

# K-NET LIMITED SPEARHEAD THE DAB+ TRIAL IN GHANA USING TRANSMITTERS FROM ROHDE & SCHWARZ IN COLLABORATION WITH BROADCASTING SERVICES FOR AFRICA



## At a Glance

Ghana has become the first country in West Africa to launch a digital radio network. Initially operating for six months, the trial service first brings 18 new services to Accra and Kumasi, with the intention to widen the coverage and scope of the service once the trial proves positive.

Following the successful implementation of a DVB-T2 digital television network, Rohde&Schwarz and K-NET Ltd were selected to supply two R&S®THV9evo DAB+ transmitters for the radio trial. They are reliable and highly cost-efficient in operation, using liquid cooling to minimize the need for powerful air conditioning in the transmitter building.

## Executive summary

- **Customer:** K-NET Ltd.: DAB+ trial in Ghana
- **Task:** Provide reliable, wide area coverage of digital radio to prove the service
- **Challenge:** Reliable operation in challenging environments
- **Solution:** R&S®THV9evo liquid-cooled transmitters from Rohde&Schwarz
- **Key advantages of this solution:** Proven DAB+ broadcast capabilities; high power conversion factor minimizes input power demands; liquid cooling eliminates the need for extensive air conditioning with its cost and maintenance demands

Case Study | Version 01.00

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## The customer

Ghana has a national drive, led by its government, to enhance communications, digital services and culture. As a central part of this program, the country wants to expand radio broadcast services. With a highly constrained FM spectrum it is looking to the latest version of digital radio, DAB+, and set up a trial and demonstration service starting in August 2023.

The trial is being run by K-NET Ltd. on behalf of the National Communications Authority of Ghana. Transmitters for the project were supplied by Rohde&Schwarz Middle East and Africa, in conjunction with local distributor Broadcasting Services for Africa.

## The challenge

The authorities in Ghana were determined to increase more choice and access in radio programming. As well as providing more alternatives, it sought to provide more diversity in origination, and a need to ensure that people beyond the major cities could enjoy the additional channels.

The FM radio spectrum is already crowded, leading to a requirement for a solution that addresses frequency limitations and does not compromise existing services. The government was also aware of the relatively high operating costs of traditional FM stations and wanted technology that reduces costs and environmental impact through energy efficiency.

DAB+ provided the answers to these challenges. The National Communications Authority set out a program for a trial period of six months, which would include gauging market response and giving the consumer electronics industry time to roll out suitable receivers. NCA is targeting various receivers ranging from automobiles, homes, portable devices, and beyond.



## The solution

The broadcasting authorities in Ghana were already familiar with Rohde&Schwarz products, as the company had successfully delivered the network of transmitters for the DVB-T2 rollout, in association with K-NET. Through the extended period of reliable, efficient operation, the authorities were confident in Rohde&Schwarz and turned to them again for the digital radio trial. Broadcasting Services for Africa contributed to the project as systems integrator and is also providing maintenance and support on location.

The company proposed the use of DAB+, after seeing that it meets all the key requirements of the project. Because it operates in the VHF 174 MHz to 230 MHz band it does not interfere with existing FM broadcasts. This frequency band also provides extremely high reception strength in the signal area, providing reliable delivery, minimal interference and superior audio quality.

DAB uses multiplexed audio paths within the transmitted signal, so a single transmitter can deliver to multiple concurrent stations. The Ghana trial will broadcast 18 services: 11 originating in the capital of Accra and seven in the city of Kumasi. The second city in the country, Kumasi is the center of the Ashanti region, so basing channels here brings cultural diversity to the services.

As well as the high-quality audio, DAB+ incorporates broadcast metadata which can be used for text and images, including service and program information, emergency warnings, news, weather and traffic alerts. It also allows consumers to select stations by name, rather than remembering and seeking frequencies.

For the initial trial broadcast phase, Rohde&Schwarz is supplying two R&S®THV9evo transmitters: one covering the Accra region and for Kumasi and Ashanti. Each is fitted with four power amplifier modules, giving an output power in excess of 5 kW. All 18 radio services will be available in each city.

K-NET supplied 200 car DAB+ adapters, 100 portable handheld DAB+ receivers, and 800 home DAB+ receivers.

Compact design and easy operation

**“The launch of Digital Audio Broadcasting is yet another service focused on meeting the needs of the industry, and ultimately benefiting the consumer.”**

**Ursula Owusu-Ekuful, Honorable Minister for Communications and Digitalization of Ghana**

The R&S®THV9evo transmitter is designed for high efficiency, which translates directly to minimized running costs. The unique design of the power amplifiers ensures exceptional operational efficiency, as well as power density, meaning the complete transmitter occupies the smallest possible rack space.

The result is that the cost of keeping the transmitters within a safe operating temperature range is greatly reduced. It also reduces the number of systems needed to be maintained, resulting in reducing operational costs even further.

The design of the complete transmitter provides a high level of redundancy, ensuring the operability of the transmitter. As well as the initial 12-month full warranty, Rohde&Schwarz ensures that the R&S®THV9evo, like

all its current transmitters, will be supported for at least 10 years, ensuring a secure lifecycle.

The timescale set by the Ghanaian authorities were tight, but Broadcasting Services for Africa and Rohde&Schwarz delivered on time, with the installation complete and ready to launch the new services in August 2023.

### Conclusion

The service was launched on 22 August 2023, by Ursula Owusu-Ekuful, the Honorable Minister for Communications and Digitalization in the Ghanaian government. In her speech she noted that Ghana is the first country in West Africa to introduce digital radio and said that this was part of the government’s unwavering commitment to embracing digital innovation.

DAB+ broadcasting in Ghana brings a new audio experience to its citizens. They will benefit from the best available audio quality, together with new services like emergency warnings and simple access to news, weather and traffic information.

The broadcasters rely on the acclaimed R&S®THV9evo transmitter, which provides extremely reliable operation, minimal operational and maintenance intervention, and the lowest cost of ownership.



### R&S®THV9evo

- ▶ Even greater efficiency gains through many years of experience with Doherty technology
- ▶ Highest power density on the market
- ▶ Built on the strengths of the established R&S®THx9 platform
- ▶ Intelligent efficiency optimization for minimized energy costs for all types of applications

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- ▶ Long-term dependability

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