TECHNICAL STATEMENT
DEMONSTRATION OF COMPLIANCE WITH
SECTION 73.315 OF THE FCC RULES BASED
ON SUPPLEMENTAL PROPAGATION ANALYSIS
USING MEASURED ANTENNA PATTERN
FM BROADCAST STATION WAZO(FM)
SOUTHPORT, NORTH CAROLINA
CHANNEL 298C2, 21 KW (MAX-DA), 234 M HAAT

This Technical Statement and associated exhibits were prepared on behalf of Sunrise Broadcasting, LLC, licensee of FM broadcast station WAZO(FM). This Technical Statement demonstrates that the city of license of WAZO(FM) of Southport, North Carolina is entirely within the predicted 70 dBu field strength contour of the WAZO(FM) authorized construction permit facility using the WAZO(FM) measured antenna pattern based on the use of an alternate propagation methodology. This statement fulfills the requirement of Condition No. 5 of the WAZO(FM) construction permit under FCC File No. BPH-20120920ABM.

The WAZO(FM) authorized facility will operate on Channel 298C2 (107.5 MHz) with a maximum effective radiated power (ERP) of 21.0 kW, using a directional antenna, and an antenna height above average terrain (HAAT) of 234 meters.

The community of Southport is located at distance of approximately 36.5 km at a true azimuth of 165° from the WAZO(FM) authorized transmitter site. The maximum distance of the Southport city limits from the WAZO(FM) authorized transmitter site is approximately 37.7 km. The distance to the predicted 70 dBu contour from the WAZO(FM) authorized facility based on the normal FCC prediction model using the WAZO(FM) measured pattern in the direction of Southport is 33.1 km. While the predicted 70 dBu contour based on the FCC method is short of full coverage of the Southport city limits, the predicted 70 dBu contour based on the use of the supplemental Longley-Rice prediction model fully encompasses the city limits of Southport.

The terrain along the 165° radial toward Southport is such that the provisions of Section 73.313(e) of the FCC Rules would apply. The WAZO(FM) facility is located in coastal North Carolina, where the terrain is close to sea level and it is much smoother than average. The attached Figure 1 graphically illustrates the nature of the terrain from the WAZO(FM) authorized transmitter site toward Southport. As a result of the smoother than average terrain, the predicted signal level in the direction of Southport is significantly higher than would be predicted based on the conventional FCC contour prediction methodology. Accordingly, the Longley-Rice prediction methodology was applied in this case as a more precise alternative to the standard FCC method.*

A terrain profile was prepared for the 165° radial, along with additional radials at 161° and 169°. The terrain data was derived from the U.S.G.S. 1-second terrain database re-sampled at 3-second intervals. Using these terrain elevation data, calculations of the field strength along each radial were made at 0.1-km intervals using the Longley-Rice methodology. The following parameters were employed in the calculations:

Location Variability:	50%
Time Availability:	50%
Situation variability:	50%
Frequency:	107.5 MHz
Polarization:	Horizontal
Conductivity:	0.005 S/m
Dielectric Constant:	15.0
Climate zone:	Continental temperate
Transmitter Site (NAD27):	34°14’37”N / 078°07’24”W
Transmitter site elevation:	15 m
Antenna height ground:	228 m
ERP (dipole), 161°T:	20.64 kW
ERP (dipole), 165°T:	20.87 kW

*Rice, P. L., A. G. Longley, K. A. Norton, and A. P. Barsis, “Transmission Loss Predictions for Tropospheric Communication Circuits,” Technical Note 101 (Issued May 7, 1965, Revised January 1, 1967) National Bureau of Standards, Boulder, Colorado.

ERP (dipole), 169°T:	20.90 kW
Receive antenna height AGL:	9.1 m
Clutter Factor	3 dB
Model:	Point-to-point irregular terrain model

The results of the study are illustrated graphically in Figure 2, Sheets 1, 2 and 3. The field strength data along each radial were analyzed to determine the "median" values. The location of the "median" 70 dBu field strength level is indicated on each radial based on this analysis.

The following tabulates the distance to the 70 dBu along each radial based on the FCC's F(50,50) method and the alternate terrain method, the difference and percent change:

Radial	70 dBu Field Strength (km)		Difference	
	FCC F(50,50)	Alternate Method	km	Percent
161°	33.1	39.9	6.8	+20.5
165°	33.1	40.0	6.9	+20.8
169°	33.1	40.0	6.9	+20.8

The difference between the distances to the 70 dBu contour exceeds 10 percent, which complies with the FCC policy for the minimum threshold level for use of an alternate prediction model.

