



Office of the Director of  
**Telecommunications  
Regulation**

**INFORMATION NOTICE**

## **Digital Audio Broadcasting Technical Conditions**

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**Oifig an Stiúirthóra Rialála Teileachumarsáide**

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## **1. Introduction**

The Director of Telecommunications Regulation and her Office are responsible for the regulation of the Irish telecommunications market and broadcast transmission in accordance with EU and National legislation. The ODTR is the National Regulatory Authority for the purposes of that legislation.

The rapid pace of development in both the Broadcasting and Telecommunications sectors is driving the phenomenon known as convergence, which is continuously blurring the once distinct boundaries between the two industry sectors. Convergence is not unique to Television but is also highly developed in Radio. Digital broadcasting in Radio has been around since the mid-nineties and predates the developments now bringing benefits to Television viewers in Ireland.

This paper is intended by the Director to inform debate and to end uncertainty as to the technical parameters that a Digital Audio Broadcasting (DAB) service would require. She feels that these conditions are balanced in such a manner that it will ensure that the listener gets a better service than that already provided by the existing FM and MW networks.

The paper gives a brief introduction to the DAB system, including its context, technology and functionality. The proposed technical conditions are contained in document 01/90, which is an annex to this paper.

## **2. Background and Context**

Digital Audio Broadcasting (DAB) or Eureka 147 gets its name from the one hundred and forty-seventh project of the European framework for technical research and development projects (Eureka). The project was to develop a new digital transmission system for radio, which would overcome the shortcomings of the traditional analogue radio networks. DAB has received ITU recognition as a world standard for Digital Radio.

Until now, analogue radio signals such as those on FM (VHF Band II) or MW (MF) have been subject to interference on their way from the transmitter to a listeners radio particularly if the listener is on the move. This interference can generally be heard as fading, lack of

signal and audible distortion. It can be caused or exacerbated by various factors including mountains, high-rise buildings, electrical equipment, time of day and weather conditions. All of this can result in less than perfect reception of a listener's favourite station.

### **3. Technology**

The DAB standard uses two unique technologies to overcome the problems normally associated with conventional analogue transmissions. These are the Single Frequency Networks (SFN) and Orthogonal Frequency Division Multiplexing (OFDM) technologies.

A transmission network built using SFN technology can use a single 1.5MHz channel to transmit an ensemble containing at least 4 music stations and data over the whole country. This means that a listener in a car never has to 'retune' their radio if they are listening to the same station as they travel. As well as this fact, all stations within a SFN transmit their signal at exactly the same point in time enhancing the network coverage.

The use of OFDM causes the signal to be 'spread out' over a number of equally spaced carriers. This builds redundancy into the signal, which means that the signal is more resilient to the distortion and fading that affects an analogue signal, allowing clear reception of the DAB signal even under arduous conditions.

### **4. Functionality**

Aside from distortion-free reception and high Quality sound, DAB offers further advantages as it has been developed with multimedia applications in mind. DAB carries not only audio, but also text, graphics and data. For example, this could allow an album sleeve to be displayed along with the artist's discography while the music was playing, or could allow a stock 'ticker' to be transmitted during a financial or news programme.

**5. Clarification of the technical conditions may be sought from;**

Mr David Thom

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