

Data broadcasting to ships via Digital Radio Mondiale (DRM)



Applications of data casting

Digital shortwave via DRM can be an efficient and cost effective solution for the digital ship infrastructure. The transmission capabilities of digital point-to-multipoint broadcasting can provide data services to single ships as well as naval units worldwide. A variety of maritime applications can be served, e.g.

- Nautical data
 - ECDIS maps
 - Weather data GRIB
 - Differential GPS via RTCM
- Maritime Safety Information
 - NAVTEX / NAVDAT
 - SAFETY-Net
- General data
 - Document management
 - Training material
- Communication
 - E-Mail (one-way)
- Infotainment
 - Audio broadcasting
 - Live sports
 - “Homeland” broadcast
 - News / news ticker
 - Provision
 - Loudspeaker, screens
 - Intranet / Wifi

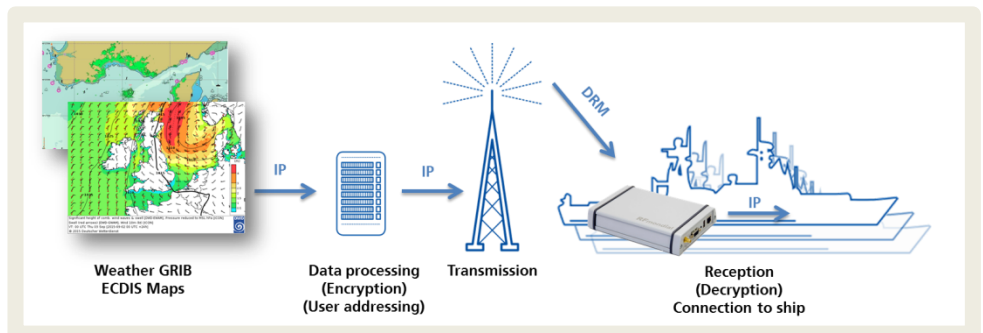
DRM datacasting on mission

Various different applications have already been on mission.

- Crew infotainment on several frigates of the German Navy
- Infotainment on HLAG cruise ship passing the Northwest Passage
- Infotainment on HLAG cargo vessel from Hamburg to Shanghai
- Differential GPS on DRM longwave on land

Ongoing / planned projects

- German Navy and NATO for data transmission
- United States Coast Guard for warning and map information in the Northwest Passage
- DRM+ as an option for the VHF data exchange system (VDES) within IALA (International Association of Marine Aids to Navigation Lighthouse Authorities)



Provider of DRM data casting

- Media Broadcast with transmitter stations in Germany and France
- Other analog stations can be digitalized

Cost comparison satellite vs. broadcast

BGAN Airtime	DRM Broadcast
64 kbps stream: Net data rate ca. 40kbps	Ca. 40kbps stream reliable net data rate
Costs per ship	Costs per naval unit
\$5,45 per min.	\$5,14 per min.

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DRM – Digital Radio Mondiale

DRM is the universal, openly standardized digital broadcasting system for all broadcasting frequencies, including the AM bands (LW, MW, SW), as well as VHF Bands I, II – (FM band) and III.

- International consortium (www.drm.org)
- Open ETSI/ITU standard
- Worldwide applications, especially Asia, Africa
- Variable data rates via parametrization and bundling of 10kHz channels (5 – 100kbps)
- Standardized services
 - Transparent IP channel
 - File transmission
 - Image transmission
 - Hierarchical text transmission via Journaline
 - Compressed audio
- Worldwide accessibility also in vicinity of poles
- Significant cost savings due to broadcasting (point-to-multipoint)

About RFmondial

RFmondial offers professional products and services for the digital broadcasting industry as well as other industries with the need for innovative hardware and software. Research, development and prototype implementation for transmitter, receiver, and monitoring technology as well as design services for various industries are part of our core business.

With our broad experience in different technological areas we serve world-wide markets; „Made in Germany“ .

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