

## About ETSI

DMR is a standard developed by *ETSI* – one of the world's leading standards development organizations for Information and Communication Technologies (ICT). Founded initially to serve European needs, *ETSI* has grown rapidly to become highly-respected as a producer of technical standards for worldwide use.

*ETSI* membership is composed of manufacturers and network operators – all the “big names” and many smaller companies too – plus national administrations, ministries, regulators, universities, research groups, consultancies and user organizations. A powerful and dynamic mix of skills, resources and ambitions, all working together to bring the very best ICT solutions to the global marketplace. Geographically, our membership of over 700 companies and organizations is drawn from more than 60 countries on 5 continents.

*ETSI* is independent of all other organizations and structures, a key feature for ensuring neutrality and trustworthiness. That brings benefits not only in the acceptance of our standards and other publications, but also in our growing range of ancillary services, such as interoperability testing. And because standardization inevitably draws upon the bright ideas of our members, we have an Intellectual Property Rights (IPR) policy in place that has become the model for many other organizations.

*ETSI's* standardization activities are open to all interested companies and organizations. Your company can be part of this dynamic organization. For more information about how *you* can be involved, please visit

<http://www.etsi.org/membership>

For details about *ETSI's* current DMR activities, please visit

<http://portal.etsi.org/portal/server.pt/community/ERM/306?tblid=624>

*ETSI*  
650 Route des Lucioles  
F-06921 Sophia Antipolis Cedex, France  
info@etsi.org  
www.etsi.org

# Digital Mobile Radio (DMR)



## Digital Mobile Radio (DMR)

Digital Mobile Radio (DMR) is a standard that has been developed by *ETSI* which sets out a digital radio specification for professional, commercial and private radio users. In practice, DMR manufacturers have focussed on building products for the professional and commercial markets for both licensed conventional mode operation (known as DMR Tier II) and licensed trunked mode operation (known as DMR Tier III).

DMR is a two slot Time-Division Multiple Access (TDMA) system offering low cost and flexible digital voice and data solutions, and uses a well established 4FSK modulation scheme. The TDMA implementation in DMR offers a spectrum-efficiency of 6.25 kHz per channel whilst also giving the ability to deliver the advanced features that professional users require. DMR TDMA also brings low infrastructure costs as one repeater can deliver two communication paths. DMR also offers great power efficiency.

The standard is designed to operate within the existing 12.5kHz channel spacing used in licensed land mobile frequency bands around the world so making user migration from analogue to digital seamless. Today, products designed to DMR are sold in all regions of the world and a wide group of leading manufacturers are producing or have declared an intention to produce DMR products, giving users a high degree of supplier choice.



## The DMR standards

The standards that define DMR consist of four documents:

- TS 102 361-1: the DMR air interface protocol**
- TS 102 361-2: the DMR voice and generic services and facilities**
- TS 102 361-3: the DMR data protocol**
- TS 102 361-4: the DMR trunking protocol**

There is also a designer's guide encompassing elements from all standards parts:

- TR 102 398: DMR General System Design**

All these documents can be downloaded free of charge from the *ETSI* website publications download area (<http://pda.etsi.org/pda>).

## The DMR Association

The DMR Association is a global organization focussed on helping to make DMR a widely supported 21st century digital radio standard in the business world. Membership is drawn from radio manufacturers, application developers and end-users.

Through a combination of interoperability testing, certification, education, and awareness the Association is working to ensure that business buyers of today's digital radio technology gain ongoing value through the competition and choice derived from an open, multi-vendor standard. The Association also works with *ETSI* to increase the scope of the standard in response to demands of users.

For more information visit [www.dmrassociation.org](http://www.dmrassociation.org)

## The importance of DMR interoperability

The Technical Working Group of the DMR Association has defined a DMR interoperability testing and certification process for DMR products.

The process has established lists of mandatory and optional interoperability features for conventional (Tier II) and trunked (Tier III) DMR based on the published *ETSI* DMR standard. In order to be certified as interoperable with a second manufacturer for a particular tier, a DMR equipment manufacturer must be interoperable with that manufacturer for the mandatory features. In addition the two manufacturers can opt to seek interoperability certification for some or all optional features.

The DMR Association has documented laboratory quality standards and procedures for any laboratory wishing to run a test session. There are specified test procedures which determine how each test is to be run and which include the capturing and storage of air interface messages to demonstrate conformance to the standard as well as functional interoperability. If both manufacturers involved in a test agree that interoperability has been demonstrated by the testing, the test reports and log files are sent to the DMR Association Technical Working Group for peer review before an interoperability certificate is issued to the manufactures and published on the DMR Association web site. The first formal DMR interoperability test sessions took place in April and June 2010.