

WORLD



*Defining the future of digital radio*



---

# Global Digital Radio Broadcasting Update

September 2012

---

# CONTENTS

<b>ABOUT WORLDDMB</b> .....	3
<b>FUTURE TRENDS IN RECEIVER TECHNOLOGY</b> .....	3
<b>DIGITAL RADIO IN-CAR</b> .....	4
<b>COUNTRY UPDATES</b>	
Australia .....	6
Austria .....	7
Belgium .....	8
China .....	9
Chinese Taipei .....	10
Czech Republic .....	11
Denmark .....	12
France .....	13
Germany .....	15
Gibraltar .....	16
Hong Kong .....	17
Hungary .....	17
Indonesia .....	18
Ireland .....	19
Italy .....	20
Malaysia .....	21
Malta .....	22
Netherlands .....	22
New Zealand .....	23
Norway .....	24
Poland .....	25
South Africa .....	26
South Korea .....	27
Spain .....	28
Sweden .....	28
Switzerland .....	30
Thailand .....	31
United Kingdom .....	31
Vietnam .....	32
<b>JOIN WORLDDMB</b> .....	33

---

## ABOUT WORLDDMB

WorldDMB is the global industry forum for digital radio, facilitating the adoption and implementation of digital broadcast radio based on DAB, DAB+ and DMB. Its global membership includes public and commercial broadcasters, network providers, receiver, chip and car manufacturers.

WorldDMB's global membership is made up of senior executives and technical professionals from across the industry involved in the rollout of digital radio. Headquartered in Geneva, Switzerland, WorldDMB has an operational office in London providing on-the-ground support to its global network of digital radio professionals.

WorldDMB delivers tailored solutions on all aspects of the switch from analogue to digital radio including regulation, licensing, technical trials, network build out, marketing and production of new digital radio content. Solutions are delivered through leading-edge industry events, car manufacturers' workshops, tailored workshops and seminars, and via the WorldDMB website and members-only information portal.

DAB/DAB+/DMB have emerged as the digital standards of choice for broadcasters across much of Europe (UK, Germany, France, Denmark, Sweden, Norway, Netherlands, Belgium, Spain, Italy, Switzerland, Czech Republic) and the Asia Pacific Region (Australia, Hong Kong, Singapore, Indonesia, South Korea, China) and in many more. Over 500 million people worldwide are within range of a DAB/DAB+/DMB Digital Radio transmitter, there are well over 1000 services on air and several hundred receiver models for car, house and mobile are available to market.

## Future trends in receiver technologies

When DAB radios were first introduced to the mass market the available technology at the time placed limitations on the receivers available, resulting in bulky, energy hungry and expensive devices, which significantly reduced their perceived benefits over existing FM radios.

### Variety of shapes and sizes



In the last five years advances in technology have resulted in vast improvements. Today, DAB/DAB+/DMB devices come in variety of shapes and sizes:

- Low-cost entry-price products enabled by the cost reduction achieved through increased silicon integration
- Clock radios and docker radios, enabled by the increase in processing capabilities
- Ultra portables and handheld digital radios enabled by the reduction in power consumption and size

### Additional Services and Visual Functionality

With the increased pace of technical innovation, digital radio has reached a point where the differentiation from analogue FM radios has become increasingly marked especially through additional services such as slideshow and EPG functionality offering greater listener engagement.

Broadcasters are making increased use of visual functionality to provide information on programming, now playing, promotion of broadcaster websites, competitions and registration features. For the first time, radio is able to compete with TV to offer visuals which can be used for advertising and promotional purposes. Advertisers can use colour screens to display special offers, product photos, advertiser's logos, store locations, opening hours – all of this new content can be delivered efficiently and effectively via the broadcast medium.

Functionality which is now familiar to consumers from digital TV, smart phones and tablets is also available on digital radio devices. Pause, rewind, record, and Electronic Program Guides (EPG), on radios with colour touch screens and enhanced user interfaces implemented on an App running on a smartphone or tablet is becoming increasingly mainstream.

### Connectivity

Radio is taking advantage of the connectivity that surrounds us all through a network connection, often wirelessly. This connectivity provides increased offerings in terms of content to the listener

and also provides the potential for interactivity which opens up a broad range of possibilities for exciting new services such as real time voting to be available via the radio.

