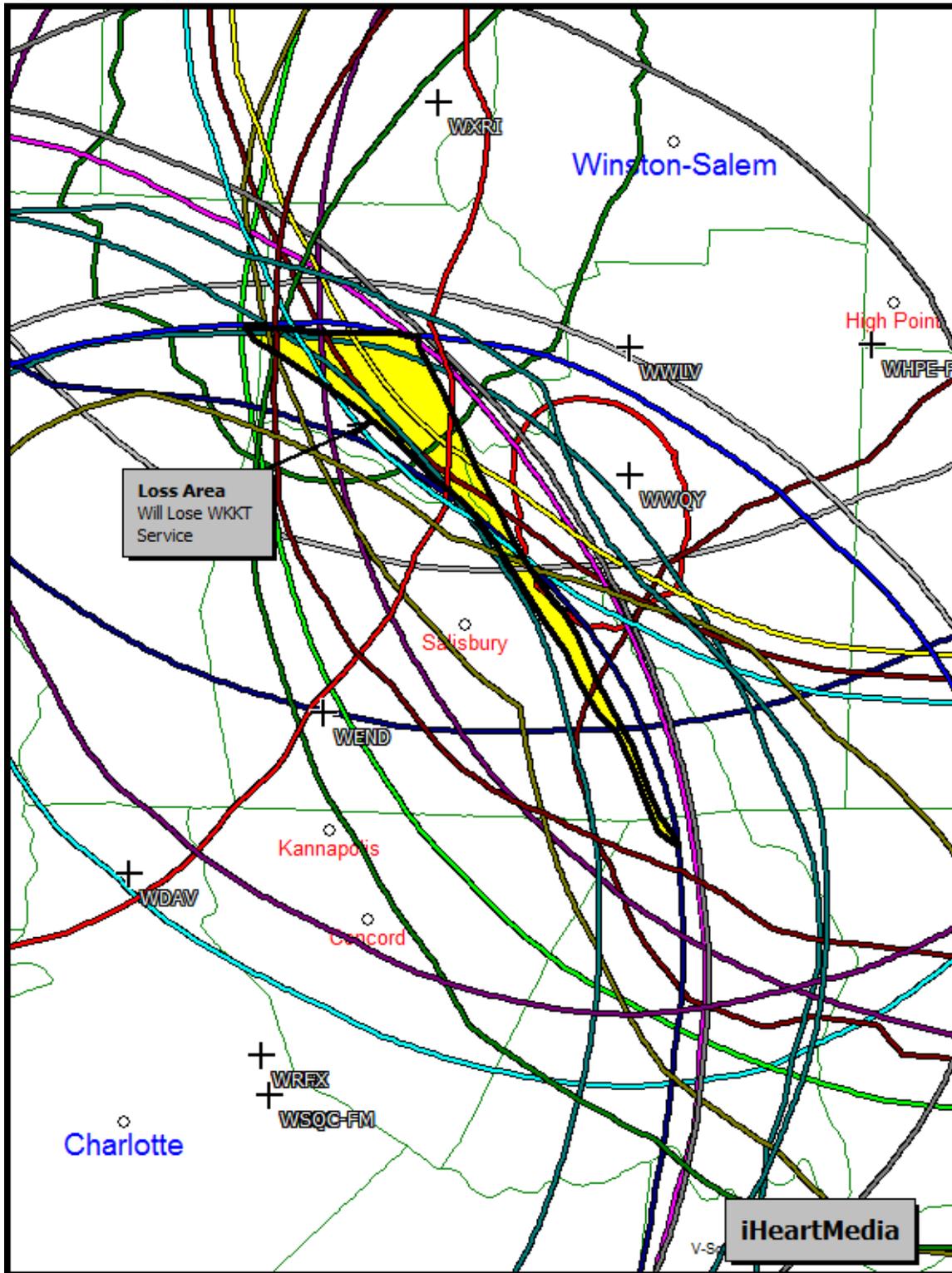


Figure 14- List of Services to Services to WKKT Loss Area From WQMG

Reference Area: PGON: WQMG into WKKT Prop LOSS Area Polygon

Contours that completely cover the reference area (7):

WDAV (210)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WEND (293)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WFDD (203)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WLNK (300)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WSMW (254)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WSOC-FM (279)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WWLV (231)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)

Contours that partially cover the reference area (19):

WFAE (214)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WHPE-FM (238)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WJMH (271)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WKBC-FM (247)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WKQC (284)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WKRR (222)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WKZL (298)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WLKO (275)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WMAG (258)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WMKS (262)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WNKS (236)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WPAW (226)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WPEG (250)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WRFX (259)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WTJY (208)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WTQR (281)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WVBZ (289)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WWQY (212)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WXRI (217)	: FCC	F(50-50)	60.00	dBu	(FCC HAAT)

Figure 15- Population and Area of WKKT Interference and Loss Area From WQMG

Polygon Population Report - Licensed From WQMG Interference "Area"
Zone Poly

Population Database: 2010 US Census (PL)