The following provides a sample calculation using the alternate method:[†]

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          COMPUTED FIELD VALUES - LONGLEY-RICE MODEL, VER 1.2.2

               34:14:37.6N 078:07:23.0W
               33:54:55.6N 078:01:03.2W
               37.7 km   265.0 deg True

              Free Space Field (  20.874 kW  @  37.70 km)     88.59 dBu
              Additional estimated transmission loss          14.47 dB
              Net received field (with clutter loss of 3 dB)  71.12 dBu

                Mode of variability:  11 (Individual mode)
                Confidence:  50.0%  Reliability:  50.0%
                Polarization:  Horizontal;  Frequency:   107.5000 MHz
                Relative permittivity:   15.
                Conductivity:   .005
                Climate:  5 (Continental temperate)
                Sea level refractivity:    0.
                Surface refractivity:  299.
                Effective earth curvature:  1.327
                Line-of-sight path
                Dominant mode:
                Profile:    378 points;  .100 km interval
                Path terrain Delta-H:   18.0 m
                Specified antenna heights:   228.0 m      9.1 m
                Effective antenna heights:   230.3 m      9.1 m
                    Site elevations (MSL):    15.0 m      0.0 m
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Figure 3 is a map showing the 70 dBu contours based on the FCC F(50,50) contour method and the alternate Longley-Rice terrain method using the WAZO(FM) measured antenna pattern. Also shown are the city of license and the predicted 60 dBu protected contour for WAZO (FM) based on the FCC conventional contour prediction method using the WAZO(FM) measured antenna pattern. As indicated, the predicted 70 dBu contour based on the Longley-Rice method encompasses the city of license of Southport, North Carolina in compliance with Section 73.315 of the FCC Rules.

[†] Note that a clutter loss of 3 dB was assumed, which is considered conservative in this case.

In summary, the WAZO(FM) predicted 70 dBu contour encompasses 100% of its city of license of Southport, North Carolina based on the use of its measured antenna pattern; and therefore, the proposal meets the requirements of Section 73.315(a) of the FCC's Rules and Condition No. 5 of its construction permit.

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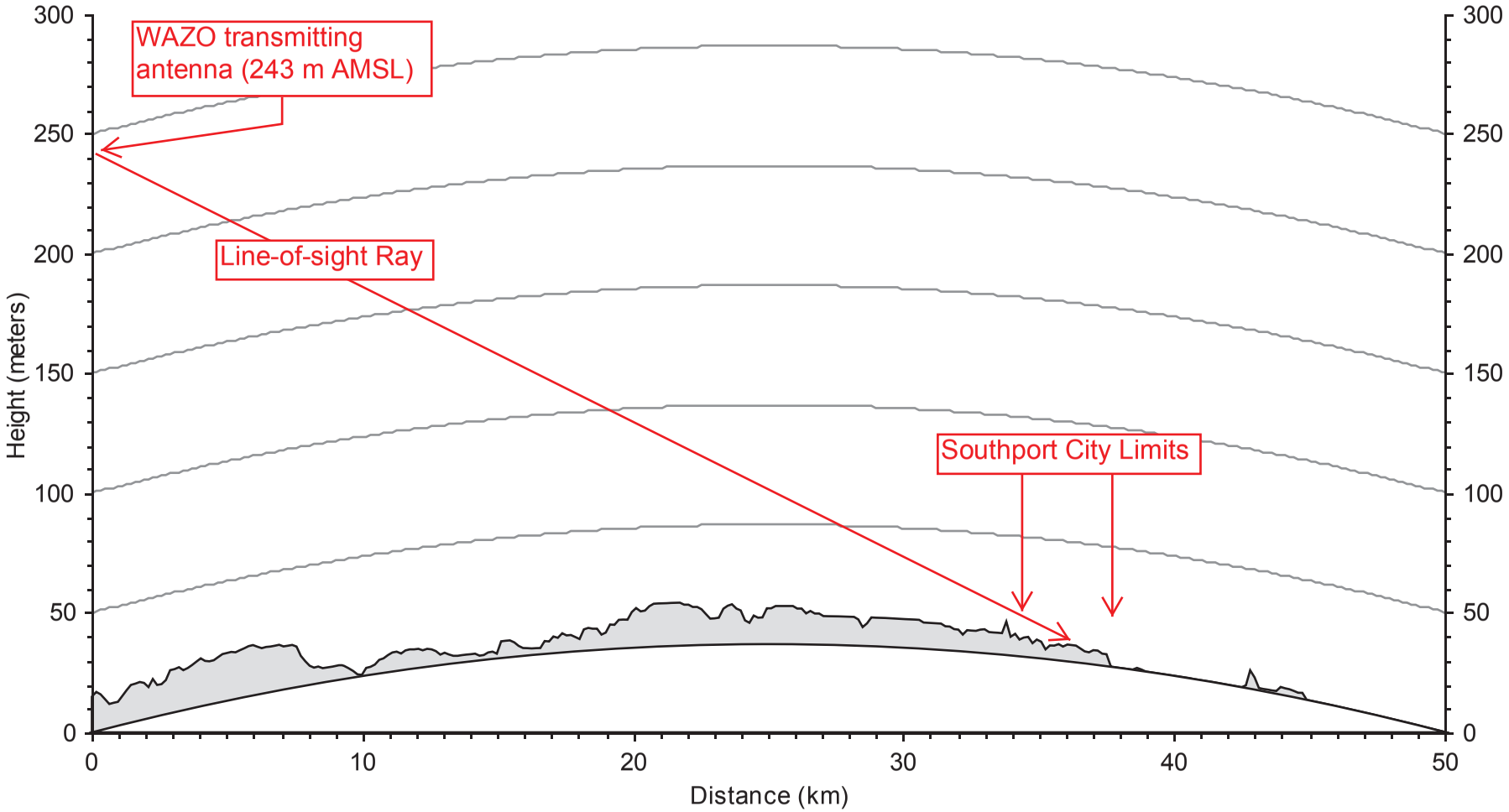
May 17, 2013