### Factors driving the development of radio receivers for the future

- Increased content format offerings from broadcasters
- Increased broadcast of data content
- The availability of interactive services
- Innovation in semiconductors allowing for increased number of devices at lower costs
- Consumer behaviour changes, especially in younger demographics

Radio will continue to integrate with the rest of the digital world

and it will become a standard feature within products as the cost of internet connectivity reduces. Today, with connectivity standards such as Bluetooth and WiFi available in smart devices, standalone radios will cleverly integrate themselves with these devices using Apps, resulting in an immersive user experience of the smart device with the benefits of an enhanced user experience of radio.

### Prem Rajalingham

VP Worldwide Sales and Support  
Frontier Silicon

## Digital Radio In-car

The following manufacturers offer digital radio either as line fit, factory or dealer fit options:

- |           |                     |           |              |
|-----------|---------------------|-----------|--------------|
| • Audi    | • Ford              | • Mini    | • Toyota     |
| • BMW     | • Jaguar Land Rover | • Renault | • Vauxhall   |
| • Daimler | • Lotus             | • Seat    | • Volkswagen |
| • Fiat    | • Mercedes Benz     | • TVR     | • Volvo      |

### Australia

Australia continues to focus on automotive as one of the key drivers for success in digital radio. The market is working alongside the automotive industry to provide both technical support and marketing of DAB+ products within automotive brands and dealerships. Commercial Radio Australia has provided technical information to the automotive industry on areas such as antenna placement, road coverage maps and dedicated automotive workshops to bring this information to manufacturers and Tier 1 suppliers. To tie in with the marketing efforts on-air promotional campaigns have been launched specifically dedicated to drivers. These targeted marketing campaigns have promoted automotive brands with digital radio and/or dealerships where digital radios are on sale. For example a simultaneous campaign by commercial and public broadcasters will celebrate the third year of DAB+ being on-air and will include information on automotive models which have DAB+ as standard.

- Digital radio is available as standard in the Toyota Camry Atara SL, Lexus GS and Hino 300, 500 and 700 series trucks
- BMW and Audi offer DAB+ as an option in some new car models. BMW Australia is the first manufacturer in Australia to offer DAB+ as an option and Audi has announced digital will also be an option in the A6, A7 and A8

### TPEG via DAB

There are TPEG, traffic and travel services, on-air in the UK and this year Toyota launched two models which can receive this information. TPEG services are planned in Germany and other markets are looking at using DAB/DAB+ for TPEG traffic and travel information as it provides a solution to the requirements of the 2011 EU directive on emergency announcements.

### Germany

The German market has worked with the automotive industry to produce automotive product specifications to ensure receivers are able to receive all of the new digital audio and data services on-air. The data services going on-air include TPEG via DAB+. German public broadcasters are aiming for the integration of DAB+ receivers as standard equipment in new cars as well as upgrades of existing and legacy in-car receivers with retrofit solutions. There are on-going discussions within the Data and Traffic Working Group at the Ministry of Economics about basic services such as service linking, announcements and DAB/FM delay. The German market has produced coverage maps showing motorways which are covered by a digital radio signal and there are targets in place for full motorway coverage by both the national and regional networks.

## Norway

The announcement of FM switch off in 2017 means that the radio industry in Norway is looking towards the market for adaptors and retro-fit radios, to ensure these as widely available as possible, focusing on importers in consumer electronics trade and consumer electronic shops to start selling in-car adaptors. Norway is also participating in work which focuses on service following, tunnel re-broadcasts and emergency announcements for the driver.

- 19% of new cars are sold with line-fit DAB
- 70% of the 20 most popular car models in Norway offer DAB as standard or optional

## Switzerland

Switzerland has the highest DAB coverage for any country – 99% of the population – and a clear migration strategy for the move from FM to DAB and from DAB to DAB+. For a seamless in-car user experience Service Following is seen as key in Switzerland, and the public broadcaster SRG SSR has pioneered this issue. SRG SSR has also defined two regions for test drives, working in close collaboration with the car manufacturer industry (Audi, VW, Skoda, JVC, Kenwood, Clarion).

Switzerland is also a pioneer in DAB/DAB+ tunnel re-broadcast systems. There are currently eight tunnels equipped and the plan is to cover up to 200 tunnels using 100 head-ends and 1,000 transmitting sites. Emergency voice break-in, signal levels, system design and interfaces are also going to be specified. MCDT, the Swiss digital radio marketing agency, is working closely with automotive manufacturers providing technical information, running marketing campaigns and holding events to bring automotive manufactures and dealers together to promote digital radio.

- Up to 10,000 DAB car radios have been sold
- DAB/DAB+ is available in the following brands in: Audi, BMW, Mercedes, VW, Skoda, Fiat, Toyota, Opel, Volvo, Mini, Jaguar, Range Rover

## United Kingdom

Digital radio in-car continues to grow in the UK with the announcement in August 2012 that for the first time the majority of new cars (53%) now have digital radio available as standard or as an option.