Total Population: 87,267
Housing Units: 43,283
Polygon Area: 1497.68 sq. km

Polygon Population Report - Proposed from WQMG Interference "Area"
Zone Poly

Population Database: 2010 US Census (PL)

Total Population: 70,845
Housing Units: 37,181
Polygon Area: 1296.3 sq. km

Figure 16 Licensed and Proposed Prohibited Contour Overlap with WXBQ-FM

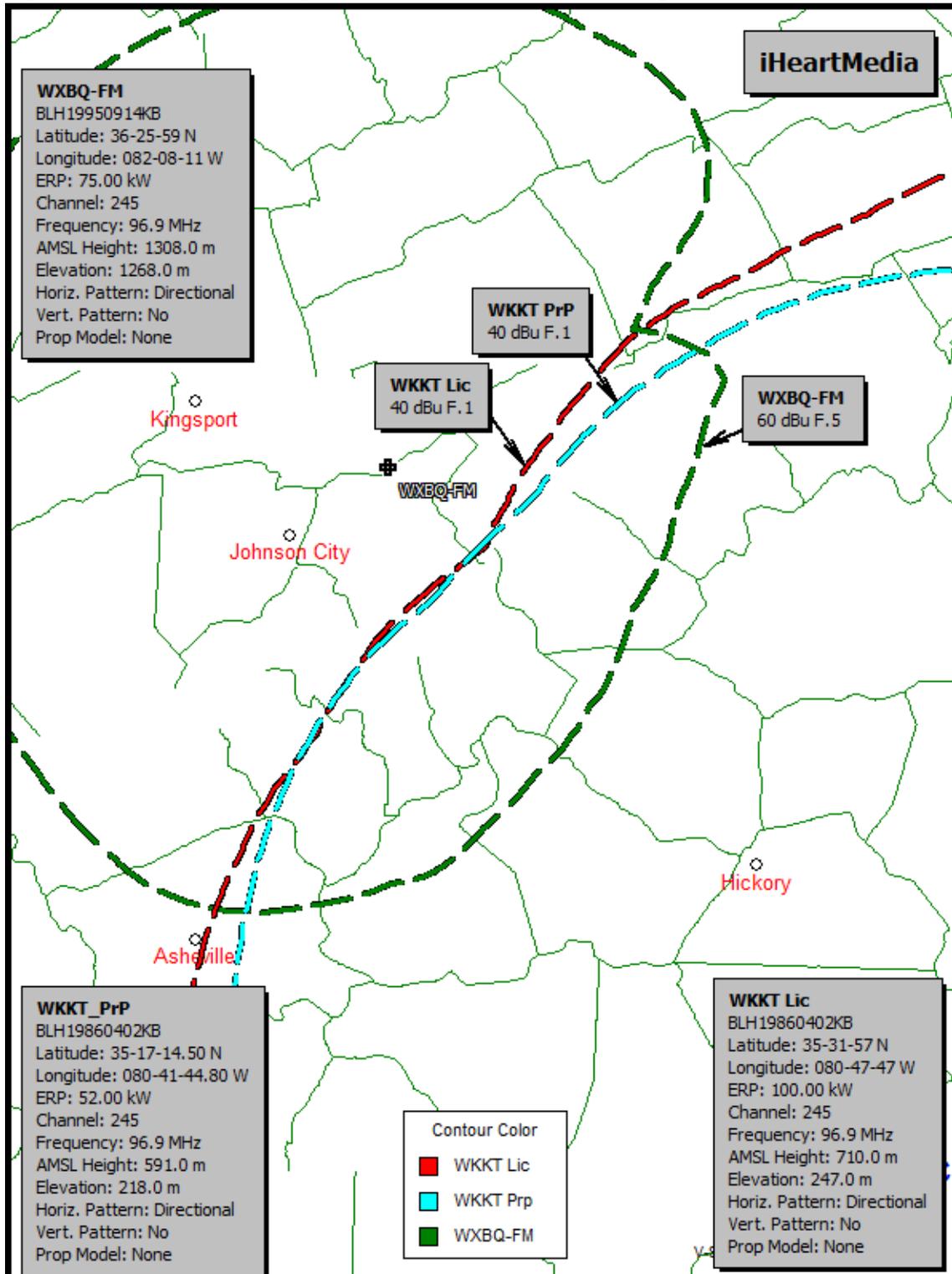


Figure 17 – Licensed and Proposed Interference Zone to WXBQ-FM

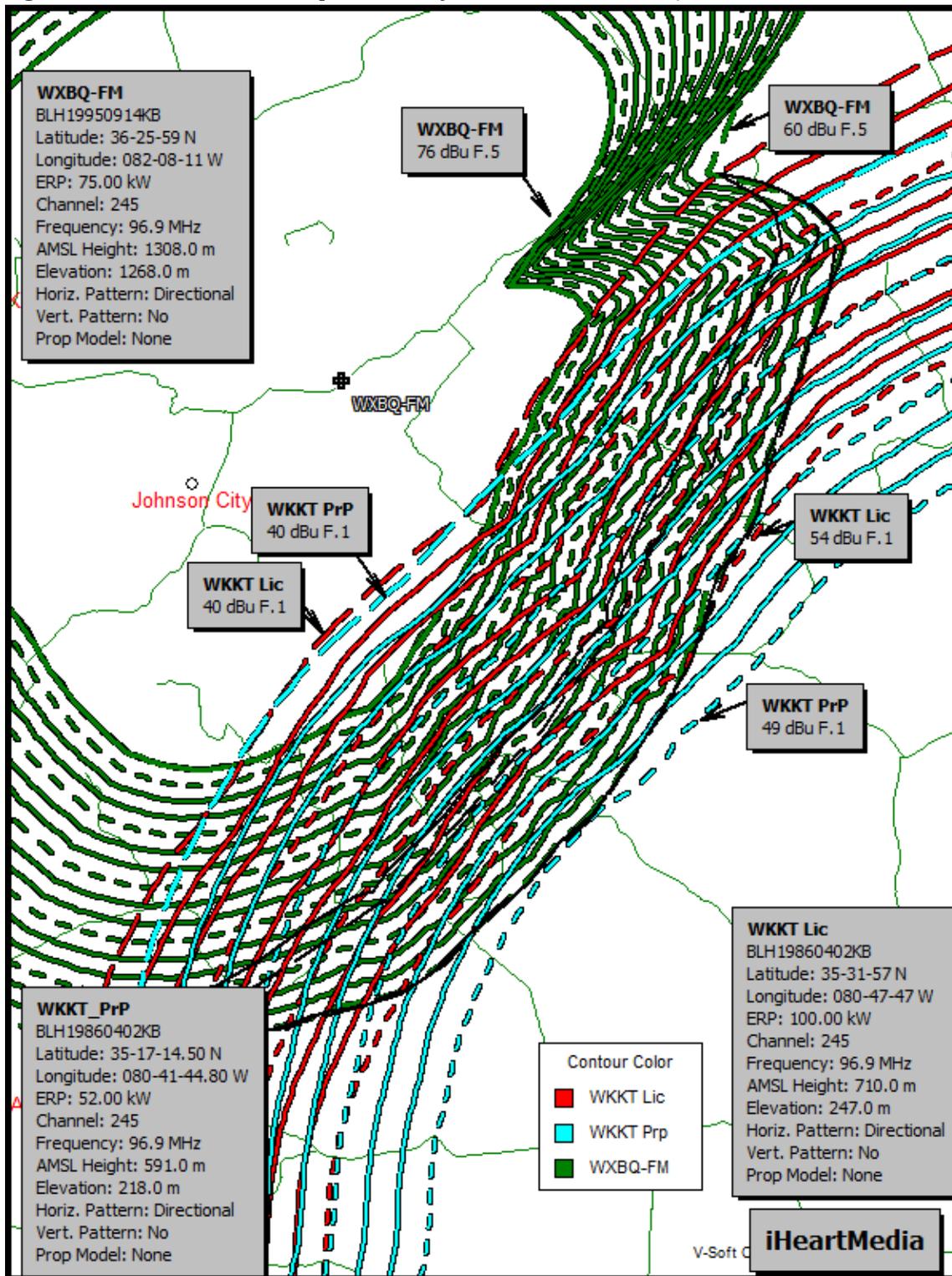


Figure 18 – Comparison of Licensed and Proposed Interference Zone to WXBQ-FM

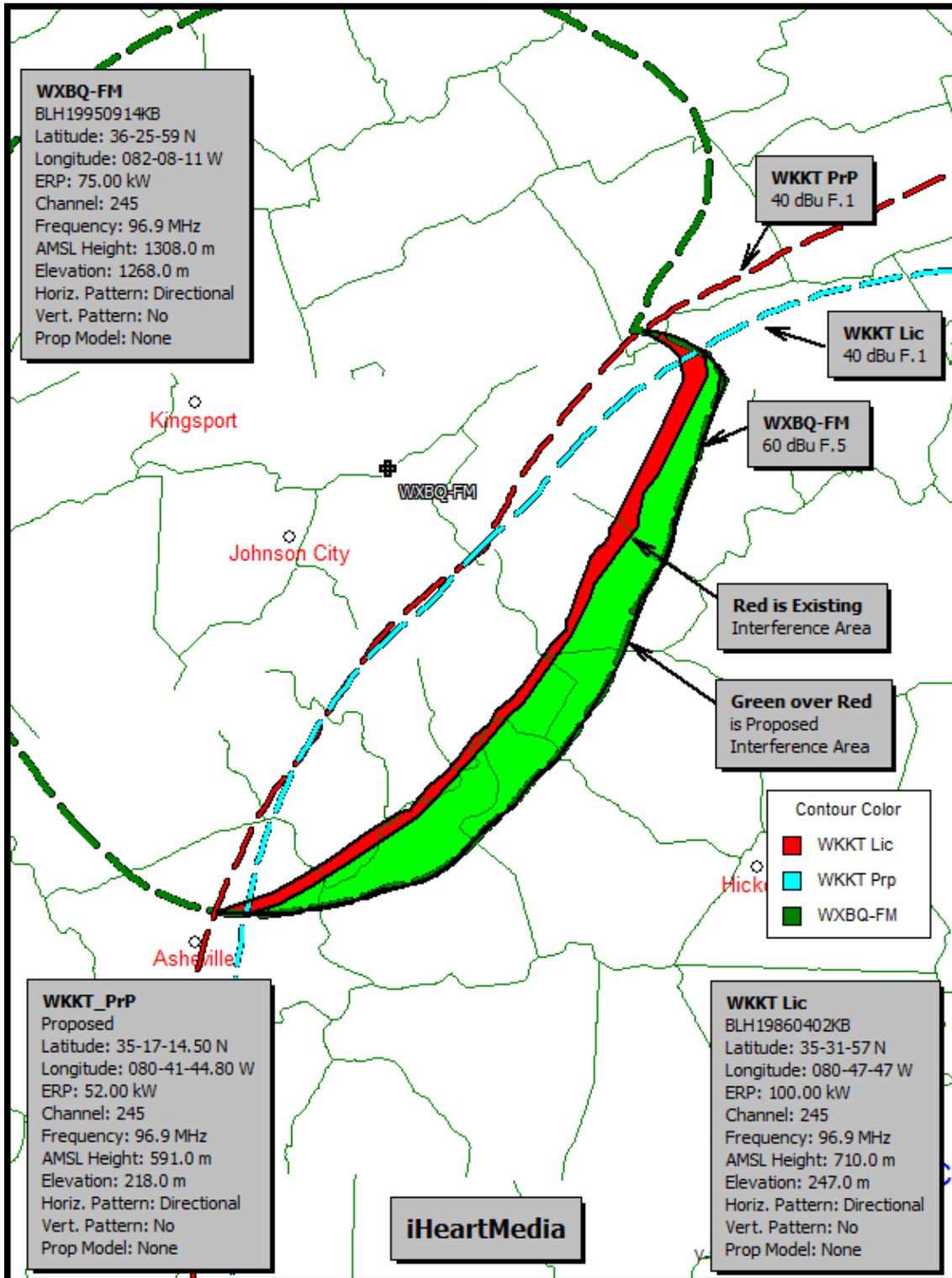


Figure 19 - Population and Area of WKKT Licensed and Proposed Interference Zone to WXBQ

Polygon Population Report - WKKT Licensed into WXBQ

Population Database: 2010 US Census (PL)

Total Population: 52,779

Housing Units: 30,523

Polygon Area: 1677.73 sq. km

Polygon Population Report - WKKT Proposed into WXBQ

Population Database: 2010 US Census (PL)

