
DAB EWF – Emergency Warning & Alert Functionality

DAB Tools, Features and Considerations

2014-06-14

DAB Workshop @ iTVF, Istanbul

Dipl.-Ing. Bernd Linz
Fraunhofer IIS
Broadcast Applications

bernd.linz@iis.fraunhofer.de
phone: +49-(0) 9131-776-6087
fax: +49-(0) 9131-776-6099

DAB EWF – Emergency Warning & Alert Functionality

1. DAB EWF – Emergency Warning & Alert Functionality

- The Task
- Digital Radio – Benefits for EWF

2. Technical DAB Tool Set

- Announcements
- DAB Multimedia Applications

3. DAB EWF Implementation

- Functional Overview
- Listener Experience

4. Conclusion

Emergency Warning & Alert

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?

Emergency Warning & Alert

Stages of a Disaster Operation



Digital Radio provides essential services in all these stages, as it:

- a) **reaches the affected people reliably**
- b) **detailed multi-lingual infos as text and slides (if available)**

Emergency Warning & Alert

Tools for Information Dissemination



- What is your country's approach today on information dissemination in case of disasters?
 - Analog AM/FM Radio
 - Mobile phones, SMS
 - Internet / Social Media
 - TV (satellite, terrestrial)
 - Special Devices, Alarm Systems
- All important; plus **Digital Radio** as the corner stone

Emergency Warning & Alert

Unique Benefits for Information Dissemination



- Radio is **ubiquitously available**:
 - at home
 - at work
 - in the car
 - as portables & in mobile phones
 - outdoors & indoors
- Radio is a companion with an **everyday purpose**
 - unintrusive and always present

Emergency Warning & Alert

Unique Benefits for Information Dissemination



- Radio is **independent** from **local infrastructure**:
 - Battery powered / wind-up
 - No satellite dishes / settop boxes
 - Transmitter coverage from outside disaster area:
E.g. high power, high tower
 - Secured transmitter sites
(backup power etc.)
 - Well-controlled infrastructure

Emergency Warning & Alert

Scale of Emergencies



- **Low level** – the broadcaster will most likely provide periodic information, e.g. every 15 mins or so
 - **Medium level** – information will be broadcast on the same service (or indication to listen to station XXX for further info)
 - **High level** – imminent life threatening danger
- how to disseminate information?

Emergency Warning & Alert

EWF vs. EWS

Two types of emergency warning:



- **EWS** – Emergency Warning System
„The EWS feature is intended to provide for the coding of warning messages [...] and will only be evaluated by **special receivers**.“
→ E.g. Siren activation
- **EWF** – Emergency Warning Functionality
Emergency Broadcast to the public giving all relevant information.



DAB EWF – Emergency Warning & Alert Functionality

1. DAB EWF – Emergency Warning & Alert Functionality
 - The Task
 - Digital Radio – Benefits for EWF
2. **Technical DAB Tool Set**
 - Announcements
 - DAB Multimedia Applications
3. DAB EWF Implementation
 - Functional Overview
 - Listener Experience
4. Conclusion

Emergency Warning & Alert Announcements



Announcements:

Signal special on-air content to receivers

- Types: **Alarm, Warning/Service**, Road Traffic, News Flash, etc.
- **Automatic receiver switching and emergency wake up**
 - tune to subchannel with audio & PAD
 - Visual signalling + volume increase

Emergency Warning & Alert

Relevant standardized data applications

DAB Dynamic Label
scrolling text sequence

Tsunami pending in
Shanghai at 16:00

- Max. 128 characters, typ. every 20 sec.
- Automatic sequence: no user-interaction

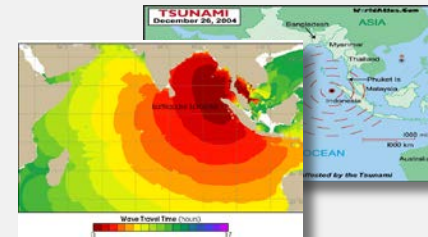
All Receiver Classes
(text-only screen)