Marketing of in-car digital radio has increased, with the latest campaign launched on 30 June 2012 across commercial radio, BBC TV and radio, national press and online. The campaign is a call to action focusing on the summer of sport in the UK including Euro 2012 and the Olympics. The digital radio logo is being used in all print, media and on BBC TV.

Digital Radio UK (DRUK) is working with all of the automotive brands in the UK on technical specifications for in-car receivers and an approved installer scheme which was also part of the Government criteria for a smooth transition to digital. A Service Following trial using the new DAB/DAB+ Service Following specification produced by the WorldDMB Technical Committee was carried out, which allowed automotive manufacturers to test Service Following on their receivers. Consumer research is carried out on a regular basis giving information to manufacturers on what the UK driver expects from the in-car digital radio experience.

- 21% of new vehicles have digital radio as standard (Q4 2011), up from 7% the previous year (Q4 2010) – (CAP/SMMT)
- 56% of new vehicles make digital radio available as standard or an option
- 26% of new vehicles registered in Q2 2012 were fitted with digital radio as standard
- According to GfK year to date (Aug 2012) sales of digital radio car adaptors has increased by +43%
- New model announcements have recently been made by Ford, Vauxhall and Toyota



# AUSTRALIA



 Population: 20.6 million



Coverage: 60%



## CURRENT SITUATION

There are 1.3 million people listening to digital radio in the five state metropolitan capitals of Sydney, Melbourne, Brisbane, Perth and Adelaide and 833,320 digital radios have been sold. 10.1% of listening to radio is now via a DAB+ digital radio device in the five state metropolitan capitals with Time Spent Listening (TSL) to radio via a DAB+ digital radio device continuing to grow and now at 12 hours and 48 minutes per week. TSL to digital radios has once again outstripped TSL to radio via the internet which is at 5 hours and 34 minutes.

Each of the capital city markets boast up to 22 new, digital only stations on air, plus simulcasts of all AM and FM stations. In 2010 digital radio trial services switched on in Canberra and Darwin. All services have text and slideshow data included in the broadcasts, with many stations having track now playing, news and weather information, as well as advertisements in their slideshow broadcasts. At least one ensemble in each city is broadcasting an Electronic Programme Guide (EPG) with the other ensembles expected to follow. DAB+ regional low power trials commenced in Canberra and Darwin in 2010 including a retransmission of the Canberra services inside Parliament House.

## SERVICES ON AIR

Commercial Radio Australia (CRA) reports more than 80 stations broadcasting on DAB+ in Australia, with up to 20 DAB+ only. There are currently 13 metropolitan multiplexes and two trial regional muxes on air broadcasting nearly 170 services between them, with each multiplex delivering up to 15 services. Almost all stations in Australia are using slideshow and some EPG, and all deliver dynamic scrolling text.

### 'Event' or 'Pop Up' digital radio stations

Australia makes good use of event or Pop Up stations which are digital stations that exist for a short period of time and allow for flexible niche programming that can highlight an event, a festival or artist. 'The Main Stage' celebrated artists like Lady Gaga and Kylie Minogue during their tours of Australia, or 'Elf Radio' playing Christmas songs throughout the festive season. 'The Chemist Warehouse' station was established specifically for an advertising client and generating new revenue.

## COVERAGE

Australia's DAB+ broadcasts currently cover its major state capital cities with all commercial and national public radio stations and their associated multi-channels in Sydney, Melbourne, Brisbane, Adelaide and Perth on air. Coverage is currently at 60% of the population, or around 12 million people. Planning is based on achieving robust indoor and outdoor coverage using VHF Band III spectrum.

In July 2012, there was an announcement by the Australian Communications and Media Authority (ACMA) that the DAB+ digital radio trial licences in Canberra and Darwin had been extended for a further 12 months. The scientific licences issued have allowed for further coverage measurement, testing of local terrain impairments, receiver analysis, staff training and continued trials in different climatic conditions. The DAB+ trials in Canberra and Darwin are providing imperative information to regional and Asia Pacific broadcasters and assisting the radio industry to develop digital radio channel plans for all regional areas.

## RECEIVER MARKET

Sales of digital radios continue to increase, official data released March, 2012 shows sales of 88,004 in Q1, according to the GfK Marketscope report Q1 2012, bringing the total number of DAB+ digital radios sold since August 2009 to 833,320.

