



JUNE 2015

MARITIME BROADBAND RADIO

THE REVOLUTION IN MARITIME COMMUNICATION

Exceeding 50 km operational range, the Maritime Broadband Radio is a true gamechanger in interconnectivity between vessels for any maritime operation. IP connectivity secures seamless exchange and sharing of data between assets with no latency, as well as possibilities to stream live HD video and voice without any further conventional infrastructure. Easy deployable units creates an unique solution for the maritime information highway.

Empowering the information highway

Operating as a maritime 'Information Highway', Maritime Broadband Radio (MBR) connects crews and their vessels using a high speed, high capacity digital communication channel with 'Fast Track' priority options.

Optimised to securely carry a diverse array of operational information spanning from real-time video streams to systems data, MBR enables remotely situated teams to work together seamlessly, co-ordinating systems and activities for optimal performance, safety and operational success.

Information from several sensors on separate vessels can be shared in real time, allowing the operators to communicate and make decisions based on a common operational understanding.

IP connectivity

Complex operations can involve a large number of information nodes, or assets, and different information streams.

MBR allows for bi-directional connectivity between assets with the utilization of IP technology. The use of end-to-end IP connectivity provides cost efficient integration and an interoperable solution for seamless data exchange.

Reliability in operation

The novel antenna design represents a breakthrough in wireless data exchange, with unsurpassed capability to transfer data in even heavily obstructed areas. The consistent dataflow maximises efficiency in applications and operations, and minimizes the risk of interruption or delay of operations due to lack of communication.

OPERATIONAL BENEFITS

Deterministic latency

Each type of connected sensor has different requirements for both latency and minimum/maximum bandwidth for operation. To secure reliable and consistent data flow for all connected sensors, sophisticated design ensures that bandwidth upper bound never is crossed.

Beyond line-of-sight

Dynamic operations with multiple assets require a data carrier that operate close by and beyond line-of-sight, without bandwidth degradation. Due to unique beaming technology, the MBR exceed 50 km range with broadband connectivity, and serve as an vital asset in many operations.

Easy deployable

Unlike conventional solutions such as satellite, Wi-Fi, or mobile network platforms, MBR requires no extra infrastructure or equipment beyond installing the units on vessels, planes, rigs or land-based stations participating in an operation or mission.

Low maintenance

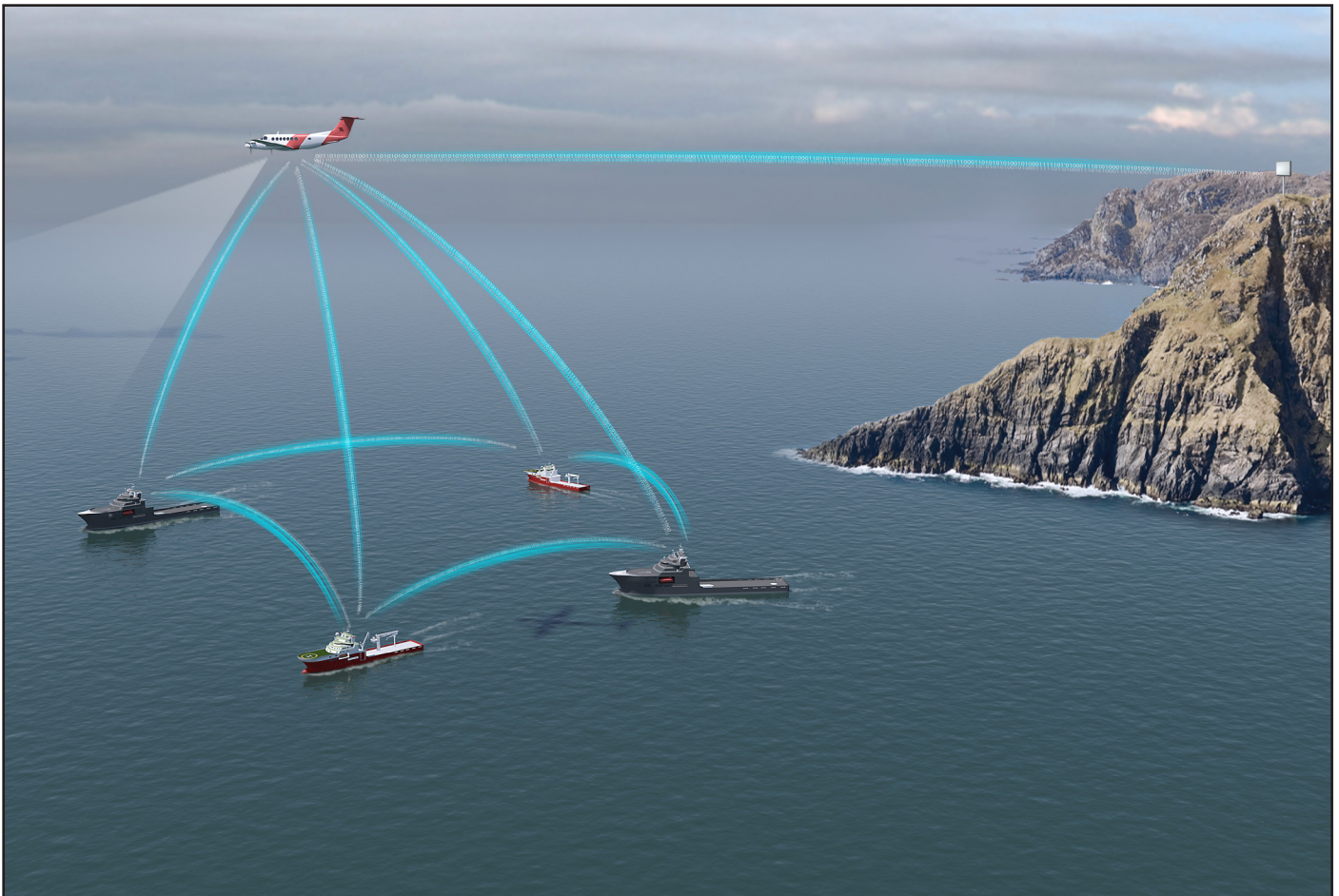
All components are enclosed within the radio housing, with no moving parts. Wear due to harsh weather conditions is kept at a minimum, ensuring low maintenance costs.

