eDMR NETWORK

eDMR Radio System

A Cost-effective TDMA Digital System using Terminals compatible with Analogue Networks

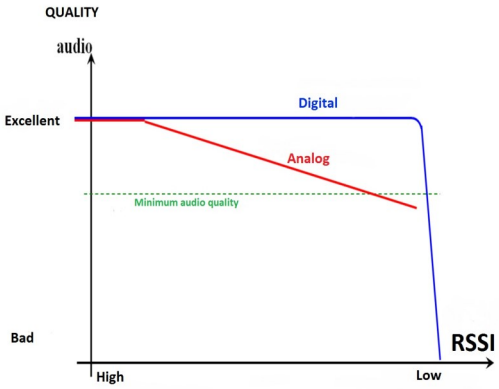
The **eDMR** is a professional digital TDMA (*Time division Multiple Access*) radiocommunication system. Developed by TPL Systèmes, it provides analog and digital operation modes in all VHF frequency bands (30-50 MHz, 68-88 MHz and 146-174 MHz).

The **eDMR** has been designed :

- To provide to radio users the benefits of a TDMA digital technology at costs comparable to analog systems.
- To keep using existing analog radio terminals with new digital mobile equipment.
- To allow radio network operators a time-phased, smooth migration of their analog infrastructure to a fully digital technology.
- To re-use their existing VHF frequencies and associated radio sites with considerable network architecture and roll-out cost savings.
- To double spectrum efficiency since two half-duplex voice communications + one data or one full duplex communication + one data can be transmitted simultaneously within a 12,5 kHz channel spacing.
- To propose a single or multisite system to build a local, regional or nation wide interconnected radio network via an IP infrastructure.
- Thanks to DMS (eDMR Management System) ensure the configuration, control, administration and maintenance of the system.
- Totally flexible the eDMR allows the supervision and management for multi-agency and / or multi-user .

eDMR BENEFITS

- Radio terminals compatible with analog networks (5-Tone, CTCSS, etc.)
- Digital TDMA technology with the best spectrum efficiency on the market:
  - Two simultaneous half-duplex voice communications + 1 Data within 12,5 kHz
  - Improved audio quality thanks to digital technology
- Simple, half-duplex, full duplex calls
- Available in VHF frequencies (30-50 MHz, 66-88 MHz, 146-174 MHz)
- Network architecture and infrastructure cost savings
- Local single site, regional or nation wide network with interconnection to eDMR Management System (DMS)
- 9,6 Kbps (gross) data transmission rate



eDMR SERVICES

The **eDMR** voice and data transmission have been specially designed to meet the public safety organisations requirements. Users of existing analog networks do not need to change their operating habits since all usual features are available in **eDMR** including important facilities such as :

Call types :

- Open channel voice calls
- Individual and privacy calls
- Group calls (static and dynamic)
- Emergency calls
- Include calls
- PSTN / ISDN incoming and outgoing calls

Other facilities :

- Status code transmission
- SMS (Short data messages)
- 9,6 Kbps (gross) data transmission rate
- Priority and pre-emptive calls
- Automatic registration / de-registration of radio terminals

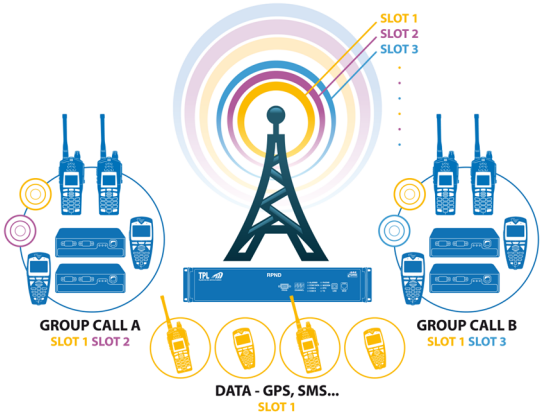
Different GPS operating modes :

- Automatic GPS data storage and retrieval
- Vehicle alarms
- Speed limit alarms and covered distance information.

