
DAB EWF – Emergency Warning & Alert Functionality

DAB Tools, Features and Considerations for Application

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DAB EWF – Emergency Warning & Alert Functionality

1. DAB EWF – Emergency Warning & Alert Functionality

- The Task
- General Requirements

2. Technical DAB Tool Set

- Announcements
- DAB Multimedia Applications

3. DAB EWF Implementation

- Listener Experience
- Transmission Infrastructure
- DAB EWF Ready Receivers

4. Summary

DAB Emergency Warning & Alert Functionality

The Task



In case of pending or current disasters / catastrophes, inform the **public** (+authorities) with **maximum reach** as **quickly** as possible, giving **all relevant information**.

→ How can DAB help to fulfil this requirement?

DAB Emergency Warning & Alert Functionality

General Requirements



Required qualities of EWF mechanism:

- Emergencies are comparatively rare
- Constant access to warning devices
- Devices must do something else useful
- Must be unobtrusive when in daily use
- Must be available to widest possible audience
- Information also accessible by **visually or hearing impaired**

DAB Emergency Warning & Alert Functionality

EWF vs. EWS



Note:

Do not confuse with DAB application
„**EWS** – Emergency Warning System“
(DAB Registered Tables - ETSI TS 101 756; CENELEC EN 62106)

„The EWS feature is intended to provide for the coding of warning messages [...] and will only be evaluated by **special receivers.**“

→ NOT intended for
mass-notification of public!

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Technical DAB Tool Set

Announcements



- Signal special on-air content to receivers
- Types: Road Traffic, News Flash, etc.
- Announcement Types for **EWF**:
 - **Alarm** (DAB ensemble-wide)
 - **Warning/Service** (per service)
- General support + activation signalling
- **Automatic receiver switching**
→ to subchannel carrying audio & PAD

Technical DAB Tool Set

DAB Multimedia Applications

Audio programme can only service one language

→ **DAB's multimedia capabilities enhance audience & speed-up information**

NewsService
Journaline®



DAB enables accompanying **detailed text information**, such as:

- **Reason** for the alarm signal
- **Instructions** what to do
- Contact details for **further information**
- List of affected areas
- List of affected people (search messages), ...

→ Textual information immediately available in **multiple languages / scripts** with one single broadcast

Technical DAB Tool Set

DAB Multimedia Applications

Relevant DAB multimedia applications for Emergency Programmes:

Tsunami pending in Shanghai at 16:00

DAB Dynamic Labels

programme accompanying labels (Unicode), max. 128 characters, max. every 20 sec.
→ short messages on Rx screen



Journaline

text based information service (Unicode), supporting all classes of receivers, triggers interactivity and geo-awareness
→ **detailed textual information**
→ **multiple languages / scripts in parallel**

Technical DAB Tool Set

DAB Multimedia Applications



Examples for receiver screen renderings,
showing emergency text content (Journaline):

CNR Emergency Broadcast

► Information in English

हिन्दी में सूचना (Hindi)

中文信息 (Chinese)

Info auf deutsch



Information in English

What is going on?

► What do I need to do?

Where can I get help?

What is going on?

A major tsunami is
expected for the Shanghai
region at 16:00 today.

The tsunami will hit the



What do I need to do?

1. Move away from shore!
2. Evacuation has started.
Find the nearest meeting
point: Look for green



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DAB EWF Implementation

Listener Experience



When the **alarm signal is triggered** by authorities:



- All running DAB receivers pick up alarm signal from currently receiver DAB ensemble, and switch to emergency broadcast (if required)
- Turned-off receivers may switch on automatically (requirement to be communicated to rx mfcts)