In vehicles, Toyota, Lexus and Hino include DAB+ as standard in a range of vehicle models. BMW and Audi have DAB+ as an option. Many mobile phones include FM radio and radio stations have created apps to enable listeners to listen to AM, FM and DAB+ stations via streaming. Ideally, just as for FM, a DAB+ chip will become standard in mobile phones to enable listeners to access all stations via DAB+ free to air broadcast.

Premium audio brands in Australia Bose and Bang & Olufsen both now offer DAB+ options. There are now more than 120 DAB+ devices available. The latest DAB+ radios include colour touch screen, slideshow and interactivity via Wi-Fi internet connection.

## REGULATION

The ACMA is the regulatory and licensing authority. There are currently no regulations on coverage requirements, but there is a quota for Australian music and video services are prohibited. Other key points of the digital radio legislation in Australia are that there is no cost for the spectrum for incumbent commercial broadcasters and no new entrants are allowed for six years from the start date. First right of refusal is given to commercial radio broadcaster consortiums to operate multiplexes. There is an entitlement to a minimum of 128kbit/s (1/9 multiplex) and a maximum of 256kbit/s (1/5 multiplex). The legislation covering digital radio requires a review to consider issues such as the availability and price of receivers, the coverage characteristics of various digital radio technologies and whether any adjustment to the regulatory framework is necessary, including the specification of subsequent start dates for digital radio in further markets. The Government has reserved spectrum for digital radio regionally after analogue television switch-off by 2013.

## SPECTRUM

Each incumbent broadcast in the five state metropolitan capitals with permanent DAB+ services has an entitlement to a minimum of 128kbit/s (1/9 multiplex) and a maximum of 256kbit/s (1/5 multiplex).

The Federal Government has allocated 14 megahertz of spectrum in the VHF Band III for the rollout of DAB+ digital radio to regional areas. The ACMA is planning to implement a restack of spectrum following the switch off of analogue television at the end of 2013. CRA is working with the ACMA and the television industry on the restack to enable the best and most efficient use of the available spectrum for the regional rollout of DAB+ digital radio.

While the Federal Government and the ACMA continue planning, CRA's Regional Digital Working Party and Digital Technical Advisory Committee (DTAC) have commenced detailed digital radio channel planning for commercial DAB+ rollout into regional areas. The coverage modeling currently underway will allow CRA and regional commercial broadcasters to estimate the cost of regional rollout for discussion with the Federal Government. The industry plans to commence discussions with the Federal Government in the second half of 2012.

## AUSTRIA



 Population: 8.3 million

### CURRENT SITUATION

Austria is committed to a digital radio future and a report by the regulator, RTR recommended DAB+ in Band III as the way forward. A call for expressions of interest was announced by the government and completed in July 2012. KommAustria is currently assessing the expressions of interest and will ask some of the players to clarify their plans. The range of the expressions of interest varies from existing national and international analogue/digital market players to yet "unknown" private individuals. The result of the assessment will be published on KommAustria's website in August 2012.

ORS (Austrian network operator) are currently planning a field trial for DAB+ and are in the process of planning the network, and possible business models.

Austria continues to prepare for digital radio and has created a Working Group to consider the country's digital future. Meanwhile, authorities are watching neighbours Germany and Switzerland as they launch services in DAB+.

### COVERAGE

During the trial in 2008 it was estimated 19% of Austria's population was covered by a DAB signal.

### SERVICES ON AIR

Currently there are no services on air. The Austrian regulator has authorised test transmissions on Block 6A from the Pfänder, a site that would cover the three-country border area of Austria/Germany/Switzerland. The licence is valid for 12 months, beginning from October 1st 2012.

## TRIALS

The trial held in 2008 included three transmitters in Vienna on Channel 12B. The multiplex featured classical music, Radio Wien (local station), pop music and FM4 pop music.

The Austrian public broadcaster ORF was awarded a DAB digital radio trial licence for the Federal States of Tyrol. ORF set up two DAB digital radio transmitters in Tyrol, covering the Inn Valley between Kufstein and the Brenner Mountain (Channel 12C). Ö1, Ö3, FM4 and the regional station Radio Tyrol, were available on the multiplex. This meant that there was continuous DAB coverage between South Germany and Northern Italy.

## REGULATION

The market is regulated by the Rundfunk and Telekom Regulierungs GmbH.

