

WHITE PAPER

# DARC Technology

A Smart Solution for Data Broadcasting

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## Introduction

DARC – Data Radio Channel, is a broadcasting system based on the already existing FM infrastructure. It allows content providers to transmit data to any place within the coverage of the FM radio network. This use of existing infrastructure leads to low expansion costs.

The DARC signal is a sub-carrier like RDS (Radio Data System), that is

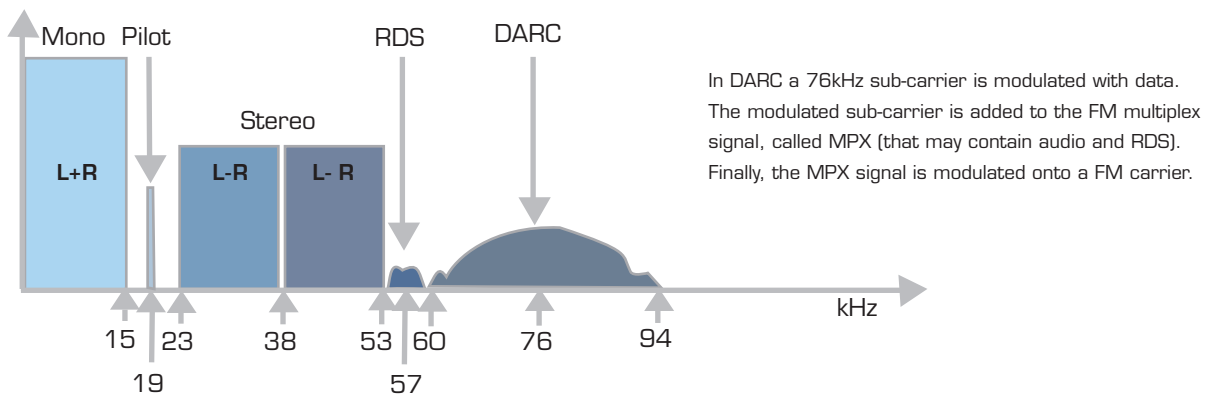
inserted in the multiplex signal. The DARC signal does not interfere with the RDS signal nor the audio signals.

Content providers send data to a network server, which distributes the data to the transmitter stations in the network.

At the transmitter station, a DARC Encoder creates the modulated signal.

The transmitted data is received by DARC receivers and sent, depending on the type of service, to applications on computers or to other equipment.

The gross bit rate in DARC is 16000 bit/s  $\pm$  1.6 bit/s. Depending on the strength of the error correction the net bit rate varies between 6.5–9.8 kbit/s and the delay varies between 0.5–9.8 s.



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## Key Features

### Broadcasting

Since DARC is a broadcasting technique, the same information is sent to everyone at the same time.

This means that millions of receivers receive the same information at the very same moment. This is a unique feature for services requiring simultaneous updates.

There is no extra load on the system by introducing a new receiver, i.e. there is no upper limit on the number of receivers connected to the network.

### True Real-time

DARC is designed to be a true real-time technology. There is a minimum of time delay between sender and receiver, independent of geographic location.

One of the first services that was developed for DARC was a Swedish military tactical broadcast system

providing air situational awareness (LuLIS), which initiated hard real-time demands.

### Mobility

DARC is designed for mobile systems. A strong error correcting code is built into the system, thus making it possible to use mobile and portable receivers more reliably.

### Nationwide Coverage

FM transmitters are by far the most common radio transmitters in the world. They are located practically everywhere, in every country, where there is significant population.

This means that the FM network infrastructure is already there, thus making it very easy to obtain nationwide coverage by using DARC.

### Low Cost

By piggybacking on the existing FM network infrastructure, the investment

cost needed to equip an FM transmitter with DARC is very low.

### Passive Reception

The DARC receivers are passive, since FM is used for one-way communication only. This makes it possible to distribute data even during signal silence.

### Separate Distribution Network

A FM network is a complete and physically separate network, which decreases the overall vulnerability.

### Open Standard

DARC is an open standard and is controlled by the European Telecommunications Standards Institute, ETSI. This gives interoperability possibilities between different DARC products, independent of vendor.

## **Sectra – Your Partner in DARC**

Sectra is the world's leading company in supplying and developing equipment, application and turnkey systems for DARC. Sectra's commitment covers all the procedures, products and services needed to create efficient and reliable DARC communication.

# **SECTRA**

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