* extended *DMR*

** *IP* : *Internet Protocol*

3 Slots*** TDMA eDMR

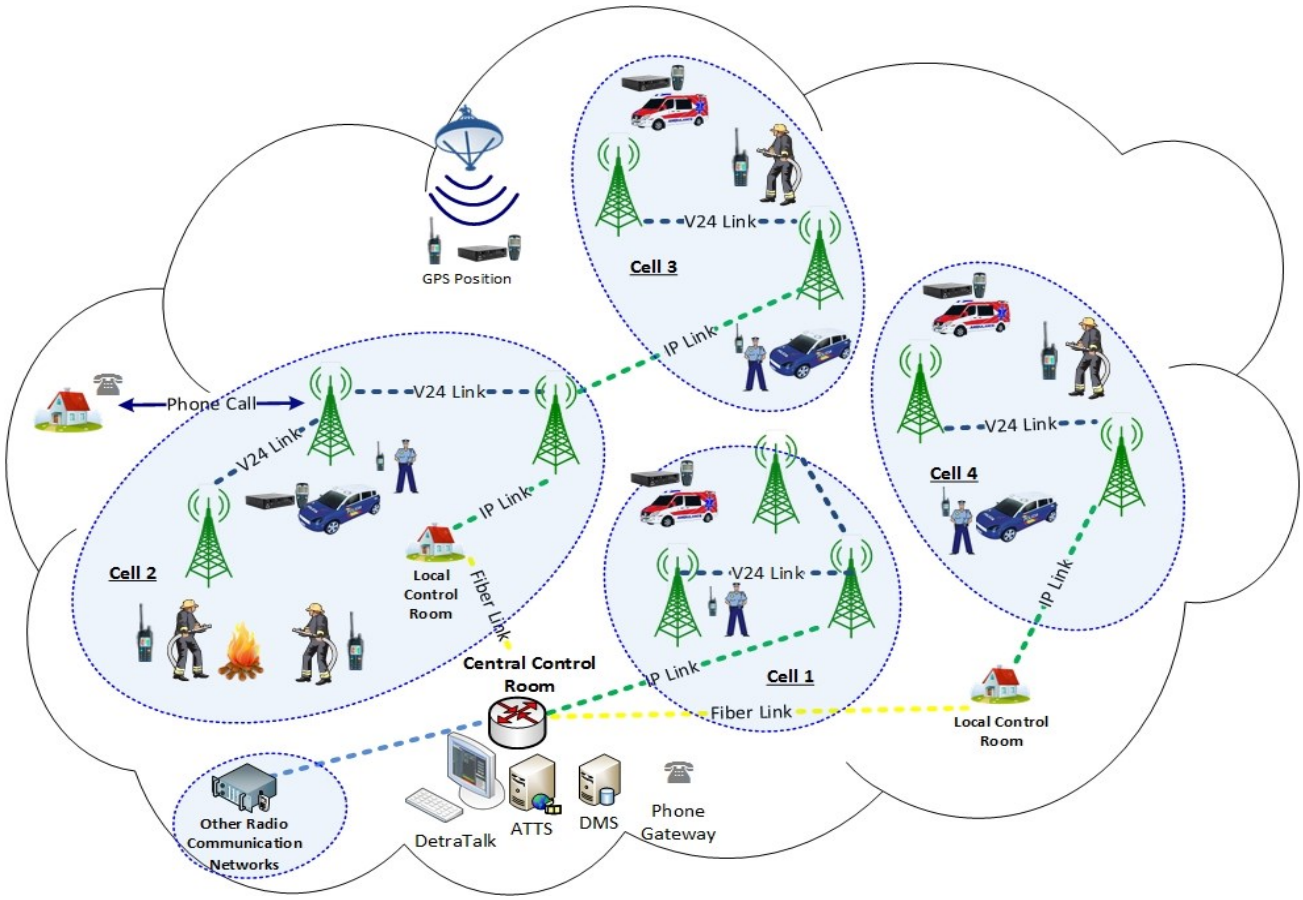


<u>3 simultaneous communications within 12.5kHz :</u>

- The **eDMR** more than doubles the spectrum efficiency since a third data slot is added to the two communications slots. The resulting communication potential is : <u>3 simultaneous communications paths within a 12,5 kHz channel spacing</u>.
- The additional slot or “control channel” is used to transmit signalling data frames to setup calls, GPS positioning, SMS short data messages, alarms and radio terminal registration on the network.

*** Slot = Time interval

EXEMPLE OF A DIGITAL eDMR NETWORK



GENERAL

The **eDMR**, a digital TDMA system, provides radio terminals compatible with existing analog networks using CTCSS, 5 tone, DTMF etc. signalling and offers a smooth transition towards a fully digital radio network.

The **eDMR** can be rolled out in all VHF frequency bands (30-50 MHz, 68-88 MHz and 146-174 MHz), within a single site network, using one or several base stations. It can also be used to build up an upgradable multi cell, microwave or IP-interconnected network, under the supervision of a eDMR Management System (DMS).

With base repeater stations, mobile stations with keypad microphone and optional Bluetooth*, DPE handportables, **eDMR** system offers a complete range of radio terminals.

Handportable DPE: compatible with existing analog network and digital **eDMR** network. User friendly keypad and color screen. Optional GPS and a large range of accessories are available.

Mobile DMD: compatible with existing analog network and digital **eDMR** network. Use friendly keypad and color screen. Optional GPS, cable versión and bluetooth are available.

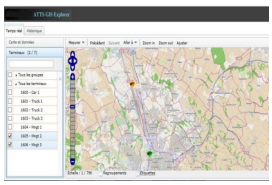
EBase-DMD: compatible with analog and digital **eDMR** Networks. A desktop console incorporates DMD radio unit, a powersupply and loudspeaker. GPS, cable versión and Bluetooth* are available.

RPND Repeater or Base station: compatible with analog and digital terminals. Incorporate in a 2U radio rack.

MO IP: IP link. Compatible with **eDMR** networks.

Gateway: Switchgear Gateway makes possible remote control for switchgears. In Analog or digital.

DMS: Control, management and supervision tool for digital **eDMR** networks. It allows control of a network, recording and listening of communications.



ATTS: Control, management and supervision of terminals with GPS integrated, for digital **eDMR** network. Management on time of all the registered terminals.

Call-Recorder: Accessible with the DMS, for listening all voice communications on **eDMR** network.

DetraTalk: Communication dispatch based on a PC platform for **eDMR** network. Listening until 5 communications simultaneously .

Ambucom Tablet PC: Rugged Tablet PC. It allows data sending accross the **eDMR** network or with 3/4G.

* range > 100 meters, line of sight

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