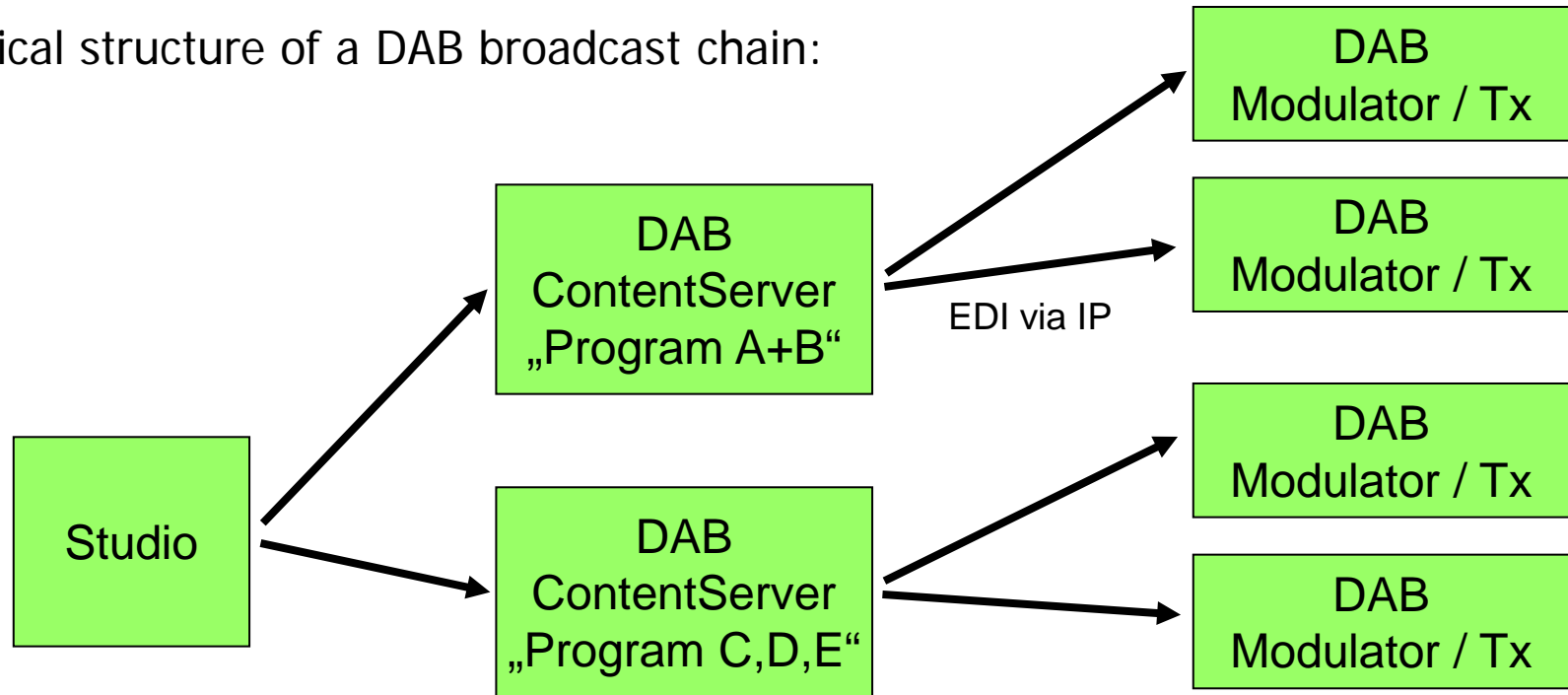


- All DAB receivers present the **audio content** of the emergency programme
- DAB receivers with text screen in addition present
 - **detailed information and instructions** (Journaline) +
 - **text-headlines** (DAB Dynamic Labels)

DAB EWF Implementation

Transmission Infrastructure

Typical structure of a DAB broadcast chain:




- Generates audio + text
- Defines DAB configuration

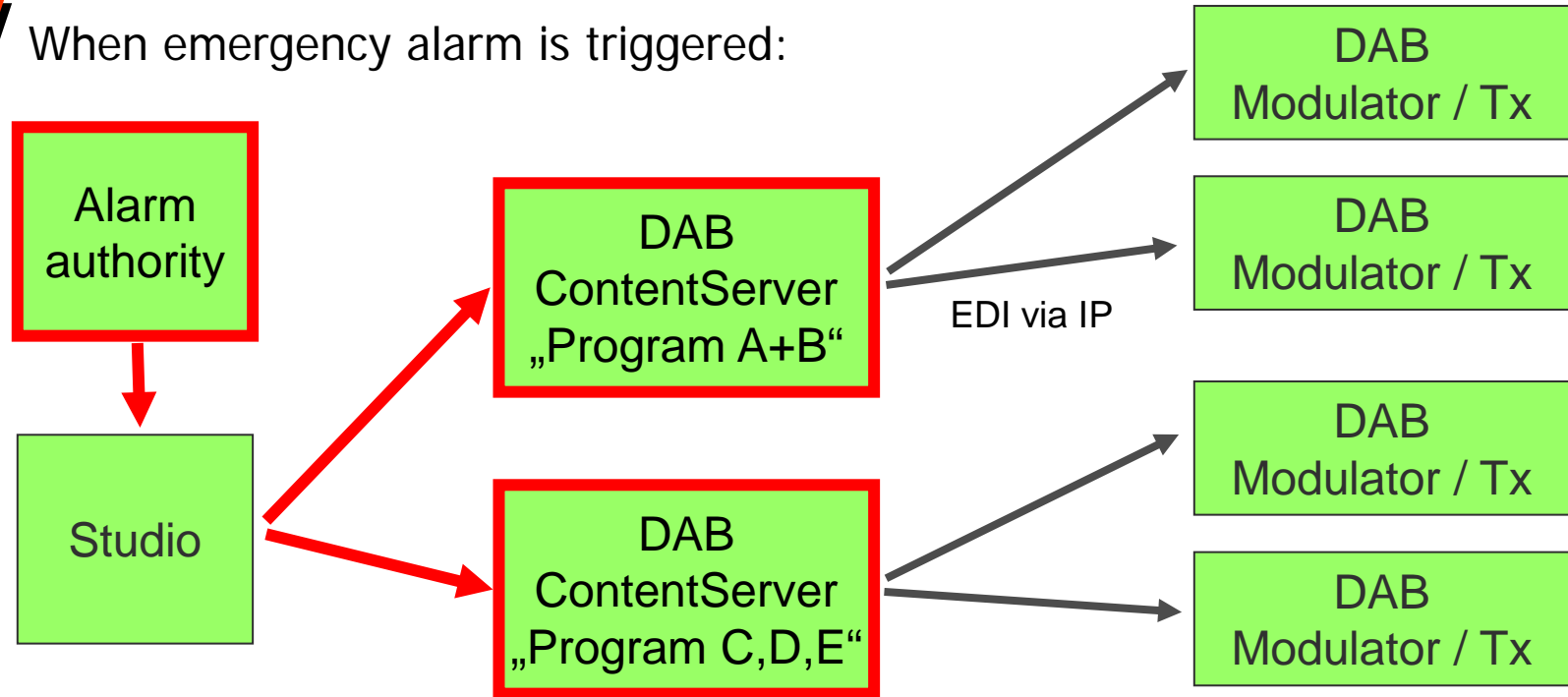
- Creates DAB Multiplex signal
- One per region or program-set

- Broadcast DAB signal on-air

DAB EWF Implementation

Transmission Infrastructure

 When emergency alarm is triggered:



- **Central authority** triggers alarm for ALL relevant DAB ensembles

- **ContentServers** insert Alarm signal
- Optional Dynamic Service-Reconfiguration (making room for 1 emergency program)

DAB EWF Implementation – DAB Head-End Setup

The screenshot displays the Fraunhofer DAB ContentServer web interface. The browser address bar shows the URL `https://in1102/scgi-bin/edit_multiplex`. The page header includes the Fraunhofer logo, the text "Fraunhofer DAB ContentServer My ContentServer", and a "System Status" indicator showing "OK" at "2013-10-20 12:55:31 UTC".

The main content area is titled "DAB Ensemble Multiplex Editor" and features a sidebar menu on the left with options like "System Status", "Broadcast Configuration", "Broadcast Activation", "Broadcast Information", "System Management", "System Information", "System Commands", "Tools", and "Documentation".

The central configuration window is titled "Chongqing DAB-EWF Workshop 2013" and has tabs for "Multiplex Parameters", "DAB Services", "Subchannels", and "Output Targets". The "Multiplex Parameters" tab is active, showing the following settings:

- Multiplex Configuration Parameters:**
 - Multiplex Configuration Label: Chongqing DAB-EWF Workshop 2013
 - Display Color: 3: 'Lime' (highlighted in green)
- General Label Settings:**
 - Extended DAB Labels: Standard labels only (FIG1/x) Standard + Extended labels (FIG2/x)
- DAB Ensemble Parameters:**
 - Ensemble Label: Journaline Mux | Journali
 - Ensemble ID / Ensemble Country: 0xd123
 - Country: Germany (D)
 - Dynamic Sub-Multiplex Input Containers (STI-C): --- not used (can be created in Sub-Multiplex Input Container Editor) ---
 - Transmission Mode: Mode I Mode II Mode III Mode IV
 - Ensemble AFS Frequency List: --- not used (can be created in AFS Editor - 'Alternative Frequenci
 - Support of "Alarm" announcements: Alarm
 - Switch signal sources for 'Alarm': My Announcement Trigger Source
 - Switch target for source 'My Announcement Trigger Source' ('Alarm'): Klassik (Audio: live source or playlist)

DAB EWF Implementation

DAB Head-End Setup

Example – Setup at DAB ContentServer:

- Enable multiplex **Alarm**
 - Define **source** for switch/activation signal
 - Define switching **target** (subchannel)
- Configure target Subchannel to carry **audio + X-PAD** content (DLS, Journaline)

The screenshot shows a configuration window for a DAB ContentServer. The 'Transmission Mode' is set to Mode III. The 'Ensemble AFS Frequency List' is set to '--- not used (can be created i...'. The 'Support of "Alarm" announcements' section is highlighted with a green rounded rectangle and contains the following settings: 'Alarm' is checked, 'Switch signal sources for "Alarm":' is set to 'My Announcement Trigger Source', and 'Switch target for source "My Announcement Trigger Source" ("Alarm"):' is set to 'Klassik (Audio: live source or...'. The 'DAB Country & Time Parameters' section shows 'Ensemble Timezone' set to 'Asia/Chongqing'. Each setting has a help icon (?) and a 'Docu' button.

User interface manufacturer specific – example

DAB EWF Implementation

Switch Signal Activation

Examples for delivering the alarm signal **from a central authority / studio** to a DAB ContentServer:

- **UECP**

International standard for **automated** announcement transfer in studio infrastructure

- **Web interface**

Allows to **manually** enable the alarm trigger in a ContentServer (e.g. from operator panel, or as backup mechanism)

Interfaces manufacturer specific – example

Firefox

Data Import Center at 'My ContentServer'

https://in1102:2/

Welcome to the Data Import Center
at the Fraunhofer DAB ContentServer 'My ContentServer'

Announcement Management - Content Provider 'My Announcement
Trigger Source - Web'

Alarm

inactive

enable disable

Warning/Service

inactive

enable disable

These announcement types are signalled as supported in the
current Multiplex Configuration, with you as the provider of
the switch signal (actually activating the announcements).
Please enable/disable any announcement type listed above
according to the current broadcast content.

Expert parameter

New Flag

automatic

new repeated automatic

Unless you are a real expert, please use 'automatic'!

The new flag is set within FIG0/19 ("Announcement switching")
to indicate whether an announcement is newly introduced or
repeated.

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DAB EWF – Summary

Preparatory Considerations



Considerations for the DAB Broadcast Chain:

1. Prepare in advance:

- Enable alarm signalling for all DAB ensembles (+ mux configs with emergency programs)
- Establish alarm trigger signal paths from central authorities to all stations
- Prepare textual information content + access to emergency audio program

2. In case of emergency alert:

- Send switch trigger to all DAB receivers
- Broadcast emergency program with audio + text (with maximum coverage)

DAB EWF – Summary

Conclusion



The DAB standard has all required tools built-in -- and supported by available chip sets – for a quick and complete mass-notification in case of disasters / catastrophes.

Provide DAB receivers with switch signals and alternative frequencies to receive emergency programmes

Provide listeners (including impaired users) with complete and detailed information by audio and multilingual on-demand text (Journaline).

DAB EWF – Summary

EWF Ready Devices



NOXON
SWITCH ON. HAVE FUN.

- PC USB device for DAB reception
- First device providing rich support for advanced DAB+ features:
 - Journaline
 - MPEG Surround
 - EWF – Emergency Warning
 - DL+, Intellitext, SLS, BWS, ...
- Very successful both in retail as well as with broadcasters (give-away!)
- Radio Software continuously enhanced

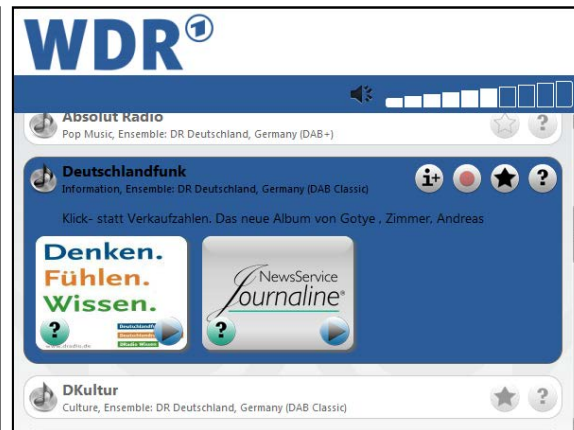
DAB EWF – Summary

EWF Ready Devices

NOXON DAB Sticks
as broadcaster give-aways

→ Great promotion tool
for DAB+ extra features!

Radio software branding examples



DAB EWF – Summary

EWF Ready Devices

NOXON
SWITCH ON. HAVE FUN.



First DAB receiver
with full EWF functionality!

NOXON DAB Radios,
based on
Quantek DAB chipsets



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Thank you!

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