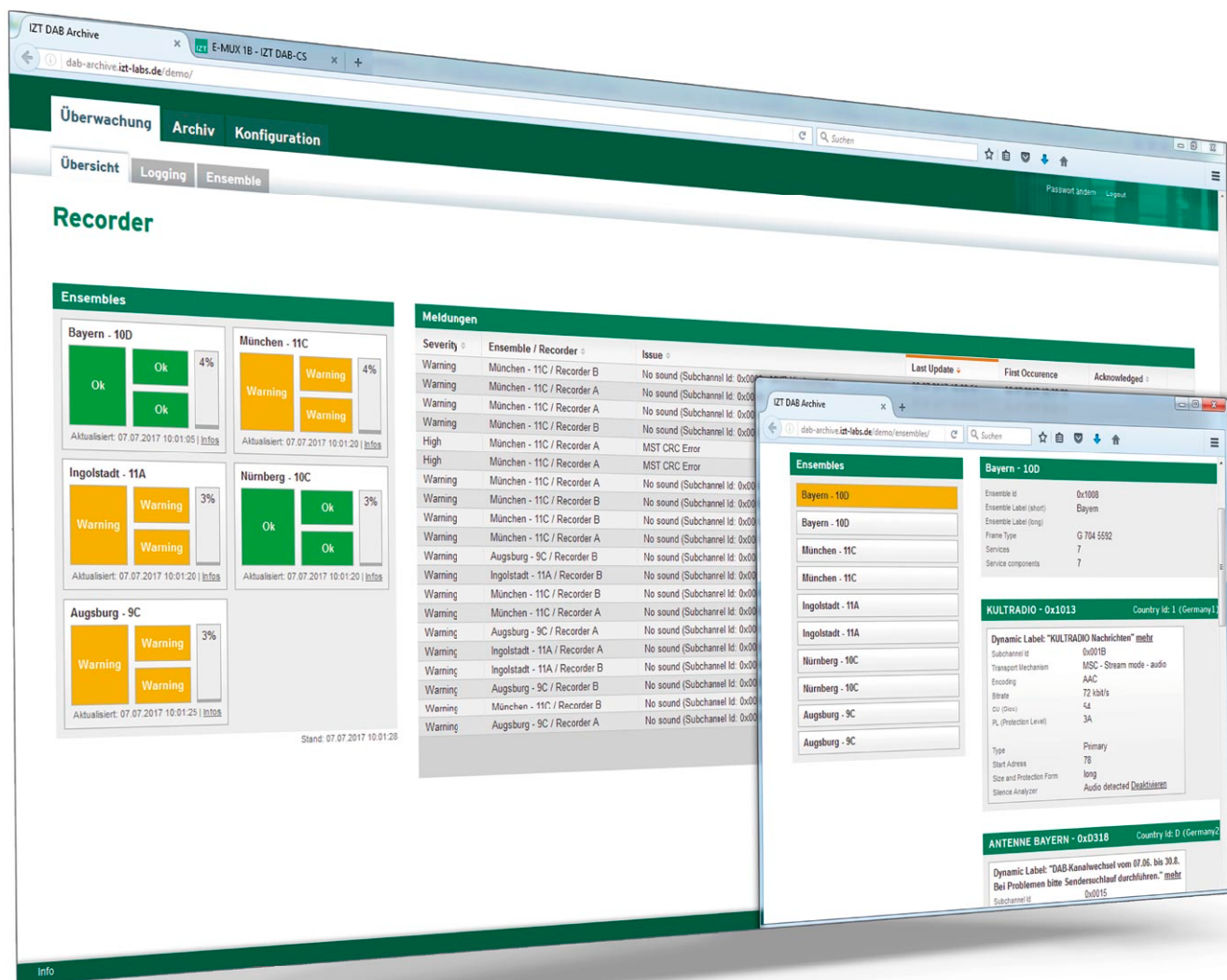**IZT**
Innovationszentrum
Telekommunikationstechnik