## BELGIUM



 Population: 11 million



Coverage: 100%

## CURRENT SITUATION

### French speaking Belgium (Wallonia and Brussels)

La Radio Télévision belge de la Communauté française (RTBF) is the public broadcaster for the French speaking Community. RTBF operates one DAB multiplex with its 5 main channels and two BRF channels (Belgian German speaking public broadcaster). RTBF is currently testing four DAB+ audio and data programmes for itself and also for the private radio stations. The aim is to plan a roadmap for DAB+ in French speaking Belgium together with the private broadcasters, subject to approval from the French Community Government and regulation body, the Conseil Supérieur de l'Audiovisuel (the CSA).

In Spring 2011 a common vision of the main broadcasters, both private and public, was defined with a four-tier strategy for migration from analogue to digital radio (DAB+ broadcast; hybrid radio; single online radioplayer and radio on TV). In summer 2011 the Parliament adopted unanimously a resolution asking the French-speaking Government to support the migration to digital radio from 2011.

The CSA launched a public consultation about digital radio in autumn 2011. The feedback has been positive. In spring 2012, the CSA recommended to the Government a DAB+ roll out mainly based on two layers in Band III. In June 2012 the government authorised RTBF to proceed with DAB+ trials for private radio stations who wish to participate.

The next step is to achieve a public funding agreement for the technical DAB+ roll-out (upgrade of the RTBF DAB network to DAB+) with indoor coverage for a potential public launch in 2014.

### Flemish speaking Belgium (Flanders and Brussels)

"De Vlaamse Radio – en Televisieomroep" (VRT), is the public broadcaster in the Flemish Community. VRT has one DAB multiplex in operation with nine main channels including three DAB only brand extensions for News+, Klara Continuo and MNM Hits. Norkring, which operates VRT's multiplex, also has a licence for another multiplex and is currently examining the possibility of a DAB+ roll out.

## COVERAGE

In the three Belgian regions (Flanders, Wallonia and Brussels), DAB coverage reaches almost 100% of the population. All motorways and main roads are covered.



## SERVICES ON AIR

In this country there are two regular national multiplexes on air. In the Flemish-speaking part of the country there are nine audio programmes (three of which DAB only) broadcasted by the public broadcaster VRT.

In the French-speaking part of the country there are five audio programmes (simulcast) by the public broadcaster RTBF and two audio programmes (simulcast) by the German speaking public broadcaster BRF. Four audio and data programmes are also currently being tested.

## RECEIVER MARKET

The availability of DAB receivers in Belgium continues to grow with a range of devices now on the market, including kitchen radios, handheld and tuners. As more DAB services launch, with marketing campaigns to support them, sales are expected to grow significantly.

## REGULATION

Broadcasting legislation in Belgium differs between the Flemish, French and German speaking communities. Licences will be granted to programme providers only in the French community; licences in the Flemish community are granted to the multiplex operator and may have restrictions. Simulcasting is permitted within both French and Flemish communities and there are no specific rules or conditions governing this. There is also no specific legislation governing advertising, sponsorship and marketing on DAB digital radio broadcasting.

## DETAILS OF TRIALS

RTBF is currently testing 4 DAB+ channels (audio and data programmes with slide show) in several bit rates for itself and for private radio stations who request it.

## SPECTRUM

DAB+ roll-out is considered only to be broadcast in Band III (as DAB).

# CHINA



 Population: 1.3 billion



Coverage: 2.3%



## CURRENT SITUATION

The Chinese regulator, SARFT, chose DAB for the standard for digital audio services in May 2006, and tested DMB services in the following years. Beijing Jolon, GTM in Guangzhou and other broadcasters provided DMB services during Olympic Games in 2008. DAB is now on air in three cities (Beijing and Hong Kong in Band III and Shanghai in L-Band). Some of them provide several DMB services among audio services.

Beijing Jolon, the biggest local broadcaster in Beijing, has launched 'Push Radio' based on DAB in 2010 in Beijing. Beijing Jolon broadcasts 30 hours – or 25 program channels every day through Push Radio. 16 Audio programs are broadcast 15 times per day and downloaded onto receivers. Value added services such as news, data and slideshow have been provided in Push Radio services. Cooperating with CRA, Beijing Jolon has upgraded their latest generation receivers to support DAB+, and is trialling the Push Radio in Australia.

## COVERAGE

Coverage is currently available in the following cities: Beijing (approximate coverage: 20 million people), Shanghai (expected coverage: 10 million people) and Hong Kong.

## SERVICES ON AIR

Beijing: 20 radio services (16 of which are simulcast), four video services, and one Push Radio service, two other data services by Beijing Jolon (commercial broadcaster) on Band III. Beijing Communication Radio is broadcasting traffic information on DAB via TPEG.