Journaline
advanced
on-demand text

NewsService
Journaline[®]

- Full news articles with topic structure (menus)
- On-demand look-up
- Multilingual (Unicode)

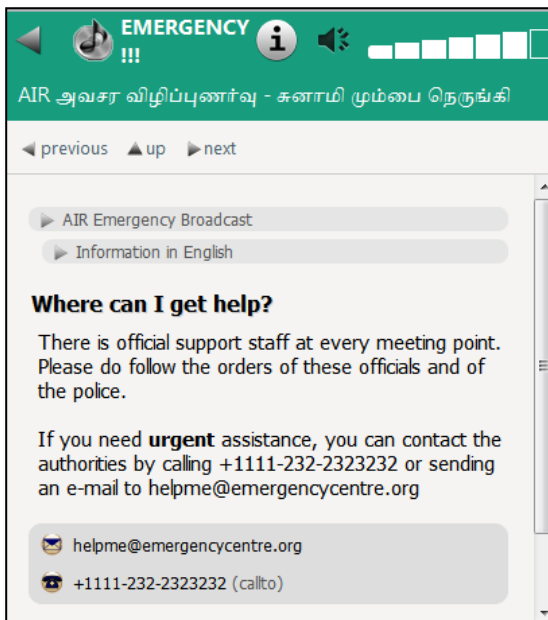
Slideshow
image sequence



- Images, typ. 320x240
- Automatic sequence: no user-interaction (optional categories)

Multimedia Rx
(colour graphics screen)

Emergency Warning & Alert Standardized Data Applications



Information in English
What is going on?
▶ What do I need to do?
Where can I get help?

The advanced text application enables

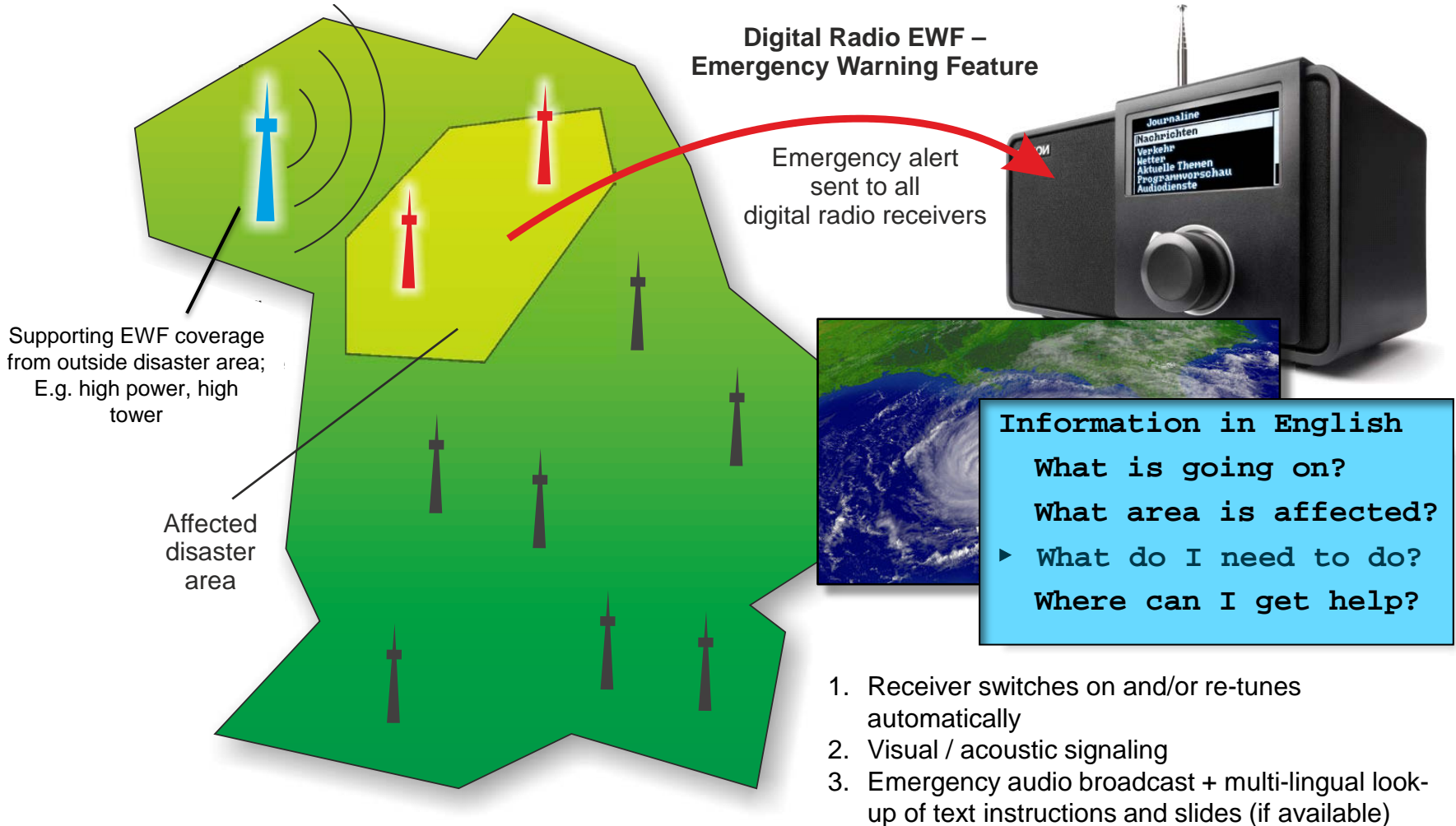
- **Multilingual instructions:**
What happened? / Which area? /
What do I need to do? ...
- Integrated **images** (SLS or online)
- **Hot-Button** interactivity:
links to phone, web, e-mail, SMS
- **Geo-referencing**
- Small foot-print → **all rx classes**