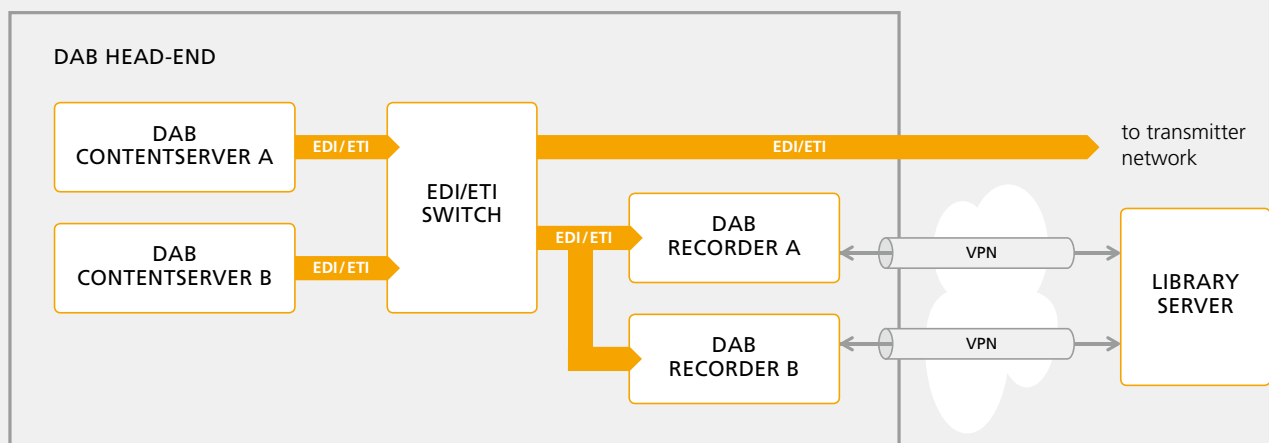# IZT DAB Archive
EDI/ETI Monitoring and Logging System

- Real-time monitoring of DAB ensembles and analysis of audio and data content
- Recording of the complete DAB multiplex including audio and data services
- Long-term archiving and indexing of all content
- Search and export functionality with optional download manager

IZT DAB Archive
EDI/ETI Monitoring and Logging System

The IZT DAB Archive is a comprehensive solution for quality control and long-term archiving of EDI/ETI streams. It consists of two components: The DAB Recorder records, analyses and archives a DAB ensemble while the Library Server provides a central interface between user and overall system to access monitoring information and recorded content.

FIGURE 1: IZT DAB ARCHIVE IN A TYPICAL DAB HEAD-END

System Overview

APPLICATION SCENARIO

When operating digital radio networks, logging of audio programs and data services is an important quality control component and can be mandatory due to regulation. Furthermore, detection and logging of technical issues can clarify responsibilities between content providers platform operators and regulatory bodies.

Figure 1 shows the integration of the IZT DAB Archive solution in a typical redundant DAB head-end.

SYSTEM COMPONENTS

DAB Recorder

The DAB Recorder handles recording, analysis and archiving of a DAB multiplex. Usually located at the operator's DAB head-end, the DAB Recorder records the EDI or ETI stream that is delivered to the transmitter network. In case of a redundant multiplexer setup, the output of the redundancy switch is used.

Monitoring information is permanently transferred to the Library Server whereas content is archived locally and only transferred to the Library Server on user request. For enhanced reliability, two DAB Recorders are used for redundant recording.

The DAB Recorder is installed on standard server hardware provided by IZT. Alternatively, installation as virtual machine is possible, making installations more compact if several DAB multiplexes are handled at the same location.

Library Server

The Library Server is the interface to the user. A graphical web interface provides access to monitoring data and EDI/ETI recordings. The Library Server can be installed at the operator's own premises or can be hosted in an external IT data center, e.g. as virtual server. When situated externally, the Library Server usually accesses the DAB Recorders via a VPN tunnel, in many cases using a connection with limited data rates.

Key Features

RECORDING AND ANALYSIS

The DAB Recorder stores the incoming EDI/ETI stream in the internal storage and makes the recordings available for remote requests from the Library Server. The maximum duration of the archive depends on the available storage capacity.

The DAB Recorder decodes the DAB multiplex in real-time and checks and analyses the multiplex and its components. Index information about the DAB ensemble is transferred to the Library Server.

MONITORING

The system monitors the input signals for the following parameters:

- EDI/ETI signal present
- ETI error flag
- CRC errors in FIB and MSC

In addition, the system monitors the ensemble configuration including the subchannel structure. It is possible to check the labels, data types, bitrates and signalling. The audio programs are checked with regard to noise/silence.