Dalian: Dalian Tiantu Cable Television Network received a licence for digital radio and mobile TV via DAB/DMB and plans to launch four radio services and one video service.

4 Multiplexes are broadcasting in VHF Band III (CN 11A, 208.720 MHz; CN 11B, 210.432 MHz; CN 11C, 212.144 MHz; CN 11D, 213.856 MHz), sound Broadcasting 17 services, Video Broadcasting 4 services, Slide/Data Broadcasting 1 service and Push Radio 1 service.

There are 5 main transmitters in Beijing City and 10 more transmitters in the west and north sub-urban areas of Beijing

## RECEIVER MARKET

There are several retailers in Beijing and Shanghai. Lenevo was the first Chinese manufacturer to develop a DMB mobile phone for the Chinese market. To date over 80,000 devices have been sold in Beijing alone. Beijing Jolon developed a Push Radio receiver named "SoundCube", which can both receive live DAB/DAB+ broadcasting and Push Radio services and are planning to market 100,000 pieces. Macostar has produced the first DAB+ mobile phone (MA11) with image/slide display and support Chinese characters for Hong Kong and other parts of DAB+ markets.

## TRIALS

Shanghai has had L-band trials of DAB based services with four video, four radio and three data services since 2005.

Trials of DAB/DMB based services are expected to begin shortly in other locations across China.

## REGULATION

China's State Administration of Radio, Film, and Television (SARFT) manage licences and standards in China. It was recently announced by SARFT that no trials of digital broadcasting were permitted without a licence. Currently, Eureka 147 based services are the only European digital broadcasting technology that has been granted licences in China. In 2007 four operators were granted trial licences following SARFT approval.

## CHINESE TAIPEI



 Population: 24 million

## CURRENT SITUATION

The Broadcasting Corporation of China (BCC), a private network with nationwide coverage, operates three FM and three AM channels as well as a digital audio broadcasting system. In July 2010, the Government of Chinese Taipei announced plans for digital convergence by 2015. During the first stage of the program, from 2010 through 2012, a number of bills are being formulated and sent to the legislature for passage, including a radio and TV broadcast law.

Chinese Taipei has been a supporter of DAB and DAB+ broadcasting and planned for a full implementation of digital broadcasting (both TV and radio) by 2010. Lack of marketing, promotion and consumer awareness has slowed this digital expansion. The new laws currently being developed should set a firm timeline in place for digital conversion of all media and telecoms. Currently the only DAB operator in Taiwan is SuperFM.

## COVERAGE

Previous trials undertaken by BCC (formerly the public broadcaster, now the commercial broadcaster) had a network of transmitters to cover 90% of the population, whilst the commercial operators have, so far, mainly concentrated on Taipei city only.

## SERVICES ON AIR

There is one regular and one trial national multiplex on air.

## CZECH REPUBLIC



 Population: 10.5 million



Coverage: 30%



### CURRENT SITUATION

TELEKO operates a DAB/DAB+ multiplex using L-Band, which reaches 2.8 million inhabitants of the Czech Republic. The signal broadcasts in Prague and the surrounding area, in Pířbram, Brno and the surrounding region and in the Moravia-Silesian region. 14 radio stations are being broadcast on the TELEKO multiplex.

RTI CZ operates 52 radio transmitters in the FM band predominantly in Western Bohemia. In 2011 RTI CZ obtained a license for Digital Radio DAB (L-Band) in the Pilsen region, Carlsbad region, South Bohemian region and in Prague city. They plan to start broadcasting in the second half of 2012 and early 2013.

Czech Radio is considering launching a new digital channel for children and teenagers in September 2012. This station will be available on DAB and online, broadcasting for a few hours until December and will likely extend its program until January 2013. Band III frequencies are now free, and the Czech Telecommunications Office is currently looking at the future use of this band.

### SERVICES ON AIR

There is one regular local multiplex on air. There are DAB/DAB+ broadcast programs in all the cities broadcasting: Public radio Český rozhlas Leonardo (science), Cesko (news), Region (regional news programme), CRo3 (culture) Wwave (alternative music), D-dur (classical music) and private radio Proglas (religion) and commercial radio GAMA RADIO (rock radio). The remaining spare capacity is available to carry further radio channels and accommodate dozens of other radio programs in DAB and DAB+.

### COVERAGE

Coverage maps for Prague and the surrounding area, Pířbram and Brno and the surrounding areas can be found at [www.teleko.cz](http://www.teleko.cz)

### TRIALS

In August 2007 a trial was launched by the TELEKO Company in co-operation with the public broadcaster Zesky Rozhlas with three DAB programmes and two programmes in DAB+. This trial used both Band III and L-Band and covered almost 130,000 people.

