



The Positive Choice

A close-up photograph of a white electronic device, likely a base station or server component, with a blue overlay on the left side. The device has a series of vertical fins and a black connector on the right side.

# AEGIS Case Study GSM-R Infrastructure Core Update for BTS-R

Client name: Network Rail

## **AEGIS Certification Services**

29 Brunel Parkway, Derby DE24 8HR

[www.aegiscertification.com](http://www.aegiscertification.com)

[info@aegiscertification.co.uk](mailto:info@aegiscertification.co.uk)

+44 (0) 1332 384 302



# SCOPE/OBJECTIVE

The Global System for Mobile Communications – Rail (GSM-R) has been rolled out across the GB Rail Network.

As part of the East Coast Mainline (ECML) Programme, the GSM-R infrastructure has been upgraded to support ETCS Level 2 operation. From a high-level design 'type' perspective this upgrade means using Circuit Switch Data (CSD) with a migration path to Packet Switching (PS) – ETCS over GPRS (EoG). This solution uses The Base Transceiver Station (BTS-R) in relevant voice configurations.

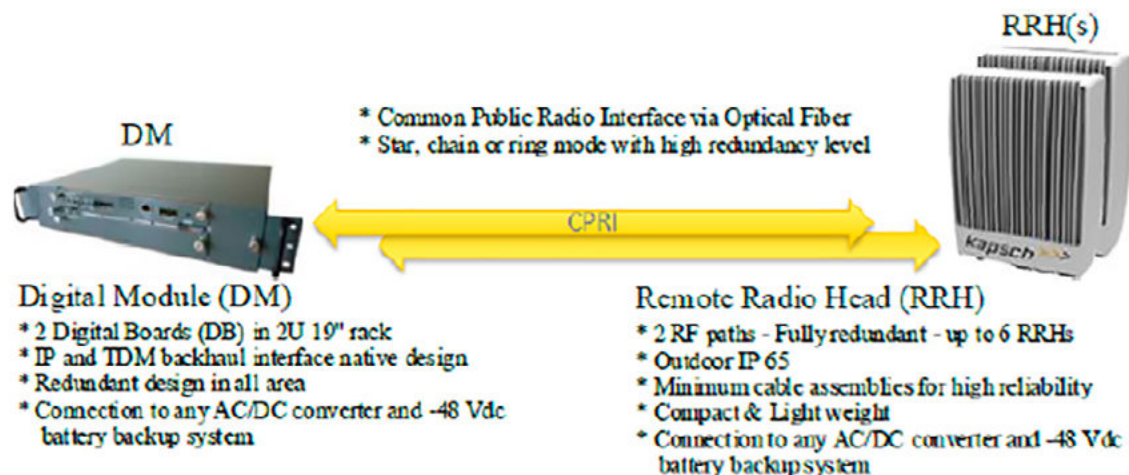
BTS-R is a development of the previous generations of BTS, with the physical architecture separating the Control elements from the RF elements.

The Control part is termed the Digital Module (DM), containing Digital Board(s) (DB) which are then connected to up to 6 Remote Radio Head(s) (RRH).

The RRH is suited for both indoor and outdoor environments. The RRHs are connected to the DM via optical fibre, using Common Public Radio Interface (CPRI) protocol, in either a star, ring or chain topology.

AEGIS was appointed as the ApBo to update the GB GSM-R Technical File Vol 1 Part 2, Issue 6 to support the design type change for BTS-R implementation while maintaining compliance with the following standards:

- CCS NTSN.
- Mandatory specifications EIRENE FRS v8.0.0 and SRS v16.0.0.
- Voluntary specification UNISIG SUBSET-093 v2.3.0.



## HOW WE HELPED

AEGIS provided support to Network Rail by offering its services as an Approved Body (ApBo) of GSM-R Infrastructure Core Update for BTS-R against CCS NTSN, following the requirements of Module SB, Type Test Verification.

Initially, AEGIS assisted the client in defining the assessment scope and delivered the Certification Plan.

The ApBo activities involved analyzing the submitted documentation and assessing the compliance matrices delivered by the client to demonstrate the fulfilment of the standards requirements.

AEGIS created its own conformity checklists to assess the requirements compliance arguments.

AEGIS communicated any queries with the client through a query log and held regular meetings to track the project's progress.

All issues identified during the assessment were properly resolved, demonstrating that the project was developed following the relevant standards.

## OUTCOME

Our strong partnership with Network Rail and our system expertise allowed us to effectively manage the project certification. The collaborative effort with Network Rail resulted in the issuance of SB certificate, confirming that the GSM-R Infrastructure Core Update for BTS-R is compliant with the requirements of the CCS NTSN and Modules NTSN.

### **AEGIS Certification Services**

29 Brunel Parkway, Derby DE24 8HR

[www.aegiscertification.com](http://www.aegiscertification.com)

[info@aegiscertification.co.uk](mailto:info@aegiscertification.co.uk)

+44 (0) 1332 384 302