Total Population: 43,873

Housing Units: 24,649

Polygon Area: 1258.8 sq. km

Figure 20- Licensed and Proposed Interference Zone From WQMG

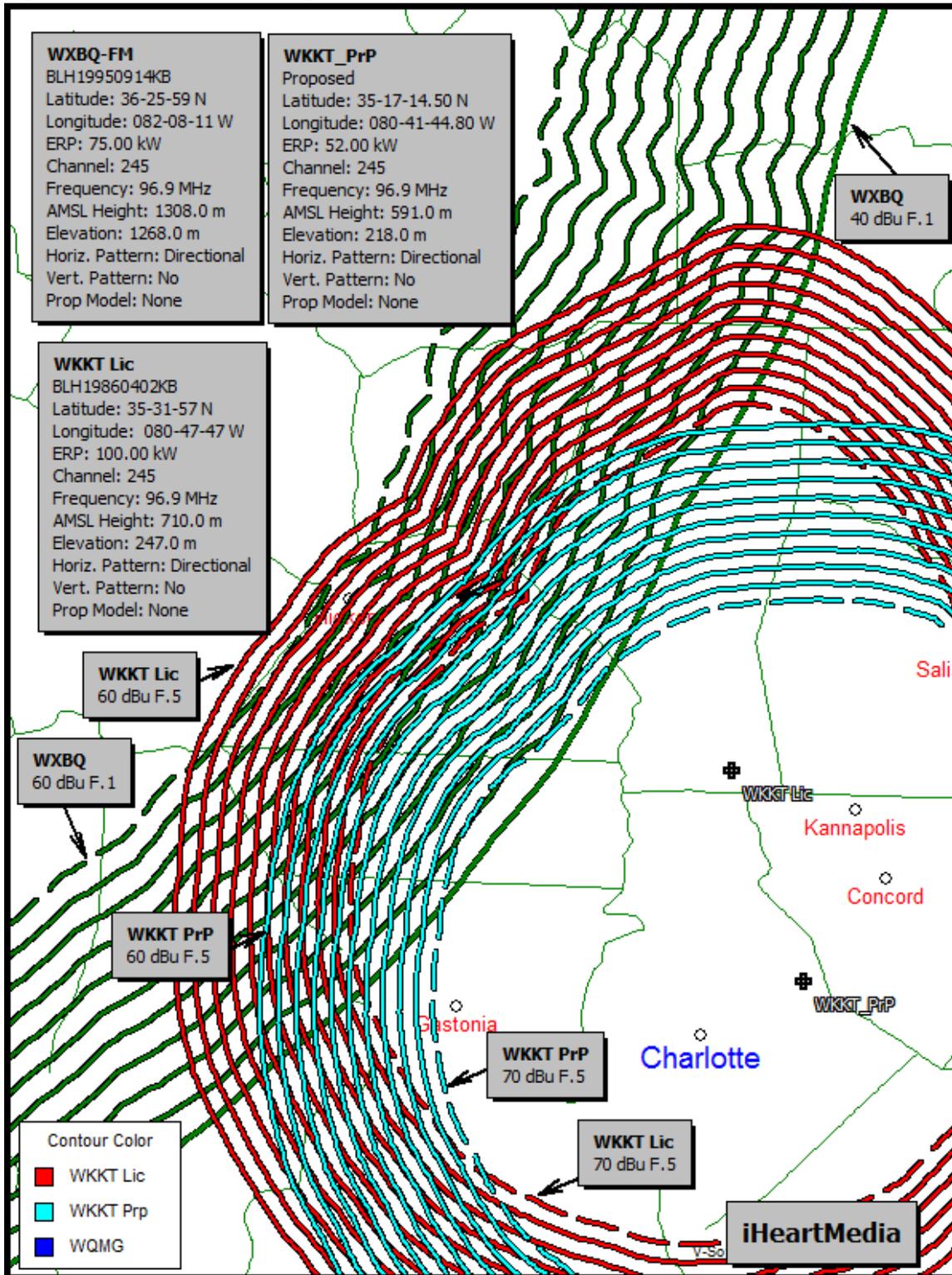


Figure 21 - Comparison of Licensed and Proposed Interference Zone From WXBQ-FM