A further trial began in June 2008, again as a joint project between the TELEKO Company in cooperation with the public broadcaster Czech Radio. A 2.5Kw transmitter provided coverage of the capital city, Prague, to a population of around 1.3 million. The goal of this non-commercial trial was the promotion of digital radio to the Czech public and Government administrators. In early 2009 a further trial was launched in the second largest city Brno covering approximately 0.5 million people. Further trials have also been held in other cities around the Czech Republic.

### REGULATION

In April 2006 the Czech Parliament adopted a media law focused on digital broadcasting. The Telecommunications Office has declared that their office will be technology neutral with regard to the DAB audio codec (DAB or DAB+).

The document explaining spectrum regulation in the Czech Republic is the National Table of Frequency Allocation (NTFA) which allocates the frequency bands to particular radio communication services and describes the general conditions for frequency use. The Frequency Band Allocation Plan (National Table of Frequency Allocation) was prepared by the Ministry of Industry and Trade and has been published as Government Decree No. 105/2010 Coll.

Regulatory body the Czech Telecommunication Office (CTU) issues the Radio Spectrum Utilisation Plan (RSUP) for particular bands and sets the detailed regulation for use of the frequencies. This utilisation plan describes if a license is needed for the use of the frequencies and the selection procedure. Transmitters can be brought into use if the operator is awarded Individual Authorisation, some bands can be used by defined devices based on General Authorisation (e.g. wireless microphones).

## SPECTRUM

### Band III

According to NTFA Band III is allocated to broadcasting as a primary service and to land mobile as a secondary service. Wireless microphones are used in land mobile service only. The switch over to digital TV was finished end of June 2012 and Band III is ready for digital broadcasting, and is planned for T-DAB and DVB-T in accordance with Geneva 2006 Agreement.

### L-band

A tender for 10 year licenses in the 13 largest cities for operation was started on 6 May 2011. Licenses were granted during the September – November period and the company

Ceske radiokomunikace received in total 12 licenses and the company RTI cz s.r.o. one for Prague. All licenses will expire in 2021. Individual authorisations for TELEKO in Block LA were awarded for five years with right to extend.

The Ministry of Industry and Trade is preparing to update the State policy "Digital Czech" and it will include a section on digital radio. It is expected that the Government will support the gradual process of switch over from analogue to digital radio by the time analogue licenses are due to expire. Collaboration of the state authorities with the broadcasters, transmitter operators, receiver manufacturers and the automotive industry is drafted as key element.

## DENMARK



 Population: 5.5 million



Coverage: 100%

### CURRENT SITUATION

Denmark is one of the most successful DAB markets in the world. With more than 34% of the population accessing digital radio services, Denmark has one of the highest numbers of DAB users per capita in the world. The public broadcaster, DR (Danish Radio) has been an enthusiastic supporter of digital radio since it began trials in 1995. Regular services have been available since 2002. Over one third of the 2.5 million Danish households have one or more DAB radios and around 10% of all radio listening is via a DAB set. Cumulative set sales in 2010 were approximately 1.5 million.

Since 1 November 2011 DR has broadcasted on multiplex 1 and multiplex 2 is reserved for commercial broadcasters. At the same time two of DRs FM channels switched to be full time digital channels and only broadcasted part time on FM where the two channels share a frequency. A third multiplex is under discussion for regional and local stations and expected to be decided by the legislators in the autumn of 2012.

The radio industry has suggested full analogue switch off, following the Norwegian model. The suggestion is also to switch to DAB+ in the near future.

### COVERAGE

Coverage in Denmark is about 90% indoor on multiplex 2, 95% indoor on multiplex 1 and outdoor on multiplex 2. Coverage on multiplex 2 is expected to reach multiplex 1 levels by 2012.

### SERVICES ON AIR

In this country there are two regular national multiplexes on air. There are 11 public and three commercial DAB radio services on air, all of which are broadcast nationwide.

### RECEIVER MARKET

There are currently 1.5 million DAB receivers in the market. Approximately 300 specialised electrical retail stores currently sell DAB radios. Supermarket and food chains are also significant players with frequent product offerings. One third of the population has a DAB receiver in the household.

### TRIALS

A local trial is being carried out in DAB+ by grass roots station Kanal Plus based on off-the-shelf hardware and encoder/modulator software.

