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TELECOMMUNICATION DIGITAL RADIO-DISPATCH CENTER - D-RDC

General description

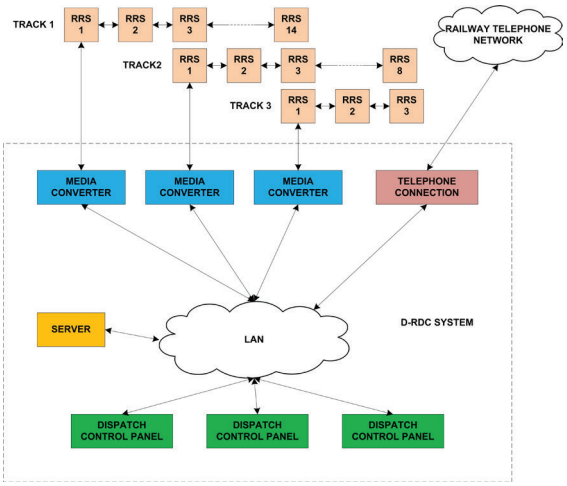
The railway radio dispatch system is used for the transmission of speech and commands between the rail vehicle and the radio dispatch center. The system consists of a dispatch center, fixed railway radio base stations deployed along the rail, a modulation line and mobile radio stations located in rail vehicles.

In the existing analog system, the connection between the dispatch center and the fixed radio stations is wired, while the connection between the fixed and mobile radio stations is wireless, realized by radio waves. The modulation line can be with optical fiber or may be a four-wire connection, where one pair is used to send information in the direction from the dispatch center to the rail vehicles, while the other pair is used to send information in the direction from the rail vehicle to the dispatch center.

The digital radio dispatch center (D-RDC) is designed to be fully compatible with the existing analog dispatch center by supporting the all currently used services with the possibility to easily add new ones. This enables easy replacement of existing analog dispatch center with the new D-RDC systems, without any modifications done on modulation lines, fixed railway radio stations and mobile radio stations in rail vehicles.

D-RDC consists of several elements, all of which are interconnected. The main elements are:

- dispatch control panel - control panel through which dispatcher can initiate calls and send commands, and also receive notifications and calls from rail vehicle,
- server - the central part of the D-RDC system which performs logical connection of all devices, manages calls and data by forwarding them to the appropriate system entities,
- media converter - a device that supports communication according to the UIC 751-3 standard, on one side has an analog interface for connection with the four-wire modulation line, while on the other side has a LAN interface for connection with the server.



In addition to the above mentioned basic devices, the D-RDC system allows connection to various additional devices that expand the set of functionalities and applications of the system. One such device is the analogue telephone connection, which enables the connection of the D-RDC system to the analogue telephone network, which is useful in the case when there is a need to connect the dispatch center to the railway telephone network. Also, the D-RDC system supports optical fiber interface for connection with the fixed radio stations.

D-RDC can incorporate large number of elements. The system always has only one server, while the number of other entities is variable. The number of dispatch control panels is arbitrary, it is possible to set one control panel for several tracks, but also it is possible to set several control panels for control of one track. One media converter controls the operation of one track. Therefore, the number of media converters is defined by the number of tracks that the observed dispatch center should control.

The entire manipulation of the D-RDC system is performed through the dispatch control panel. The control panel allows you to view the history of sent commands, the history of received notifications, to send commands to the rail vehicle, to receive notifications from the rail vehicle, to initiate calls to the rail vehicle and receive calls from the rail vehicle, as well as to test fixed radio base stations.

The D-RDC system is installed inside the railway facility, usually in the same room where other telecommunication and signaling devices are located. The only exception is the dispatch control panel, which is installed at the workplace of the railway traffic dispatcher, which enables easy manipulation and access.

- Basic functions of the system:
  - Inbound and outbound voice calls
  - Sending commands and receiving notifications
  - Testing of fixed radio stations
- All sent commands and received notifications are stored in system database
- All inbound and outbound calls are recorded and stored in systems storage
- System can be connected with various external systems (e.g. PSTN, private PBX)
- Easy replacement of an old analog radio dispatch central station
- Compatible with UIC 751-3 standard
- System is adaptable to different markets and rulebooks
- Supports operation along optical fiber modulation line
- Operational voltage: 230VAC
- System autonomy is designed according to user requirements (up to several hours)

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