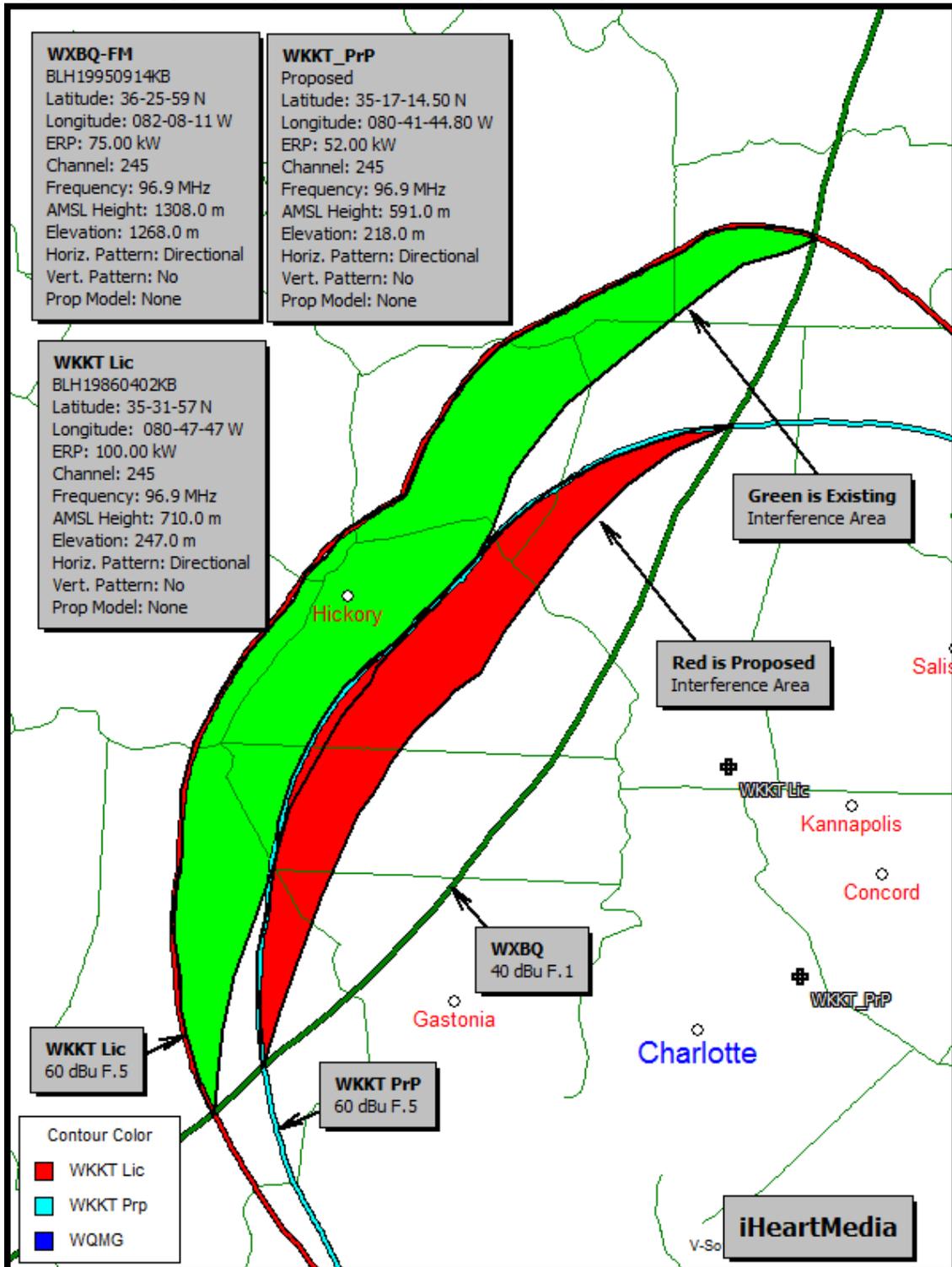


Figure 22 – WKKT Loss Area From WZBQ-FM

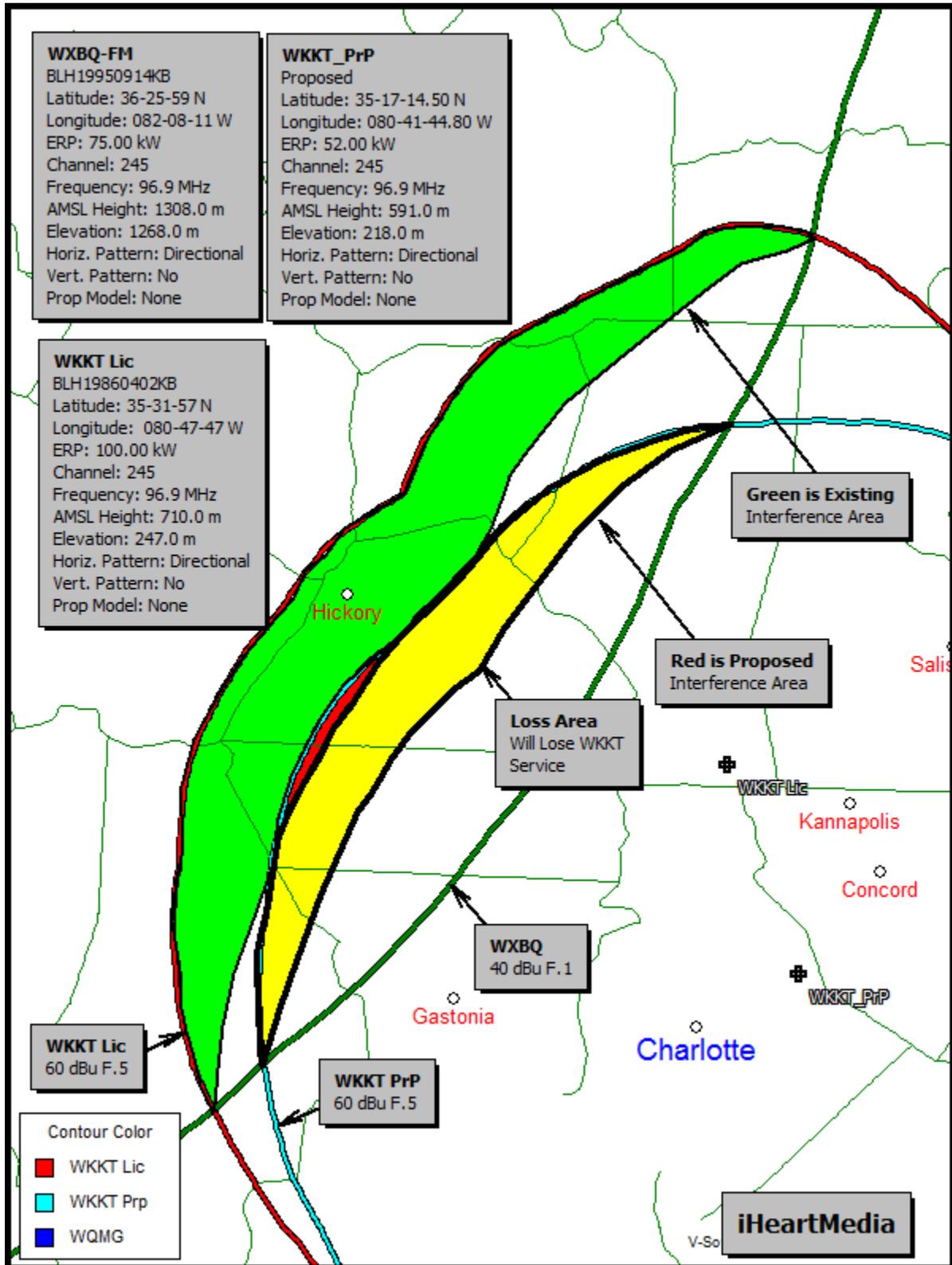


Figure 24- List of Services to Services to WKKT Loss Area From WXBQ

Reference Area: WXBQ Into WKKT Proposed Loss Area

Contours that completely cover the reference area (4):

