



EFFICIENT  
MANAGEMENT, CONTROL AND CENTRAL REGISTRY OF SAFETY-RELATED  
ACTIONS, THE DIGITAL PHONE BLOCK

eBR System is an innovative technological platform that facilitates the issuance, receipt and order entry / notifications electronically preset allowing formal communication between agents (authorized railway staff) involved in the various activities of railway operation.

### Why the need for a electronic book railway (eBR)?

Because currently part of the exchange of information for the coordination of actions related to safety in rail traffic is voice communications between different agents, information should also be recorded in manuscript form in various specific books for archiving and future reference in the if necessary. This register is legally valid, and therefore, of vital importance in the global rail system based on this kind of exchange of notifications.

All this combined with the demands of modern rail systems, that require a large and varied number of phone calls, in conjunction with the increasing number of circulations and the diversity of work that must be developed by agents, degenerate in overflow current management capacity, slowing down and decreasing operational reliability.

In the current operating both verbal communication, such as the registration process telephone calls manuscript are susceptible to errors and / or manipulation.

### Why Digital phone block is the kernel of eBR system?

Because the phone block is a communication and / or notification radius of a text with a prescribed format which registration has the same validity as a written document to be security-related operations. Are placed and received personally by the staff responsible. Conform to the formulas set out in the General Traffic Regulation and must be recorded in the book or books for that purpose, noting the number of order received or issued, time, text and signature.

### How is carried out?

Using a graphical environment that helps the operator in the taking of control decisions circulations under Phone block, and assisting in the dispatch, registration, and transmission of phone block digitally, performing radio respecting formulas established by the administrator

## eBR: MANAGEMENT SYSTEM, CENTRALIZED CONTROL AND REGISTRATION phone calls, the phone call DIGITAL

### ARCHITECTURE AND DISTRIBUTION OF FUNCTIONS

Smart Core EBR System. Main features:

Management and treatment of digital Phone block exchanged by different agents as provided by the administrator.

Reliable and accurate identification of agents, eliminating the possibility of fraudulent use of the system, and adapting the configuration of workstations agents to their needs and permissions.

Register of digital phone block in different hardware legally valid (legal registration) format digital voice and text.

Establishing security mechanisms (encryption, key management, etc..) That implement a secure link between agents.

Consultation with external systems (Operational Plan, SITRA, meshes and EBS (Enterprise Service Bus) to obtain information relating to traffic, user profiles, permissions, etc..

### Equipment associated with agents

Terminals (fixed PC or mobile TABLETS) through which the platform enables operators EBR system tasks forwarding and receiving of text notifications in the form of Digital phone block.

### Communications channel

Corporate VPN network dedicated exclusively to this system, and no possible connection of foreign elements, and a wireless communications infrastructure, which allows agents with wireless mobile terminals communicate with other agents, when they are not physically connected by cable VPN network backbone.



**APPLICATIONS IN QUASI-REAL TIME**
**Simulation Environment**

Environment for operator training with the same appearance as the application of operation, in which, the acquisition of records exchange of Digital telephoneme provenance from a centralized database replica. Are different sceneries available (presets, an instant photo of Exploitation, etc.) that simulate the behavior of GBTD, and movement of trains.

**Reconstruction Environment**

This environment reproduced, thanks to the events recorded with the mark date and time sequences showing rail traffic in deferred time and sequentially in a video graphics system, the digital telephoneme exchanged between Traffic Dispatchers of PLOs and / or CTC, the established routes or cancelled, controls dispatch by the operators, etc...

The data processing is not security, but is reliable and commonly used for the analysis of incidents in the Exploitation. This application is eminently graphic.

**Remote Monitoring**

It enables operators and users with authorization control have a remote monitoring environment of GBTD. This application aims to have, in any PC located at the CTC or any other place, the monitoring of the application as if they were a virtual TEG.

**Juridical Recording Unit (JRU)**

Each of the Local Office (PLOs) and Center for Centralized Traffic Control (CTC) has a Juridical Recording Unit. The Juridical Recording Unit (JRU) has the ability to store both the state changes of GBTD variables, breakdowns and failures that are produced and detected in it, such as digital telephoneme exchanged between agents, either made from PLOs or CTC.

The main objective of Juridical Recording Unit is to permit, in the event of an incident, the reconstruction of the system state at the time that the incident occurred, so that the JRU performs the following functions:

- Prevent accidental or intentional deletion of stored data.
- Allow users to properly handle the recovery of such data locally or remotely.
- Be protected against vandalism and fire.

**REAL-TIME APPLICATIONS**
**Operating Environment**

Through the platform can be controlled EBR rail traffic and other activities related to traffic safety through the exchange of digital telephonemes between operators. It also has a number of additional services that assist the operator in this process, including: Consultation documentation, circulation, synoptic, etc.

The EBR system is equipped, both in terms of the equipment and software to its hardware equipment, to perform the following basic functions:

- Automation of the expedition, receiving and recording digital telephonemes.
- Legal Register Central and Local digital telephonemes.
- Continuous printing of digital telephonemes through continuous paper printers support system for contingencies.
- Historical Inquiry digital telephonemes. User ID by Card identification.
- Consultation of ADIF External Systems for collecting information to assist operators in planning, management, real-time monitoring and control of the movement of trains (ESB, SITRA, tights, etc.)
- Database (DB) and Central Local digital telephonemes.
- EBR System access via cable and wireless.

**MAIN BENEFITS**

Extension of the operational current optimizing the time spent managing information and / or notifications between agents.

Generic modular architecture capable of growing up to do the overall management of all telephoneme associated with each of the disciplines within the rail sector (traffic, work, electrification, etc.).

Reducing the effect of possible human error.

Elimination of the possibility of intentional manipulation error or records associated with telephoneme.

Unification of the storage system or registry.

Registration in various physical media, unalterable and legal validity of all digital telephoneme issued and received by the circulation agents in accordance with the General Traffic Regulation (RGC).

Computerization of the process of inspection of records, simplifying the process and reducing the cost and time involved in doing so.

Decreased time collection records in accident investigation process conducted by rail railway operator, Infrastructure Manager or agencies such as the CIAF (Commission of Railway Accidents Investigation) for debugging responsibilities in case of accidents.

Optimization of the work to be performed by the agents, focusing their attention only on the true meaning of the operation, eliminating the possibility of errors and failures registration or garbled text sequence.