The Library Server permanently monitors the library structure. Further, it logs and indexes the drop outs and warnings detected by the DAB Recorder. Users can be alerted about failures via SNMP (optional), E-Mail or SMS, while different severities can be configured for the notification of multiple users.
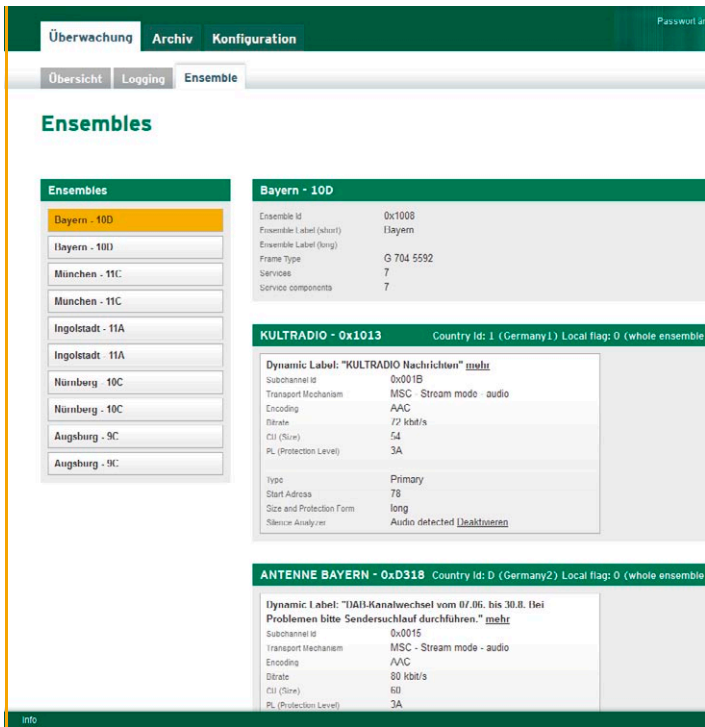