Product range

Different models of MBR are available for different types of applications. The product line ranges from portable devices to fixed installation units with 360-degree coverage capability.

Easy to install

The unit is easy to install, comprising only the unit itself, power and Ethernet connection.



Joint surveillance operation utilising MBR as a communication platform

APPLICATIONS

Maritime operations

In simultaneous operations like construction, rig moves and other complex operations, situational awareness is crucial, and coordination is vital for successful results. A real-time common operational overview secures and improves the efficiency and safety of the operation.

Typical areas where MBR enhances operations are:

- Multiple vessels in coordinated operations like construction work, heavy lifting, rig moves and pipeline work
- Close proximity operations
- Shore-based support

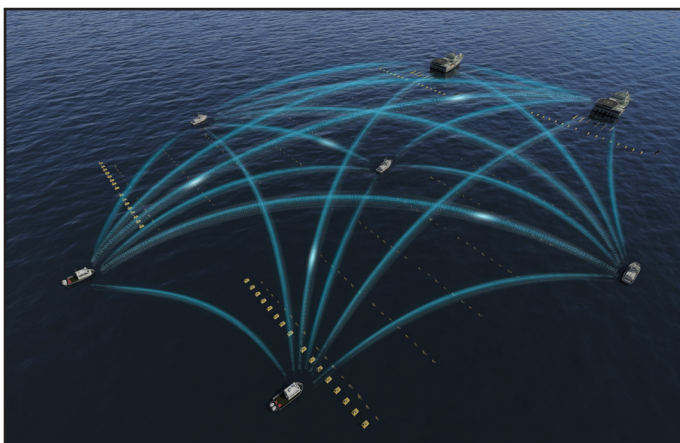
Seismic operations

A seismic vessel needs to communicate with its workboat for safe and reliable operation, e.g. with live HD video stream, voice and other other sensors for efficient operation.

Large wide- and multi-azimuth operations will also benefit from the robust broadband communication channel by easy exchange of position and other relevant data.



Inspection with portable MBR



Interconnectivity in seismic operation

Hydrographic data carrier

More efficient data acquisition is made possible with the main vessel receiving data streams from a launcher utilising MBR. The hydrographer can operate several launchers to secure optimum survey results.

Inspection and surveillance

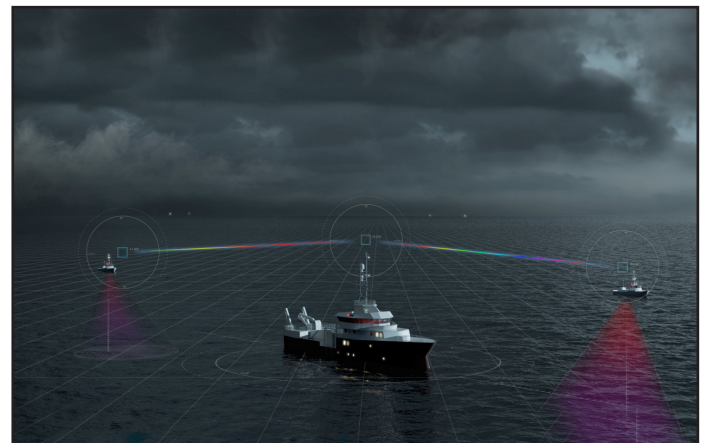
Joint surveillance and inspection missions involve multiple assets dependent on consistent, reliable and real-time data flow to make decisions on further actions. With the ability to share sensor data and distribute live HD video stream and voice, situational awareness can effectively be distributed to participating assets, allowing everyone to keep eyes on target.