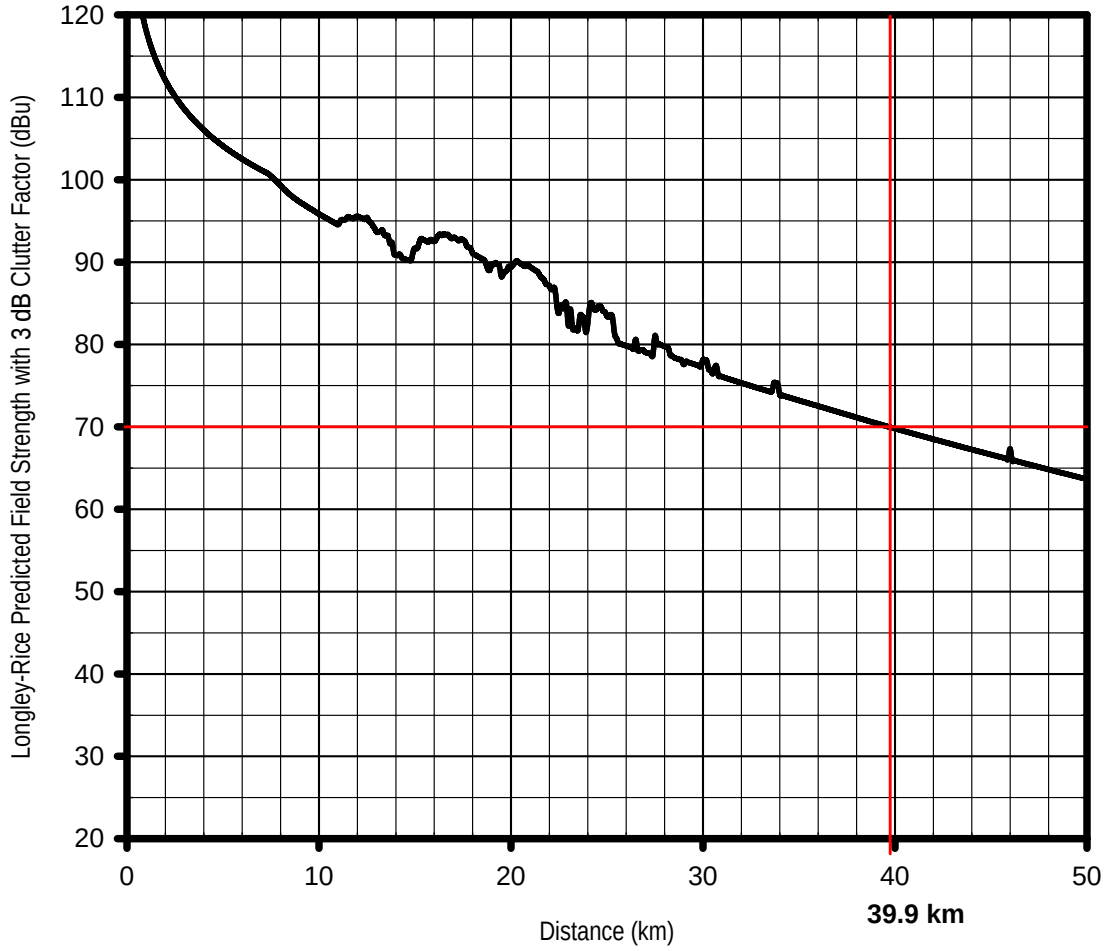
Terrain Path

du Treil, Lundin, & Rackley, Inc., Sarasota, Florida



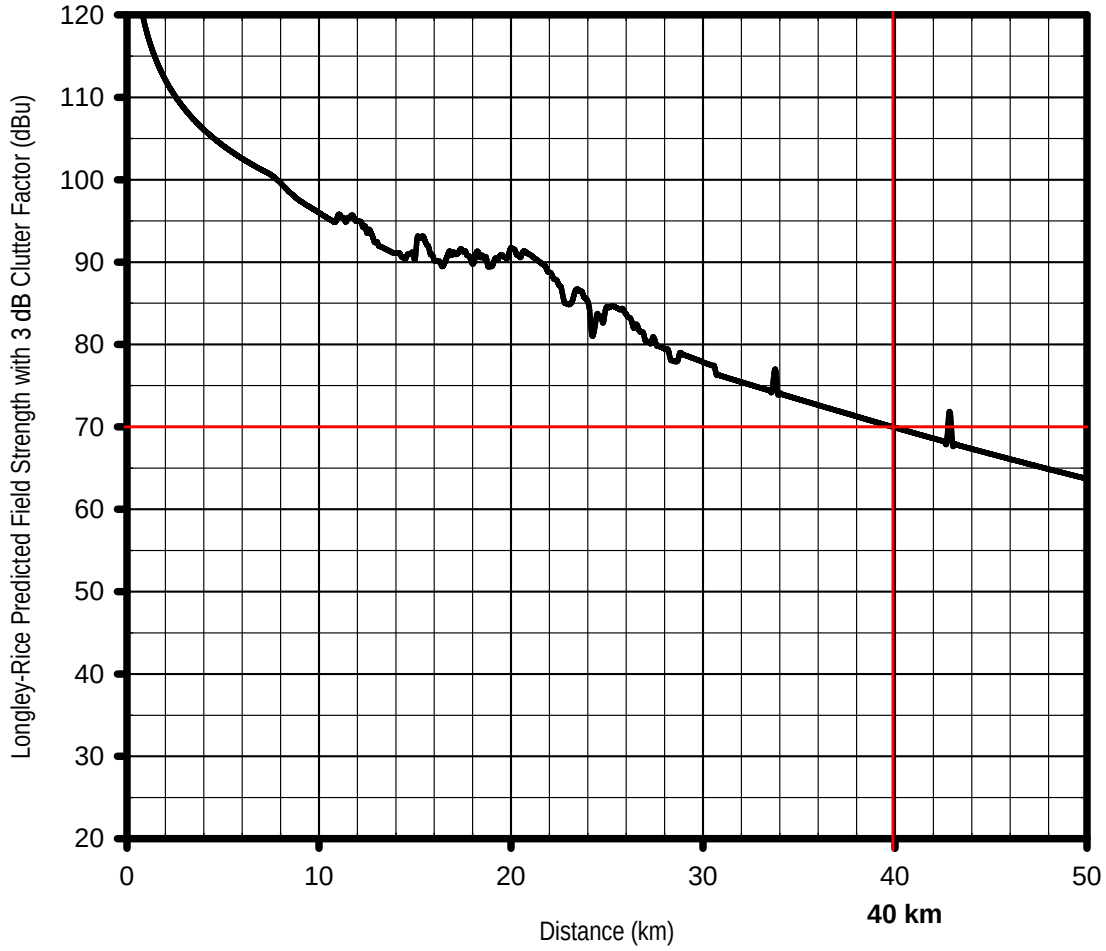
Latitude (NAD83):	034-14-37.6	***Latitude (NAD83):***	033-48-33.7	***Distance:*** 50 km	***Earth Curvature Factor:*** 1.3330
Longitude (NAD83):	078-07-23	***Longitude (NAD83):***	077-58-58.8	***Azimuth:*** 165 deg	
Elevation:	15.00 m	***Elevation:***	0.00 m		