→ Serves **non-native speakers** and
the **hearing impaired**
with **full instructions instantly**

DAB EWF – Emergency Warning & Alert Functionality

1. DAB EWF – Emergency Warning & Alert Functionality
 - The Task
 - Digital Radio – Benefits for EWF
2. Technical DAB Tool Set
 - Announcements
 - DAB Multimedia Applications
3. **DAB EWF Implementation**
 - Functional Overview
 - Listener Experience
4. Conclusion

Emergency Warning & Alert Functional Overview



Emergency Warning & Alert

Listener Experience



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



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



- Receivers present the **audio content** of the emergency programme
- Receivers with appropriate screen in addition present
 - **detailed information and instructions** (Journaline),
 - **text-headlines** (Dynamic Labels) and
 - **Images** (Slideshow, if available)

DAB EWF – Emergency Warning & Alert Functionality

1. DAB EWF – Emergency Warning & Alert Functionality
 - The Task
 - Digital Radio – Benefits for EWF
2. Technical DAB Tool Set
 - Announcements
 - DAB Multimedia Applications
3. DAB EWF Implementation
 - Functional Overview
 - Listener Experience
4. **Conclusion**

Emergency Warning & Alert

Conclusion



DAB provides listeners (including impaired users) with complete and detailed information by audio, slides and multilingual on-demand text.

Extensive Field trials ongoing in many countries (Australia, Germany, ...)

WorldDMB TC attending to the task

The DAB standard has all required tools built-in for a quick and complete mass-notification in case of disasters / catastrophes.

DAB EWF – Emergency Warning & Alert Functionality

Thank you!

Dipl.-Ing. Bernd Linz
Fraunhofer IIS
Broadcast Applications

bernd.linz@iis.fraunhofer.de
phone: +49-(0) 9131-776-6087
fax: +49-(0) 9131-776-6099