

**Exhibit: Compliance with Special Operating Conditions and Restrictions**

**WZQS Facility ID 71766**

**Cullowhee, North Carolina**

**Western North Carolina Public Radio, Inc.**

**Construction Permit File Number: 0000143941**

**August 2021**

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## Declaration

I declare, under penalty of perjury, that I am a technical consultant to broadcasting and other communications systems, that I have over twenty-five years of experience in the engineering of broadcast and other communications systems, that I am familiar with the Federal Communications Commission's Rules found in the Code of Federal Regulations Title 47, that I am a Professional Engineer registered in North Carolina, that I have prepared or supervised the preparation of the attached Exhibit for Western North Carolina Public Radio, Inc., and that all of the facts therein, except for facts of which the Federal Communications Commission may take official notice, are true to the best of my knowledge and belief.



Timothy L. Warner, P.E.  
Post Office Box 8045  
Asheville, North Carolina 28801  
(828) 258-1238  
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31 August 2021

## Narrative

This Construction Permit authorizes a new site with a new directional antenna.

## Special Operating Conditions and Restrictions

There are five (5) special operating conditions or restrictions. This Exhibit provides details on compliance with each.

1. A complete proof of performance for this antenna is attached as a separate exhibit.
2. A certification from a Registered Land Surveyor, showing that the antenna was mounted at the azimuth specified by the antenna manufacturer, is attached.
3. A certification from the engineer who supervised the antenna assembly and installation is attached.
4. A map is attached to this exhibit showing that the measured pattern provides 100% coverage of the community of license by the F(50,50) 60 dBu contour.
5. As the attached proof of performance from ERI shows, the pattern complies with the specific minimum power requirement. The composite pattern relative field and effective radiated power is shown in a table labeled "Figure# 1." Specific requirements and minima are:

Bearing	Limit	Relative Field	ERP
120 – 130 degrees True	0.32 kW	0.728 (max)	0.265 kW (max)
250 degrees True	0.14 kW	0.468	0.118 kW
310 degrees True	0.125 kW	0.392	0.077 kW



Alliance Land Surveying, PC  
1000 US Hwy 441 S  
Sylva, NC 28779  
Contact: James Watkins, PLS (President)  
Office: (828) 586-5256  
Email: [alliance4757@gmail.com](mailto:alliance4757@gmail.com)

#### Antenna Orientation Certification

I, James Watkins, PLS, hereby certify that the WZQS-FM directional antenna, a 100A-1M-DA array, is oriented in accordance with the provided instructions and specifications. The antenna was mounted on a tapered mono-pole with bracketry to provide an antenna orientation of North 93 degrees East.

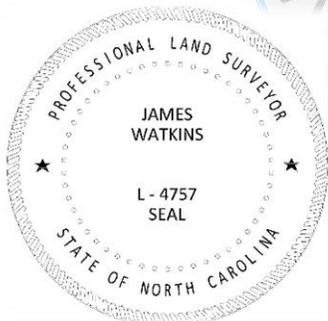
Survey based on GPS control.

#### Instrumentation:

Spectra Precision Focus 35 Robotic Instrument  
Accuracy of electronic angle measurement: 5 Seconds  
Accuracy of electronic distance measurement: +/- 0.005

Champion NV3 GPS receiver for determining NAD 83/2011 Grid Azimuth  
Convergence angle: 02° 25' 29.17" applied to determine True Azimuth

I am a Professional Land Surveyor in the State of North Carolina



  
James Watkins, PLS



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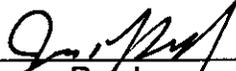
BPR News | BPR Classic | bpr.org  
73 Broadway | Asheville NC | 28801

Directional Antenna Installation Certificate  
WZQS  
Cullowhee, NC

To Whom It May Concern,

I am an IT & Broadcast Professional with over 20 years of experience in the industry and serving as Director of Technology for Blue Ridge Public Radio for over 6 years.

I certify that the WZQS antenna, an Electronic Research Inc 100A-1M-DA directional antenna, drawing # IA38787-1, was assembled and installed according to the manufacturer's instructions.