Figure 1



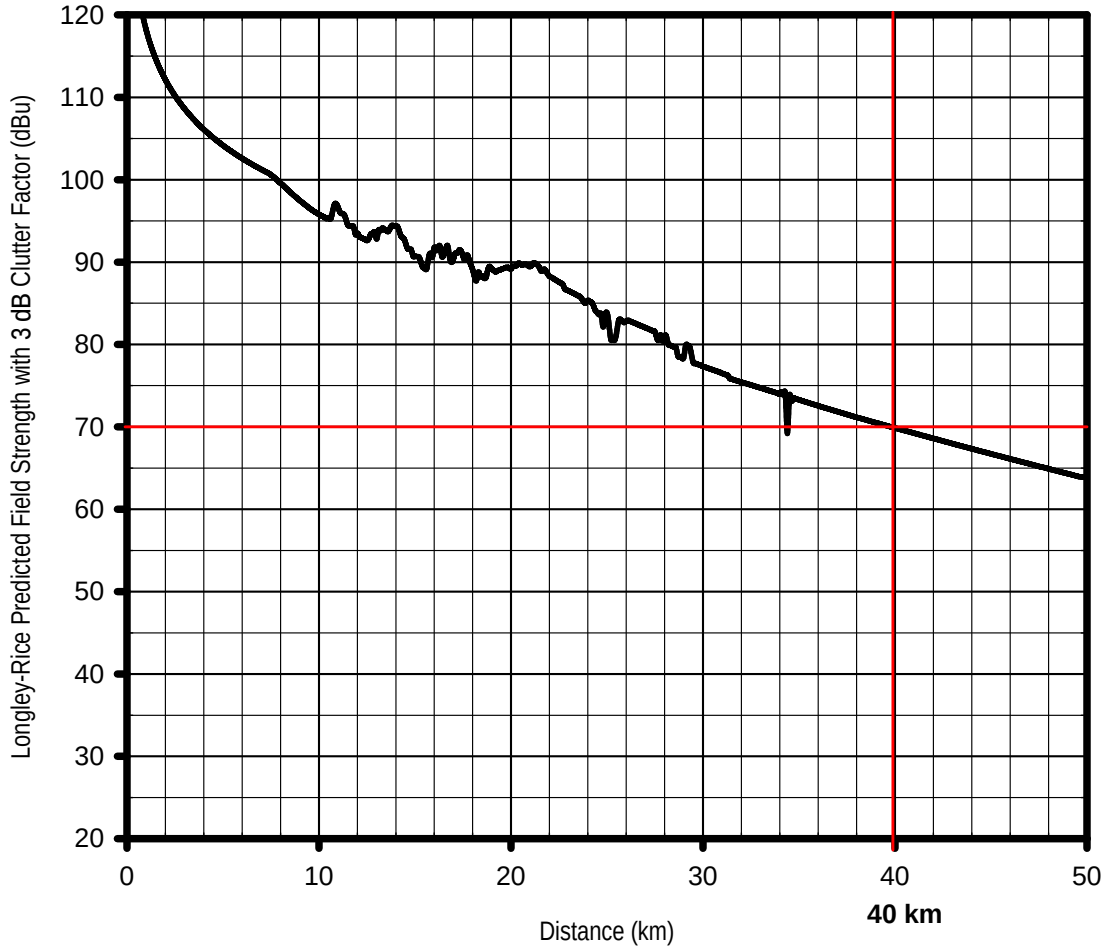
Longley-Rice calculated field strength versus distance. Terrain based on U.S.G.S. 3-second data. Receive antenna height 9 m AGL. Median field strength, f(50,50) predicted with a median (50%) confidence level.

