

Compact mobile TV transmitter – versatile and ready for the road

Rohde & Schwarz's already extensive portfolio of transmitters has just gotten bigger: It now includes a mobile TV transmitter that is housed entirely in a car trailer for fast, uncomplicated setup and operation on-site.

Mobile transmitters: true "first aid" in many cases

There are many possible applications for mobile TV transmitters. For example, stationary broadcast transmitters (whether digital or analog) need to be up and running around the clock. If one of these transmitters fails for a longer period of time and causes viewers to miss programs, network operators run the risk of significant penalties. However, there is a solution. A mobile backup transmitter can now be up and running quickly and easily when a stationary transmitter fails.

However, besides emergency applications, compact mobile transmitter systems are also useful for interim usage and for training purposes. Since they are largely independent of existing infrastructures, they can also be used in hard-to-access locations. Since they can be installed very quickly, they are also ideal for setting up new mobile TV networks or trial networks. They can also be used to close coverage gaps at a minimal cost.

Compact solution in a car trailer

Following a call for bids from MEDIA BROADCAST GmbH, Rohde & Schwarz received an order in July 2007 to implement and deliver a mobile transmitter system of this kind. The



FIG 1 The R&S®NV8606V TV transmitter is installed on a mounting plate with guide rollers. It can be easily transported without any additional equipment due to its total weight of under 400 kg.



FIG 2 The complete box structure of the car trailer can be hydraulically lowered whether the trailer is attached or not.



FIG 3 The heat exchanger with the coolant pump is compact and easy to transport.

two companies cooperated closely on the design and blazed some new routes. The objective of the project was to create a DVB-T transmitter system with 4 kW transmit power which could be quickly transported and put into operation at any site without significant installation effort.

At the heart of the system is the R&S®NV8606V transmitter (FIG 1), a member of the R&S®NH/NV8600 family of liquid-cooled high-power transmitters, which are known for their high efficiency and low space requirements [*]. The transmitter is installed on a mounting plate with guide rollers. It can be easily transported without any additional equipment due to its compact dimensions of 600 mm × 1800 mm × 1100 mm (W × H × D) and total weight of under 400 kg. The state-of-the-art processing of the modulation signals and the broadband design of the high-power amplifiers ensure that it can be set to the required channel very quickly, helping to minimize downtime for the affected stations.

To keep installation and transport as simple as possible, the coolant pump is mounted horizontally on the 14 kW heat exchanger for the most compact design possible with total dimensions of 600 mm × 1400 mm × 1300 mm (W × H × D) (FIG 3). With a total weight of under 270 kg, the heat exchanger can also easily be transported without any additional equipment due to the guide rollers. After connecting the pump unit to the transmitter and hooking up the two supplied power cables, everything is ready for operation immediately. The pump unit does not need to be drained since the 1½" snap-lock couplers can be actuated under pressure with no problems.

The complete box structure of the trailer (FIG 2) can be hydraulically lowered whether the trailer is attached or not. A tandem axle with additional shock absorption in conjunction with a safety clutch and a stabilizer ensures safe driving at speeds up to max. 100 km/h. The completely hot-galvanized longitudinal support frame combined with fully covered hydraulic cylinders on the axles makes the trailer unsusceptible to adverse environmental conditions.

The result of this joint effort is very impressive: In a 4.5 m² area, there is room for everything needed for fast setup and operation (FIG 4). Besides the R&S®NV8606V transmitter and the heat exchanger, the trailer also accommodates all accessories, including the power, control, modulation and signal cables, the 1½" RF cable, hose lines, all standard adapters from 1½" EIA to 7/16" through 1½" EIA to 3½" EIA, the filling pump with accessories as well as the complete documentation.

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References

- * R&S®NH/NV8600 UHF Transmitter Family: High efficiency reduces energy costs by up to 25%. News from Rohde&Schwarz (2007), No. 194, pp. 37–39.

FIG 4 The trailer has room for the complete transmitter system with accessories.