  
\_\_\_\_\_  
Jason Reed  
August 26<sup>th</sup>, 2021

**WZQS.C**

0000143941  
Latitude: 35-18-50.20 N  
Longitude: 083-12-04.10 W  
ERP: 0.50 kW  
Channel: 213 90.5 MHz  
AMSL Height: 883.0 m  
Elevation: 860.0 m  
Horiz. Pattern: Directional

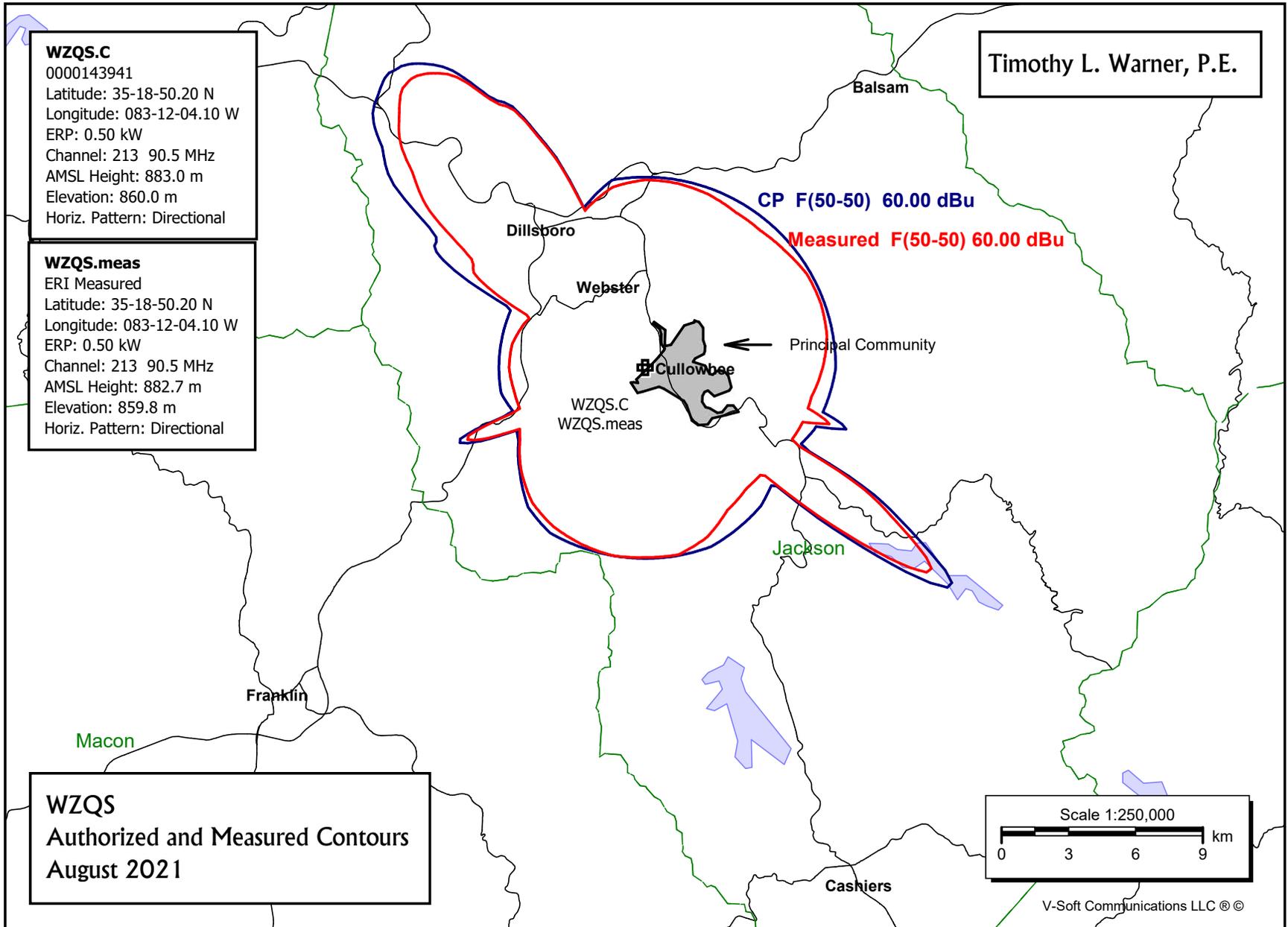
**WZQS.meas**

ERI Measured  
Latitude: 35-18-50.20 N  
Longitude: 083-12-04.10 W  
ERP: 0.50 kW  
Channel: 213 90.5 MHz  
AMSL Height: 882.7 m  
Elevation: 859.8 m  
Horiz. Pattern: Directional

**WZQS**

**Authorized and Measured Contours  
August 2021**

Timothy L. Warner, P.E.



CP F(50-50) 60.00 dBu

Measured F(50-50) 60.00 dBu

Principal Community

Scale 1:250,000

0 3 6 9 km

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