

RADIO FREQUENCY SYSTEMS

Case Study Supporting the Bilsdale Broadcast Transmitting Site Rebuild

United Kingdom

Following a fire on Arqiva's Bilsdale Transmitter site in August 2021, television and radio services across Northeast England were disrupted, with 670,000 households affected. The 300m mast was demolished and needed to be rebuilt.

Arqiva needed to take action to provide a temporary solution to return coverage to those impacted while working in the longer term to get a new 300m permanent mast up and running.

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The challenges

The situation presented a number of challenges:

- The number of households relying on the Bilsdale site for TV and Radio coverage meant the project was under intense scrutiny from many interest parties, including the public, local media, and Members of Parliament (MPs).
- The rural location of the transmitter, high in the North York Moors, made site access for the installation particularly challenging.



The solution

RFS brought previous experience, having worked with Argiva on multiple broadcast sites as part of the UK digital switchover. In fact, the disaster recovery antenna (DRA) that was quickly implemented to cope with the outage was supplied by RFS at the time of the UK digital switchover.

RFS worked across four key areas of the Bilsdale Transmitter restoration project to reinstate broadcast coverage from the site: Antennas, Cable, Logistics, and Commissioning Services.

Antenna

Along with the disaster recovery antenna, which was part of a previous RFS project with Arqiva, RFS supplied the main and reserve UHF (TV) broadcast antennas for the site. The reserve antenna required a bespoke pattern, due to transmitting restrictions, which included works tests to prove the pattern.

Cable

The next part of the project was to supply the feeder cables for the site. RFS has been the market leader in Air Dielectric cable since it patented the HELIFLEX solution in 1951. HELIFLEX cables are used in applications where there is a need to transport high-power signals from the transmitter to the antenna with the lowest possible attenuation and signal distortion. RFS is the only manufacturer of the 6 1/8" Air Dielectric cable needed to support the power requirements of the Bilsdale transmitter site. [...]

Logistics

Alongside meeting the equipment requirements of the project, RFS played a major role in providing additional logistical services to ensure a smooth delivery process.

The project required over 1,300m of HELIFLEX cable. This was transported on four drums, each weighing around seven tonnes. RFS handled the end-to-end delivery of the cable which was manufactured in RFS' lead factory in Hannover (Germany), navigating challenges with overseas shipping, working around low-hanging powerlines, and ensuring appropriate tree clearance. To be sure of success when the equipment was due to be delivered to the site, RFS undertook trial runs to troubleshoot any logistical issues ahead of time.

Additionally, following initial handling issues on site, RFS was asked to return to support the installation itself and to organize moving the cable drums from the storage area to the cable lifting area.

The complete logistical support provided by RFS was key to keeping the desired timeframe of the installation process.

Commissioning services

RFS also provided a range of commissioning services, including reconfiguring the DRA prior to shipping to the site, commissioning the systems once installed, and commissioning the main and reserve antenna systems.

The result

RFS's depth of expertise and ability to handle the complexity of delivering large loads of equipment to the site led to an expansion of the services delivered by RFS. This included transporting additional cable drums and commissioning other antennas not supplied by RFS, leading to a significant uplift in the scope of work delivered by RFS.

Following a smooth and successful installation process, the new permanent mast at Bilsdale was activated on 22 May 2023.

⁶⁶ The Bilsdale Project saw the RFS team utilize the full depth and breadth of our expertise. We needed to not only meet the technical requirements of the customer but to overcome a broad range of logistical issues that were involved in this high-profile project. ⁶⁶

Dave Hutchings, Project Manager at RFS

" It was a difficult project with pressure to deliver quickly, and **RFS was** able to help us handle this by providing the equipment needed to get the site running and, equally important, the expertise to ensure a smooth-running project. **"**





RFS

Lifetime Connectivity

At RFS we specialize in the design and manufacture of premium, future-ready cable solutions for customers across the globe. With over 120 years of heritage in the industry, we build reliable and long service life connectivity systems. **Because we care about our collective future.**

- We design innovative cable solutions that deliver best-in-class connectivity while tackling network pain points and offering a lower Total Cost of Ownership.
- We bring passion and expertise at every stage, from R&D to installation, to meet our business partners' expectations.
- We deliver the communications foundation for digital transformation across a range of industries including oil & gas, mining, and rail.
- We are changing the perception that all cable is created equal and demonstrating the potential of premium solutions.
- We offer a dynamic and stimulating working environmentthat promotes diversity and fosters personal and collective accomplishments.
- We are committed to sustainability with greener manufacturing processes and designing longlife equipment with low-energy consumption to support our customers' climate goals.