

ROHDE & SCHWARZ UPGRADES TERRESTRIAL TRANSMISSION FOR THE LEADING FM BROADCASTER IN THE UNITED ARAB EMIRATES



Summary

- ▶ **Customer:** Arabian Radio Network (ARN), Dubai, United Arab Emirates
- ▶ **Task:** replace an existing FM transmitter network with the latest, most efficient technology
- ▶ **Challenge:** deliver very high reliability while significantly cutting operational costs
- ▶ **Solution:** R&S®THR9 liquid-cooled radio transmitters
- ▶ **Key advantages of this solution:** excellent business case through greatly reduced energy consumption; increased resilience; lower environmental impact; continuing SLA assuring uninterrupted broadcasting

At a glance

ARN, the largest multilingual commercial radio network in the world, has long relied on Rohde&Schwarz transmitters to reach audiences across the UAE. With their existing transmitters' end of life approaching, ARN was offered a

strategic solution from Rohde&Schwarz centered around the high-power R&S®THR9 transmitter in combination with KATHREIN Broadcast and SIRA Radio Systems combiner upgrade. The proposed replacement strategy not only ensures business continuity but also promises substantial coverage improvement, potential area expansion and operational cost savings.

The highly efficient liquid-cooled R&S®THR9 transmitter offers two crucial benefits:

- ▶ Exceptional energy efficiency at significantly reduced cost
- ▶ Liquid cooling that eliminates the need for high-powered air conditioning in the transmitter building

The new transmitters empower ARN to enhance its offerings, incorporating features like RDS displays for graphics, song titles, traffic information and more.

Case Study | Version 01.00

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A KATHREIN FM directional filter combiner was modified to deliver a higher total transmitter power, an impressive 180 kW. Special “constant impedance” technology enables small frequency spacing even at high power levels without the signals interfering with each other. High decoupling values between the combiner inputs beyond the 40 dB mark keep every signal clear and undisturbed. In addition, high-quality bandpass filters ensure low attenuation values of less than 0.2 dB per combiner module.

The customer

The Arabian Radio Network (ARN), transmitting from nine stations in six languages to over 200 nationalities, aimed to ensure continuity of its coverage. As part of the Dubai Holding Entertainment group, ARN’s global advertising approach required a reliable and efficient transmitter network capable of supporting broader campaigns beyond radio commercials.

The challenge

With its audience steadily increasing, ARN required the infrastructure to support expansion into new areas using its existing frequency.

Because it caters to the Arab world, ARN recognized the crucial importance of transmitting text in Arabic to its audience. The new infrastructure, which supports RDS2 protocol at the level of the RDS system, will allow transmission of Arabic text with the broadcaster’s radio programs. ARN is very focused on performance and needed an infrastructure that was easy to use, required little operational time and offered a high OPEX.

The solution

Having relied on Rohde&Schwarz products for years and satisfied with the previous generation of FM transmitters, ARN faced a pivotal moment as its R&S®NR8000 transmitters approached the end of their supported life. Rohde&Schwarz engaged in discussions with ARN to address the impending challenge.

Rohde&Schwarz proposed a forward-looking solution: the R&S®THR9 high-power FM transmitter, renowned for its exceptional efficiency in radio broadcasting. Capable of generating up to 40 kW from a single rack

with an outstanding energy efficiency of up to 75%, the R&S®THR9 stands out in the field of FM radio technology.

A notable feature of the R&S®THR9 is its liquid cooling system, which efficiently dissipates heat generated by power amplifiers. This eliminates the need for additional high-power air conditioning in the transmitter room, a crucial factor in the scorching Dubai climate where daytime temperatures regularly exceed +40°C. This innovation significantly impacts overall operating costs because power expenses are the main driver of running costs for a transmitter network.

The proposed Rohde&Schwarz solution has two banks of six R&S®THR9 transmitters, each accommodating five channels and a standby for redundancy. The comprehensive package included essential equipment such as combiners, audio processing and RDS encoders.

Rohde&Schwarz offered a turnkey solution. A team of engineers from Rohde&Schwarz, KATHREIN Broadcast and SIRA Radio Systems delivered successful on-site commissioning, on-site training and a four-year service agreement.

Rohde&Schwarz presented a compelling business case with an expected full return on investment within five years compared to maintaining the existing installation.



“This new project will strengthen the position of ARN as the number one multimedia broadcaster in the UAE and will help us increase our market share through high quality audio and listener satisfaction”

Mahmoud al Rasheed, General Manager, ARN

R&S®THR9

- ▶ Energy efficiency of up to 75%
- ▶ Maximum robustness and extremely low service costs thanks to a redundant liquid cooling system
- ▶ Small footprint through integration of multiple transmitters and maximum power density
- ▶ FM and HD Radio™ transmitters for band II

“The R&S®THR9 transmitter will help us focus on our main business as a radio broadcaster by giving us full confidence in the infrastructure that will run continuously”

Essa Darwish, Executive Director of Broadcast and Technology, ARN.



Beyond financial considerations, the reduced power consumption was aligned with ARN’s commitment to environmental responsibility. The upgraded transmitter network actively contributes to the government’s UAE 2050 green initiative.

This strategic upgrade, backed by the commitment of Rohde & Schwarz to support the R&S®THR9 transmitter for a minimum of the next ten years, has proven to be the optimal long-term solution for ARN.

Conclusion

As a satisfied user of Rohde & Schwarz transmitters for 12 years, ARN decided to upgrade its network. Trained on reliable legacy R&S®NR8200 transmitters, the technical staff at ARN welcomed the proposed switch to the latest technology as the current transmitter neared the end of its lifecycle.

The R&S®THR9 stands out for its familiarity, simplicity, and low-noise operation in the transmitter room, thanks to efficient liquid cooling. Technically, the R&S®THR9 is designed for reliable operation, incorporating a 5+1 architecture for the ultimate in resilience. The exclusive local presence of Rohde & Schwarz and its service center in the Middle East set it apart.

ARN’s transition to the new transmitters brought tangible commercial benefits: a reduced carbon footprint, lower power consumption, and a significantly decreased total cost of ownership. This, combined with the transmitter’s high reliability, formed a compelling business case, prompting ARN to seamlessly install the new network in 2023.

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You're in great hands

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

Rohde & Schwarz

The Rohde & Schwarz technology group is among the trailblazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks & cybersecurity. Founded 90 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

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