Digital Radio Mondiale (DRM)
The Global Digital Radio Standard

Defining Features - Flexibility and Quality of Service

BROADCAST FLEXIBILITY

DRM can be used flexibly across all bands

DRM is the only global, open, non-proprietary digital radio standard, which can be used in **all frequency bands, both in AM (LW, MW, SW), as well as in VHF (Band I, II and III)**. DRM allows broadcasters to reach millions of people as it is a local, national, regional, as well as an international digital broadcasting solution. If DRM is used in Band III, there is possibly more spectrum released in Band II for local new players, community stations etc.

DRM keeps the broadcaster in control over infrastructure

DRM allows broadcasters to oversee their own broadcast infrastructure (studios, transmitters, antennas) so they can decide about individual coverage needs, broadcast configurations and transmission costs. Broadcasters do not need to rely on possibly expensive services of third parties (multiplex operators) and to share the operational facilities and services.

DRM can maximise existing infrastructure and be more energy efficient and more cost effective

DRM can be added to the existing analogue AM and FM/VHF transmission infrastructure of a broadcaster (transmitters and antennas), which may only need some modifications and/or upgrades for DRM digital broadcasting.

A few DRM digital transmitters can cover an entire country or large geographical area, whereas hundreds of transmitters are needed for FM or equivalent digital broadcasts.

Digital DRM transmitters are significantly more energy efficient (40-80%) than analogue ones and allow for real savings which could be used to procure digital receivers.

DRM allows for seamless transition to digital

DRM allows technical simulcast for the transition period from analogue to digital. Digital broadcasts can be added initially to the analogue ones according to the country specific regulations and needs. Once the infrastructure for digital broadcasting and reception is ready, the switchover to full digital transmissions can take place. It is advisable that this transition period (simulcast) is kept as short as possible.

DRM uses spectrum efficiently and flexibly

- **DRM is compatible with current frequency regulations**, fitting with existing frequency planning both in the AM and the FM/VHF bands

- **DRM can help optimise a country's use of scarce frequency resources** by deploying Single Frequency Network (SFN), covering regions with multiple transmitters using a single broadcast frequency or adding local on-band gap filling transmitters when required

- **DRM can be used to digitise VHF Band I, Band II and Band III**. Depending on the local regulations there might not even be the need to change an existing licence; the broadcasters can be on air very quickly by providing more efficient services to their listeners such as diverse content and best sound quality. And even if DRM broadcasts are introduced as stand-alone transmissions, e.g., in Band III, automatic receiver switching between DRM and legacy analogue transmissions is ensured through DRM's Automatic Frequency Checking and Switching (AFS).

DRM allows more content choice

- **DRM allows broadcasters to have up to 3 programmes on one frequency (and an additional data channel)** along with multimedia components based on the Journaline feature as part of the standard. This allows them to serve audiences in multiple languages and to cater for relevant niche audiences, thus enhancing the service reach and revenue potential.

- **Sharing a transmitter and antenna between independent broadcasters, is the latest enhancement of the DRM standard in the FM band. Broadcasting of as many as six individual DRM signals from a single transmitter and antenna has been successfully demonstrated (e.g., India in 2021). One DRM channel carries two to three audio programmes, therefore on a single transmitter one could broadcast as many as 18 programmes in pure DRM mode. In this scenario each broadcaster, sharing the same transmitter and antenna, remains in full control of its broadcasts not needing to rely on an expensive third-party operator.**

Emergency warning and alerts feature

DRM, as the only global and open (non-proprietary) 'all frequency bands' digital standard, thus covering an entire country, is the ideal standard for implementing emergency and alert services in case of disasters.

A key feature of DRM, the Emergency Warnings Functionality (EWF), has an increased appeal for the national agencies of countries where such a service is a priority. It can transmit various levels of alerts over large, regional or small areas and in various languages simultaneously by using the embedded Unicode system.

Distance learning and education

DRM can offer distance learning and education to people wherever they are in their country, even in remote areas, during a pandemic, disaster or when distance learning is required. The educational programmes are free-to-air to everybody without the need for internet. The DRM receivers are also capable of caching the information (like schooling documents) for convenient download at any time.

Public signage

DRM offer also to opportunity for companies to advertise on large public screens. The service is based on **Journaline** – the standard DRM feature enhancing the text content with designs and graphics. The service supports file download (e.g., overnight), including article images, background graphics, etc.

The Public Signage Service also supports the **Emergency Warning Functionality** (EWF) by activating audio, and the EWF safety information.

QUALITY OF SERVICES – LISTENER BENEFITS

DRM offers better sound in all bands

- DRM surpasses classic analogue AM and FM radio with **clear sound** – no more fading or other distortions.
- DRM enhances AM frequency transmissions with FM-like sound quality.
- DRM offers stereo receiver compatible 5.1 Surround Sound in the FM and VHF bands.

DRM is the first global digital audio standard to embrace the highly advanced audio codec xHE-AAC, which is the first MPEG audio codec to combine speech and general-purpose audio coding in a unified system and by using low-bit rates. This allows for FM-like services even on very robust SW configurations, and additional services on MW and FM.

DRM is convenient to use

- Services are selected by station label from a list of available programmes – gone is the need to memorise and manually select bands and frequencies
- The receiver stays on the user-selected service with automatic re-tuning when moving between coverage areas
- All DRM text content (service labels, Text Messages, Journaline) is Unicode based, thus supporting all languages and scripts worldwide

DRM enhances the listener experience

The DRM standard includes a full range of elementary multimedia components, enhancing the radio experience for listeners and opening **new revenue potential** for broadcasters:

- **DRM Text Messages**
  E.g., title and artist names; short scrolling text information auto-updated on the screen.

- **Journaline**
  Advanced full-text service with simple menu structure for interactive and on-demand information look-up on the receiver; typical content offerings include news, weather, Sport results, stock price updates, distance learning offerings, etc. Journaline provides multi-lingual text services free over-the-air without the need for Internet to stay up to date. On connected devices, broadcasters can easily trigger Hot-Button listener backchannel engagement such as phone call-ins to a talk show, sending of SMS messages to participate in games and polls, being linked to web sites for ticket purchases, etc.

- **SPI – Service Information Programme**
  It informs about upcoming programmes; some receivers may allow listeners to search for specific content or program future recordings with the push of a button. Serves as an electronic programme guide and carries the station logos.

- **Slideshow**
  Images and simple animations auto-updated on the screen; enables 'view into the studio', music album covers, or photos accompanying the news; possible with higher-capacity local DRM services.

- **Emergency and Alerts in case of disasters**
  The countries' populations can be made aware immediately and wherever they are of impending disasters, thus helping them with lifesaving procedures and solutions transmitted by national disaster agencies via public and/or commercial broadcasters.

- **TPEG and TMC**
  Traffic updates for route planning optimization of in-car navigation systems; targeting local and regional DRM services. DRM offers advanced services, revolutionising the radio experience for the next generations of listeners.

CONCLUSION

DRM is the global, open, all radio frequency bands, efficient, green, digital radio standard, which could be built on an existing transmission infrastructure, and which delivers very good FM-like audio quality, as well as multimedia services offering enhanced content and a superior audio experience to listeners.

For further detailed information, please refer to our **DRM Handbook**, which is freely downloadable from our website: **www.drm.org**

You may also get more information by contacting our Project Office under **projectoffice@drm.org**