



# **Tom Ray**

## **Broadcast Consulting, LLC.**

377 Chestnut Avenue | New Windsor, NY 12553 | 845-418-5065

ENGINEERING STATEMENT IN SUPPORT OF  
LICENSE TO COVER FOR  
ANTENNA REPLACEMENT  
WTOJ-FM, FACILITY ID 11625

THOMAS R. RAY, III CPBE, AMD, DRB  
AUGUST 14, 2022

I am a consulting/contract Engineer representing Community Broadcasters, licensee of FM Station WTOJ. My works are a matter of record before the Commission. I am Certified as a Certified Professional Broadcast Engineer by the Society of Broadcast Engineers with specialty Certifications in AM Directional Antennas and Digital Radio, Broadcast. I also hold FCC RadioTelephone Operator's Permit PG017214, and FCC Amateur Extra license W2TRR. I have been a Broadcast Engineer for over 45 years as of this writing.

WTOJ's antenna had become problematic with age. This past winter, the antenna heaters failed which took WTOJ to reduced power several times over the course of the winter. It was less expensive to replace the antenna than to replace the heaters.

An American Amplifier Technologies FM-IV-CP-BB-3 three bay antenna was installed at the same height and on the same leg as the former ERI antenna on ASR number 1016048. It should be noted that this antenna replaces an ERI 1105-3.

#### **TRANSMITTER POWER OUTPUT CALCULATION**

Transmission Line Loss: -2.39 dB (transmission line is Andrew LDF5-50A air dielectric 7/8" transmission line, 589 feet in length)

Antenna Power Gain: 1.55

Power required to produce 1.80 kW from the antenna: 1.161 kW

Transmitter Power Output required to produce 1.161 kW at the antenna: 2.013 kW

The Transmitter Power Output has been adjusted to 2.013 kW.