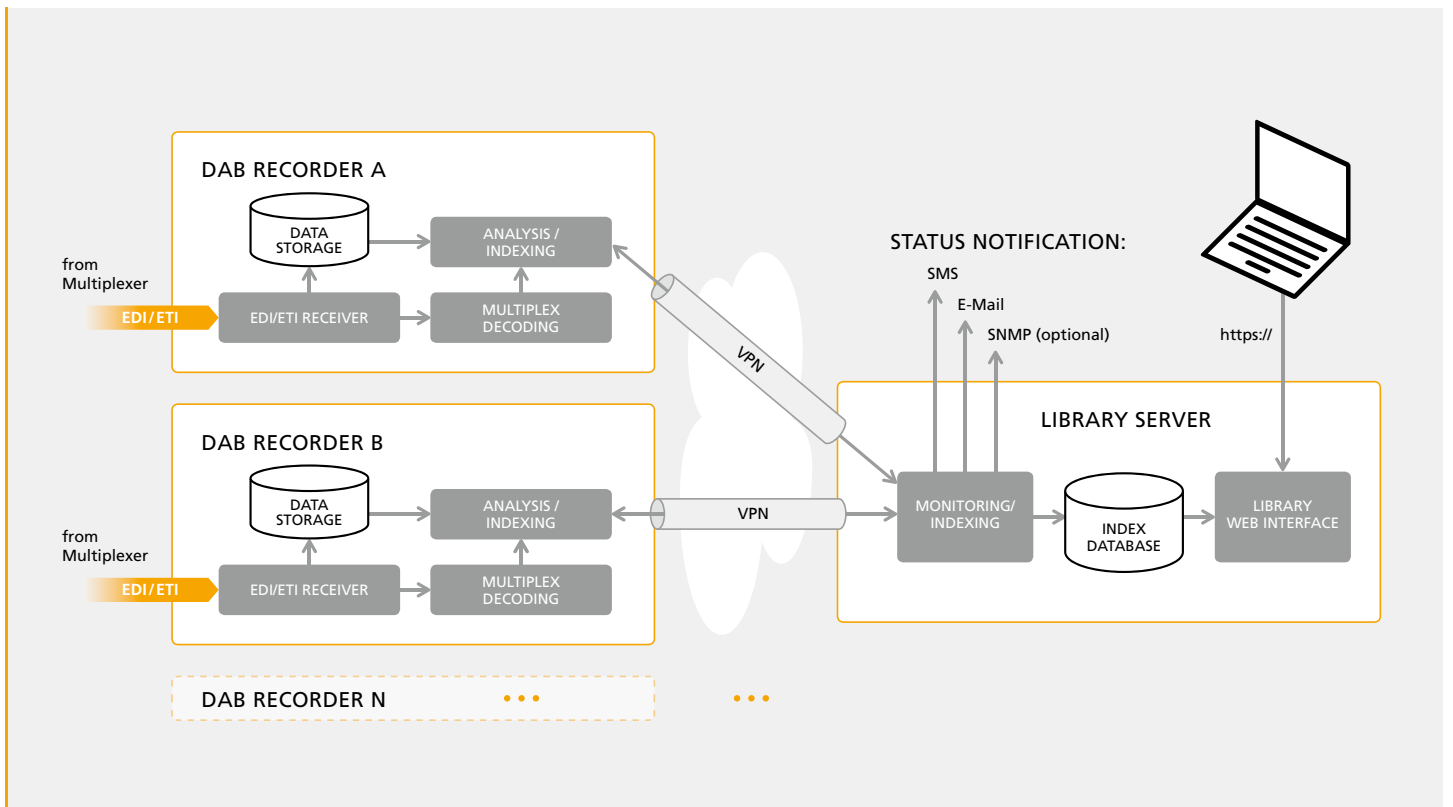**FIGURE 2:** ENSEMBLE MONITORING VIA THE WEB INTERFACE

USER INTERFACE

The user accesses the Library Server through a convenient web interface. The GUI provides access to all monitoring data and the archived EDI/ETI streams. The user can request downloading the archived content of a specific time and duration. It is possible to export the complete stream, specific subchannels or the audio content of a subchannel. The GUI also provides a filter to search for specific events such as ensemble reconfigurations.

In case of a download request, the Library Server fetches the data from the DAB Recorder and makes it available for the user. If the IP link to the DAB head-end has limited data transfer rates, the data can be fetched over a longer duration and is made available for fast download by the user.

ADD-ONS

Download Manager

The Windows application can access the EDI/ETI data and audio content from a client PC. It allows parallel download of several streams. Downloads can be interrupted and continued at a later point in time.

IZT DAB MultimediaPlayer

The IZT DAB MultimediaPlayer allows decoding of audio and data content from EDI streams or files. Hence, it can be used to view and listen to the live or archived content of the IZT DAB Archive.

The IZT DAB MultimediaPlayer is available as client PC software or can be integrated in the Library Server web GUI providing remote access including audio streaming using HTML5.

ETI Analyzer

The ETI Analyzer is a very powerful tool for file-based processing and detailed analysis of EDI or ETI files. The ETI Analyzer can be accessed using the Library Server's web GUI and presents the results on an HTML page. It allows to:

- Analyze multiplex and service components – the EDI/ETI Analyser will point at erroneous or suspicious data in the DAB signalling and the broadcast data
- Extract and download subchannels and FIC from a DAB ensemble
- Download audio, PAD, and data on various protocol levels, that is Dynamic Label segments, data groups, packets and PAD subfields.

