

# A stronger signal for WBOC viewers



WBOC serves a population of about 500,000 living on the Delmarva Peninsula on the East Coast of the United States.

## At a glance

Delmarva's news leader WBOC has placed a R&S®THU9 at the center of its transmission to ten surrounding counties. In order to transmit to approximately 500,000 viewers, the Rohde & Schwarz transmitter not only needed to be efficient, it also had to be a reliable transmission source. Thanks to the R&S®THU9 efficiency and performance, WBOC has greatly increased their signal strength to their viewers.

## Executive summary

- **Customer:** WBOC-TV, Salisbury, Maryland, USA
- **Task:** Upgrade transmitter system
- **Challenge:** Provide an exceptional viewer experience with efficient energy operation
- **Solution/product:** R&S®THU9 liquid-cooled transmitter
- **Key benefits:** Better picture for all viewers and reasonable operating and capital cost for station
- **Key advantages of this solution:** WBOC did not have to significantly alter its existing transmission facilities and gained a great deal of operating flexibility and especially energy efficiency



The R&S®THU9 liquid-cooled, UHF high-power transmitter offers the highest efficiency and power density in its class.

“Rohde & Schwarz makes it right. For quality and reliability, you just can’t beat it. Whether it be on a mountaintop somewhere or anywhere else in the country, I could fly in and whatever part I may have needed would be there.”

Bob Guzman, WBOC Director of Engineering

## About WBOC

In a hotly contested media market that includes web, print and broadcast competitors, WBOC-TV is maintaining its competitive edge with innovative programming, tech-savvy management, and – most recently – new transmission equipment that delivers a stronger signal at low cost of ownership.

WBOC is a CBS and FOX duopoly that serves a population of about 500 000 on the Delmarva Peninsula on the East Coast of the United States. The peninsula’s name is derived from the three bordering states – Delaware, Maryland and Virginia.

Over the past decade, WBOC has invested extensively and intelligently in technology and kept a watchful eye on maximizing user experience. In 2008, it started broadcasting high-definition TV signals from the recently-constructed NewsPlex, a multimillion dollar, 11 340 square foot, state-of-the-art, high-definition, digital broadcast facility. WBOC is among the most dominant stations for top ten viewership of any CBS station.

Growth in viewership, capital plant additions and the technical challenges of achieving cost-effective, high-definition transmission eventually led the station to purchase and install a new transmission system based on the R&S®THU9 liquid-cooled UHF transmitter.

## The task

With its old transmitter, WBOC was delivering a good – but not exceptional – viewer experience. Its coverage area includes seven counties in Maryland, two counties in Delaware and one Virginia county. During the summer months, families vacationing on the peninsula’s popular Atlantic Coast beaches significantly increase the station’s viewership.

Director of Engineering Bob Guzman had the responsibility for designing the production and transmission facilities. He started with two new production studios where content can be monitored and transmitted easily. His more than 30 years in the engineering end of the over-the-air broadcast industry gave him good insight into the technical requirements of UHF transmitters.

## Solution

Guzman selected the R&S®THU9 liquid-cooled transmitter in large part because of his previous experience with Rohde & Schwarz products. “Rohde & Schwarz makes it right,” he says. “For quality and reliability, you just can’t beat it.” Efficient customer service delivered worldwide was another important factor. “Whether it be on a mountaintop somewhere or anywhere else in the country, I could fly in and whatever part I may have needed would be there.”



A week after the project started, WBOC was on-air and signal strength increased approximately 20-fold.

The transmitter went from “crates to on-air in one week, which is unheard of,” says Guzman. In January 2015, a week after the project started, WBOC was on-air and signal strength had increased 13 dB – approximately a 20-fold increase. The reaction of WBOC’s audience was immediate and so remarkable that the station ran a segment on its evening news to explain why everybody’s picture was so much better and why it was being received in areas that had previously been dead zones.

A few engineering challenges were unique to the WBOC project. Specifically, the concrete pad outside the broadcast facility had to accommodate two exchangers because it had been decided that the old transmitter would be kept in service. Guzman decided to stack the old exchanger and the exchanger for the liquid-cooled R&S®THU9. Although this was a challenge at first, the solution worked well and the transmitters were installed.

The system upgrade has been a success for WBOC’s owners and viewers. Guzman says he would recommend Rohde&Schwarz transmitters for several reasons, including the accessibility of parts, the ability to configure the system control board in multiple locations, and the closed-loop, liquid-cooled system. He also maintains that “You know Rohde&Schwarz will be around in ten years. With other companies, you can’t be sure of that.”

### Benefits

The R&S®THU9 offers the highest efficiency and power density in its class. Efficiencies as high as 42%, including the cooling system, significantly reduce energy costs. Rohde&Schwarz used innovative design strategies involving transmitter system configuration to achieve this unrivaled level of efficiency. One result is a significant reduction in RF attenuation because the amplifier integrates advanced, efficient power transistors.

Specially developed power supplies contribute to high-efficiency operation by enabling the transmitter control unit to optimize the transistor supply voltage. Another decisive innovation is the liquid-cooling system. The pumps operate in active standby mode, increasing transmitter availability.

- Superior efficiency thanks to innovative transmitter design and the use of Doherty technology
- Scalable and flexible system configuration
- Unique MultiTX system with multiple transmitters in a single rack
- Highest power density per transmitter rack
- User-friendly operating terminal and GUI
- Optimized total cost of ownership (TCO)



The concrete pad outside the broadcast facility had to accommodate two exchangers because it was decided to keep the old transmitter in service.

## Service that adds value

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

## About Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, radiomonitoring and radiolocation. Founded more than 80 years ago, the independent company which is headquartered in Munich, Germany, has an extensive sales and service network with locations in more than 70 countries.

## Sustainable product design

- | Environmental compatibility and eco-footprint
- | Energy efficiency and low emissions
- | Longevity and optimized total cost of ownership

Certified Quality Management

**ISO 9001**

Certified Environmental Management

**ISO 14001**

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