

Digital Radio is more than just radio

The radio for the 21st century is already on the air

Everyone's been there – a great song is playing on the radio but the DJ fails to mention the title or artist. Especially when you are in the car. Without Internet access. Digital Radio will remedy this problem. It not only offers radio but extra services as well. With the push of a button, you will be able to view information about the artist and the song on your display. Or how about the lyrics so that you can sing along?

These new features are based on Digital Audio Broadcasting (DAB) technology: The first digital radio standard developed in Europe for programs that are broadcast terrestrially. The standard will replace the reliable multi-channel modulation method. With this technology, several programs are broadcast via one channel. This guarantees clear reception and efficient use of frequency by using common frequency broadcasting technology.

Nowadays, all digital terrestrial transmission systems such as digital terrestrial TV, DVB-T are using this modulation method. This means that radio stations no longer use analog signals to broadcast their programs but instead use area-wide digital data packets – 1.4 megabits per second in the case of DAB, for example. This corresponds approximately to the speed of a simple DSL connection. This high and consistent data rate guarantees clear reception in CD quality because the data packets the station sends out always transfer as a whole and, consequently, listeners truly receive all information.

Broadcasting within the limits of human hearing

Another advantage of the digital technology over the VHF network is that information is broadcast in a strongly compressed form. Only highly efficient compression methods are used, which benefit from the imperfection of the human ear: Similar to the human eye, which can only register 24 images per second, our ears are only capable of taking in a certain number of consecutive sounds. If the number of sounds exceeds this limit, we only hear a wall of sound. Audio codecs filter out the superfluous sound information, which reduces the amount of data.

All of this has an effect on the necessary broadcasting performance: By using DAB for wide-area coverage, a significantly lower broadcasting performance is needed as compared to the

VHF method. The reduced energy consumption alone significantly lowers the operating costs for broadcasting stations.

Sounds, lyrics and images

Broadcasters not only transmit radio shows but also extra information. For example, if a song by Robbie Williams is playing, listeners can simultaneously view the lyrics, current tour dates and even images on their radio displays. Additionally, the stations provide information on weather and traffic conditions and increase customer loyalty by airing information about their hosts. And all of this without a PC or the Internet.

With the multi-channel modulation method, DAB is able to air twelve to sixteen programs at the same time via a single channel. This enables large broadcasting stations to air special-interest programs for selected target groups in addition to their main program offer. This is another reason why DAB makes much more efficient use of the technical infrastructure than analog stations, which leads to lower costs. This is a real chance for smaller providers.

Further developments

The new audio codec HE-AAC v2 makes additional transmission capacities available so that radio broadcasters are able to offer more accompanying and independent services aside from just tone. This enables them to offer multimedia content as well. The name of this new standard is DAB+. The new standard is a reaction to the trend toward an increasing number of end-devices with graphic displays. Thanks to DAB+, cell phones, MP3 players and portable navigation devices will soon be able to receive even more precise information about traffic conditions and current events. Those who have a minute to glance at their display will be able to view the cover of the CD they are listening to or find out more about the radio program's host, for example – in color, of course. Listeners will also be able to directly influence the program they are listening to by pushing a button to vote for the song they want to hear next. This will guarantee radio's place as Germany's favorite media form in the future as well.

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