FIGURE 3: IZT DAB MULTIMEDIA PLAYER

FIGURE 4: ETI ANALYZER

FIGURE 5: STRUCTURE AND FUNCTIONALITY OF DAB RECORDER AND LIBRARY SERVER
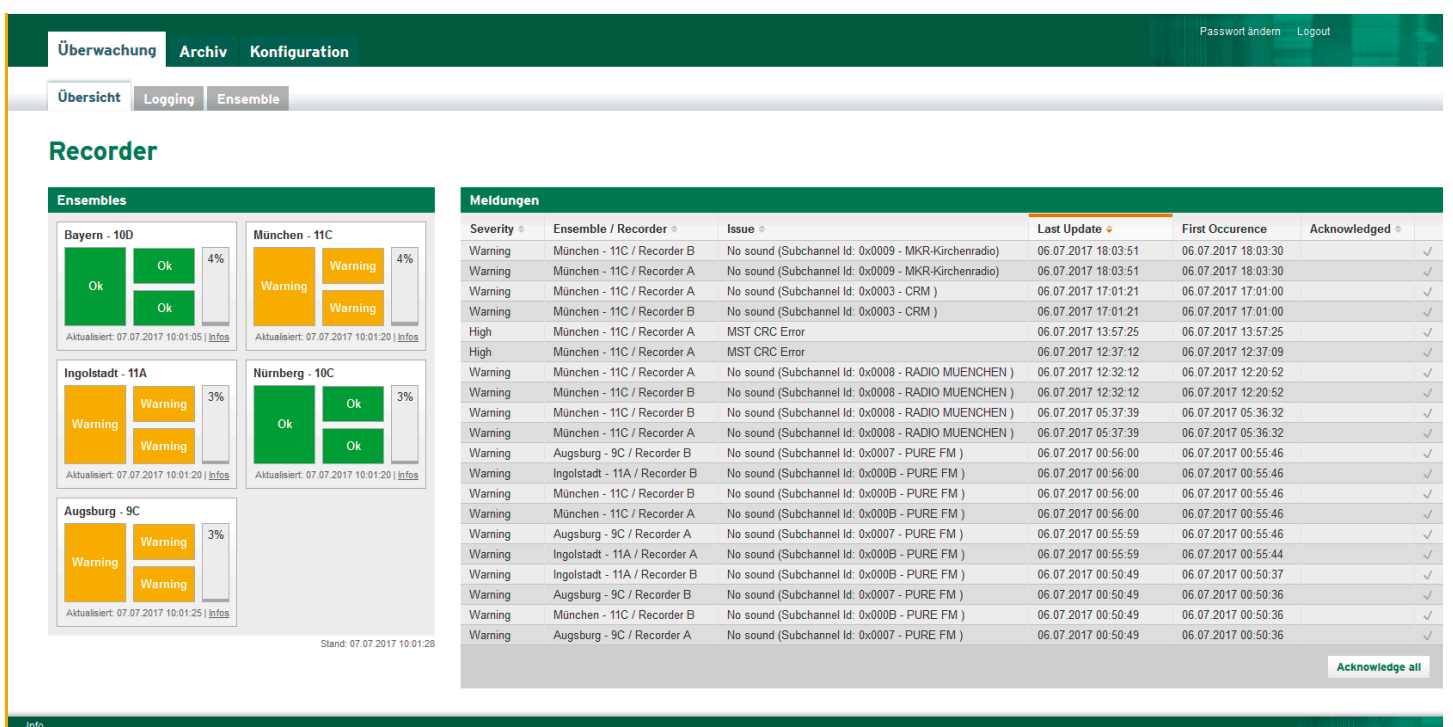

FIGURE 6: WEB INTERFACE OF THE LIBRARY SERVER WITH ACCESS TO LOGGING AND MONITORING DATA

IZT DAB Archive
EDI/ETI Monitoring and Logging System

Ordering Guide		
DAB Recorder Software	**DAB Archive 100**	DAB Recorder incl. DAB+ Module
	DAB Archive 110	DAB Module (optional)
	DAB Archive 111	EDI Module (optional)
DAB Recorder Hardware	Server hardware or installation as virtual machine will be quoted according to customer needs.	
Library Server Software	**DAB Archive 200**	Library Server
	DAB Archive 210	SNMP Component (optional)
	DAB Archive 211	Download Manager (Windows PC application, optional)
	DAB Archive 220	IZT DAB MultimediaPlayer Professional core license incl. Extension Package
	DAB Archive 221	TPEG Pro option for IZT DAB MultimediaPlayer
	DAB Archive 230	ETI Analyzer license
Library Server Hardware	Server hardware or installation as virtual machine will be quoted according to customer needs. VPN infrastructure and hosting of the Library Server available optionally.	

IZT Service		
	DAB Archive Support	Annual support fee for one Library Server with up to 5 DAB Ensembles. Availability 9 am – 5 pm on business days
	DAB Archive Support +1	Annual support fee per additional DAB Ensemble
	Enhanced support services	available on request

The DAB Recorder and DAB Library Server software components are licensed from spiritec GbR.

The DAB MultimediaPlayer Technology is licensed from Fraunhofer IIS.

The EDI Analyzer is part of the Fraunhofer IIS ContentServer technology.

About IZT   The Innovationszentrum fuer Telekommunikationstechnik GmbH IZT specializes in the most advanced digital signal processing and field programmable gate array (FPGA) designs in combination with high frequency and microwave technology.

The product portfolio includes equipment for signal generation, receivers for signal monitoring and recording, transmitters for digital broadcast, digital radio systems, and channel simulators. IZT offers powerful platforms and customized solutions for high signal bandwidth and real-time signal processing applications. The product and project business is managed from the principal office located in Erlangen/Germany. IZT distributes its products worldwide together with its international strategic partners. The IZT quality management system is ISO 9001:2000 certified.

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