WLKO (275)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WLNK (300)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WNKS (236)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WOSF (287)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)

Contours that partially cover the reference area (11):

WBAV-FM (270)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WDAV (210)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WFHE (212)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WHQC (241)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WKBC-FM (247)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WMNC-FM (221)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WPEG (250)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WPIR (201)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WRYN (206)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WSGE (219)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)
WXRC (239)	:	FCC	F(50-50)	60.00	dBu	(FCC HAAT)

Figure 25- Population and Area of WKKT Interference and Loss Area From WXBQ

Polygon Population Report - WKKT Lic From WXBQ Poly

Population Database: 2010 US Census (PL)

Total Population: 166,475
Housing Units: 74,092
Polygon Area: 1527.79 sq. km

Polygon Population Report - WZBQ into WKKT prp Poly

Population Database: 2010 US Census (PL)

Total Population: 66,767
Housing Units: 28,447
Polygon Area: 733.77 sq. km

Figure 26- Licensed and Proposed Contours with WWPL

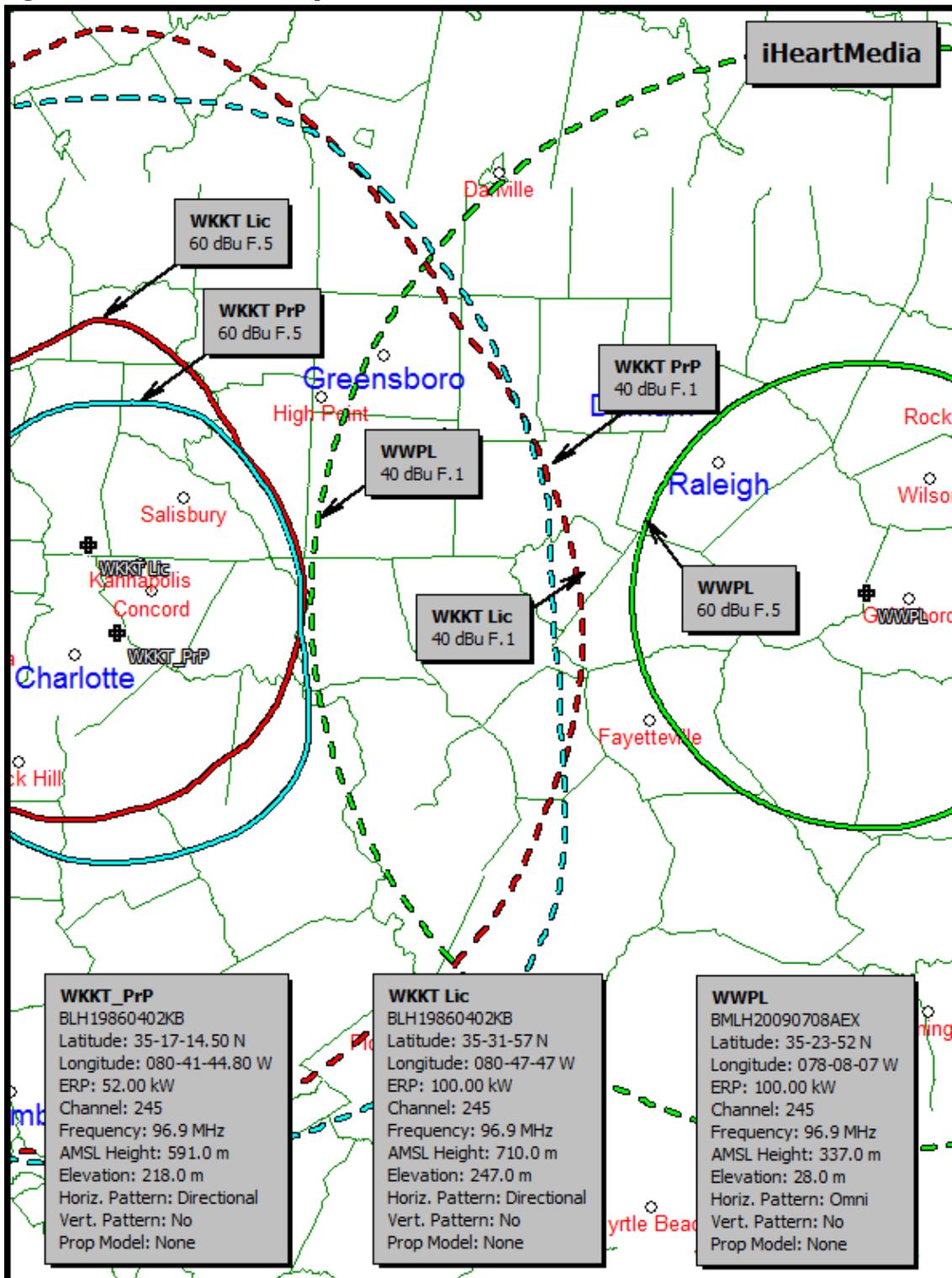


Figure 27- Principal Community Signal Coverage

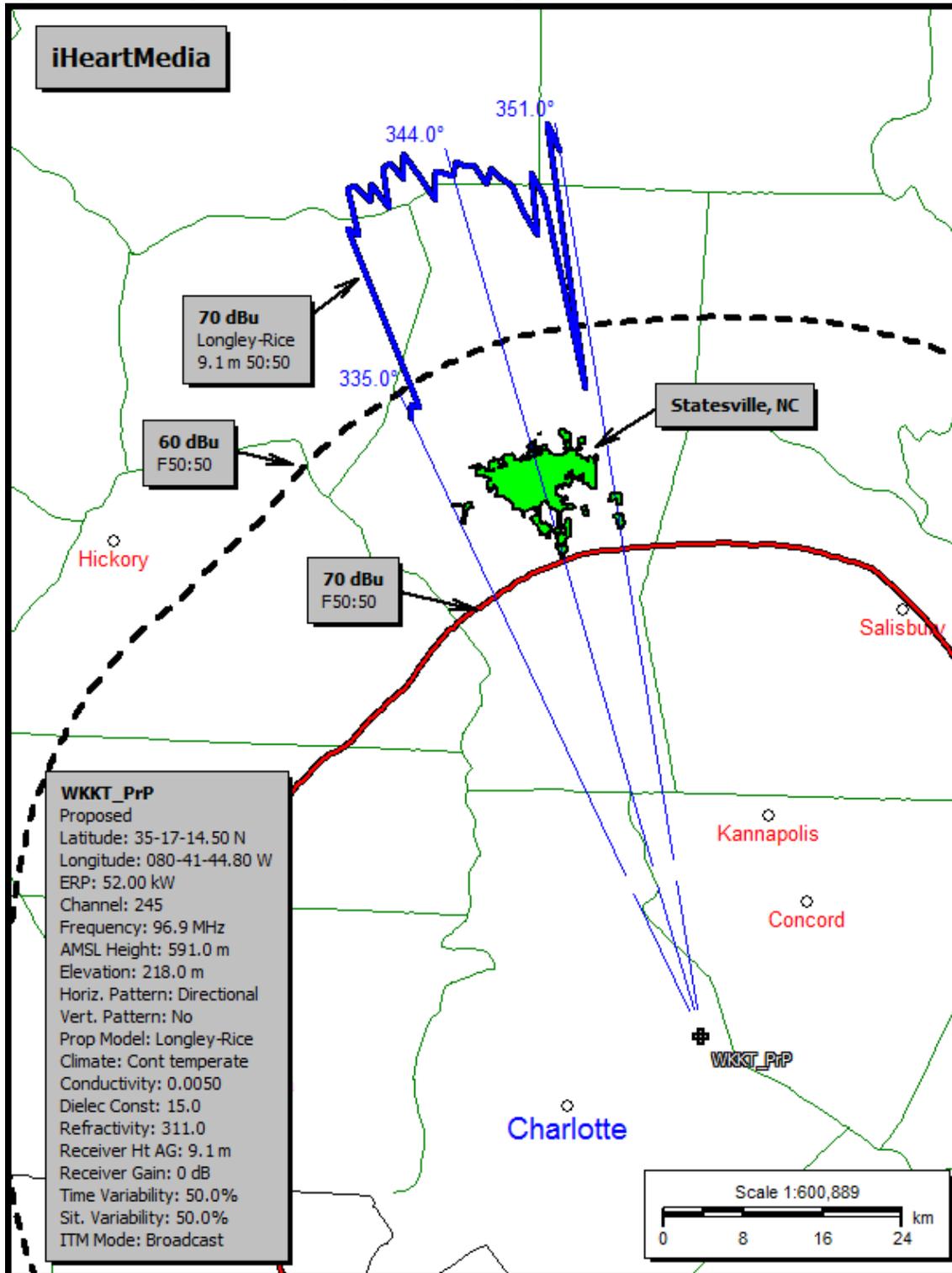


Figure 28- Tabulation of Contour Distances

Radial °T	HAAT Ft	FCC 70 dBu F50:50 Dist km	Longley - Rice Dist 70 dBu Dist km	Distance Increase
335	378.4	48.59	68.25	40.5%
336	380.1	48.75	68.85	41.2%
337	380.8	48.85	87.05	78.2%
338	383.6	49.07	91.67	86.8%
339	382.6	49.08	91.3	86.0%
340	385.4	49.3	92.28	87.2%
341	387.9	49.43	90.65	83.4%
342	387.2	49.39	90.35	82.9%
343	387.9	49.43	90.45	83.0%
344	389.2	49.5	89.38	80.6%
345	391.2	49.61	90.05	81.5%
346	391.8	49.64	87.8	76.9%
347	392.9	49.7	87.9	76.9%
348	391	49.6	83.95	69.3%
349	387.9	49.43	87.85	77.7%
350	386.9	49.38	65.8	33.3%
351	386.5	49.36	89.5	81.3%