LONGLEY-RICE ANALYSIS (161° RADIAL)



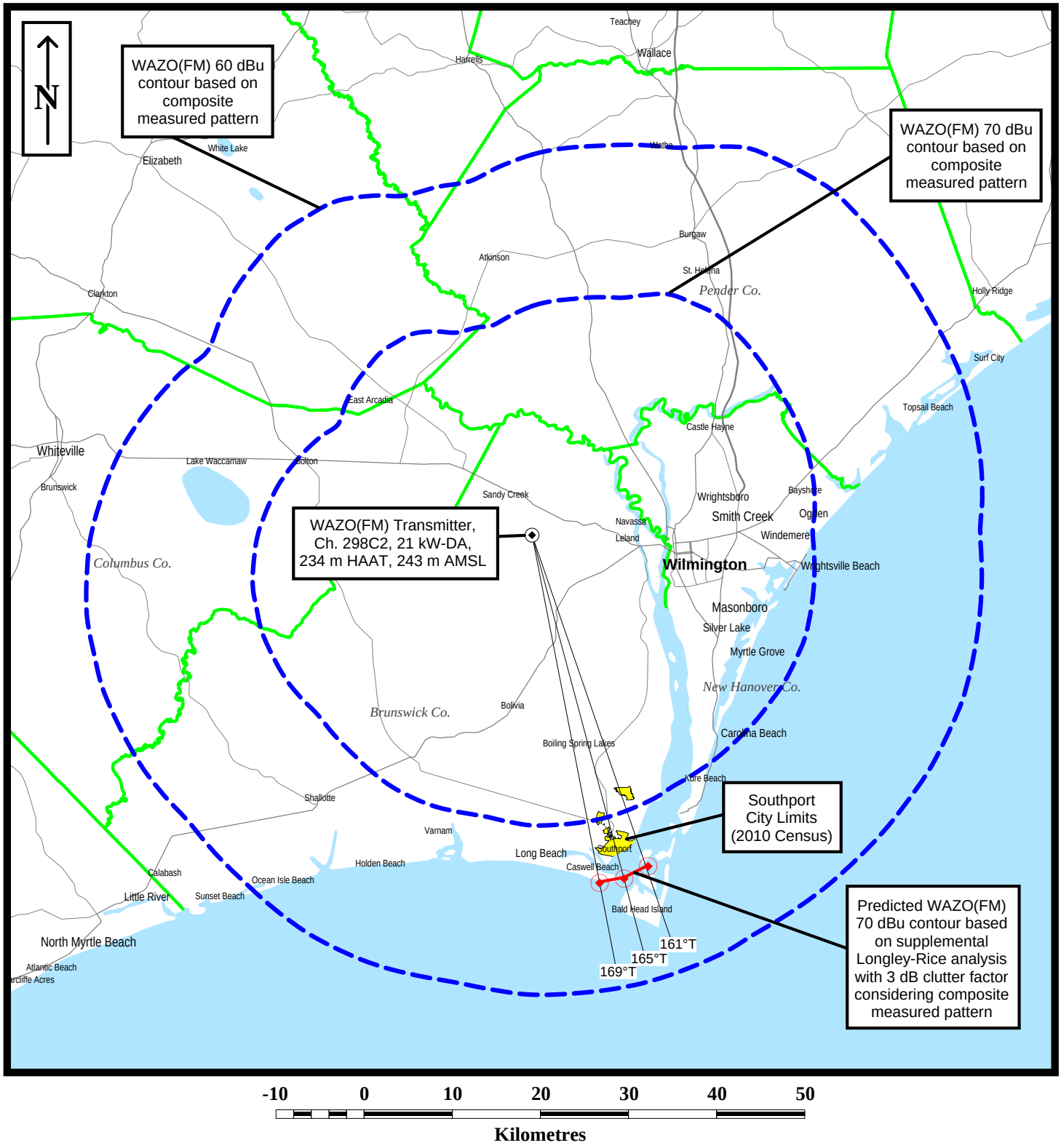
Longley-Rice calculated field strength versus distance. Terrain based on U.S.G.S. 3-second data. Receive antenna height 9 m AGL. Median field strength, f(50,50) predicted with a median (50%) confidence level.

LONGLEY-RICE ANALYSIS (165° RADIAL)



Longley-Rice calculated field strength versus distance. Terrain based on U.S.G.S. 3-second data. Receive antenna height 9 m AGL. Median field strength, f(50,50) predicted with a median (50%) confidence level.

LONGLEY-RICE ANALYSIS (169° RADIAL)



PREDICTED COVERAGE BASED ON FCC CONTOUR METHOD AND SUPPLEMENTAL LONGLEY-RICE METHOD

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