MBR can enhance the operation by providing:

- Real-time common operational view
- Verbal communication combined with video
- Real-time information sharing for decision support
- Reliable and consistent data flow



Communication between vessel - airplane in operation



Main vessel - launcher in hydrographic surveys

SYSTEM COMPONENTS

All MBR units has the following features:

- Smart antenna technology
- No moving parts
- Near/far capability for multiple vessels
- High data throughput in difficult conditions
- Realtime capability
- Easy to configure and operate

MBR 189
High gain version for vertical installation.

MBR 179
High gain omnidirectional version for horizontal installation.

MBR 144
Portable mobile version.

Please review respective datasheet for detailed technical specifications.

MBR 144
KONGSBERG

MBR 179
KONGSBERG

MBR 189
KONGSBERG

MARITIME BROADBAND RADIO

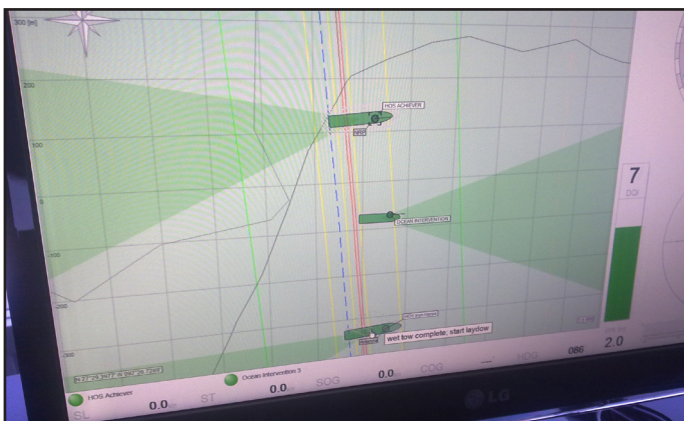
The Maritime Broadband Radio is developed for use in maritime applications where digital high-speed reliable communication and data transfer are crucial for efficient and safe operations. The MBR 144 operates in the 5 GHz frequency band and has proven high capacity communication over distances in excess of 50 kilometers.

Extremely robust
The MBR system enables high speed, high capacity and extremely robust data, voice and video transfer between multiple vessels and other assets.

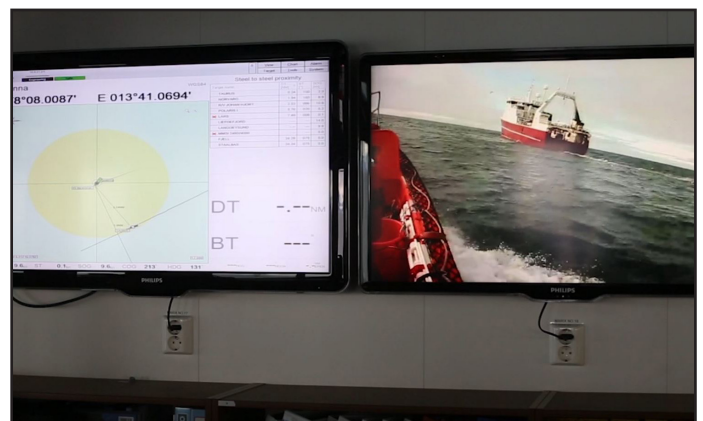
Easy to operate
Unlike satellite, Wi-Fi or mobile network platforms, MBR requires no extra infrastructure or equipment beyond the units on the participating vessels. This makes it a simple to use and maintain solution enhancing efficiency in maritime operations.

Network
The system is a maritime radio network distribution system operating in the 5 GHz band and has demonstrated reliable, high capacity digital communication channels with "best track" priority options. The system can securely carry a diverse array of operational information, from real-time video to system data, and remotely situated teams can work together seamlessly, coordinating systems and activities for optimal performance, safety and operational success.

Connecting vessels
Operating as a maritime "information highway", the MBR connects crews and their vessels with a high-speed and high capacity digital communication channel with "best track" priority options. The system can securely carry a diverse array of operational information, from real-time video to system data, and remotely situated teams can work together seamlessly, coordinating systems and activities for optimal performance, safety and operational success.



Operational overview



Live HD video streaming