## REGULATION

DAB regulation is set by three different bodies in Denmark: The Ministry of Culture legislates for media policy and licences, the Ministry of Science sets the political framework for frequency applications and the National IT and Telecoms Agency maintains technical management of the frequency spectrum. Public broadcaster DR (Danish Radio) runs the national multiplex and the two regional multiplexes which are run as one national multiplex and rented out to the commercial broadcasters.

The Parliament has decided that radio in Denmark should be digitised on DAB and a media agreement is expected in the autumn of 2012. Until then it is still uncertain when FM will be shut off. The most important decision to be made is about establishing a regional multiplex, and when or if broadcasting should gradually change to DAB+.

## SPECTRUM

The distribution of frequencies in the current structure is given in advance. DR, the public service broadcaster in Denmark, has one multiplex and commercial stations licensed to nationwide FM frequencies have corresponding obligations to broadcast on DAB. In the future media law (planned to be decided in the autumn of 2012), the conditions for the distribution of the remaining DAB frequencies will be decided.

## FRANCE



 Population: 63 million

### CURRENT SITUATION

Over the years, France has experimented with all formats of the Eureka 147 family, DAB, DAB+ and DMB comparing the benefits of all parts of the standard. At the end of 2007, France's regulator, the Conseil supérieur de l'audiovisuel (CSA) announced that the official standard for digital radio in France would be DMB-A, to be marketed as Radio Numérique Terrestre (RNT).

Roll out of terrestrial digital radio was scheduled to start in December 2009 but was postponed amid opposition from several sources, including private radio operators. The Prime Minister commissioned a further report by David Kessler, former chief executive of Radio France, which was published in mid-2011 and suggested that the conditions had not been met for the full scale deployment of digital radio in France. The report suggested a moratorium of two to three years during which time the French market would look at the deployment of digital radio in the rest of Europe. The report also stated that the government approved the CSA's decision to allow further trials to continue.

The CSA is responsible for taking the findings of the Kessler report forward and in order to do this set up an 'Observatory' which includes all of the industry players. The publication of the Kessler report meant the market could move forward after a period of stagnation and to this end various trials were put on-air (Nantes, Marseille and Lyon).

In January 2012 it was reported by the French newspaper 'Les Echos' that the CSA had requested the Ministry of Industry to include DAB+ in the technical standard for France. The consultation for this closed in May 2012 and no further news has been released on whether this will go ahead.

The CSA published a timetable for a call for applications for tenders for digital terrestrial licences (DAB+) for France's next 20 biggest cities which will add up to 62% coverage. It is expected that services will be on-air for these licenses by the end of 2012.

## COVERAGE

The network operator (TDF) produced comprehensive coverage plans in 2009 ready for the start of national and regional services. One of the benefits of digital radio to French listeners, as pointed out by the CSA, is that it will allow greater coverage and more stations in many areas. This is important to the CSA and to Radio France who have a remit to provide the best possible service including coverage to the widest possible audience.

In Lyon the RNT Lyon project has two multiplexes covering 85% of the population and some of the major highways. Details of coverage and coverage maps can be obtained from the project leaders, VDL.

Trial services are also on-air in Paris, Marseille and Nantes expanding the coverage to such a level that if these services were to be granted full licences it would mean the French law relating to mandatory inclusion of digital radio in all products once coverage reaches 20% of the population would be triggered.

## TRIALS

After the findings of the Kessler report France is now running further trials of the DAB family of standards. Trials currently on-air include:

**RNT Lyon** – A nine month consumer trial is being held in the Lyon area with 15 commercial broadcasters on two multiplexes covering 85% of the population. This trial started in April 2011 and has been granted a license to continue into 2012 adding new stations and content. This trial focuses on consumers, the trial leader VDL, a French network operator, is raising awareness of digital radio through press conferences, a consumer website ([www.rntlyon.fr](http://www.rntlyon.fr)), in-store promotions, public events, social networking and on-air marketing/promotional campaigns.

**RNT Marseille** – In November 2011 a further trial was launched for the Marseille area. This trial was co-ordinated by RAJE and supported by the network operator TDF. It includes 10 new digital stations for Marseille.

**RNT Nantes** – A trial is currently being held in the Nantes area of France in co-operation with GRAM, a group of local radio broadcasters. A promotional campaign was launched to promote digital radio to listeners in Nantes and Saint-Nazaire.

**Paris** – A trial by TDF the largest network operator in France continues in Paris.

**RANUTER** – A trial by the car industry into the consumer needs from the TPEG traffic and travel services.

## SERVICES ON AIR

In France there are four trial regional multiplexes on air.

## RECEIVER MARKET

Although the market has not yet launched, French consumers have already shown that there is a demand for new radio receiver products. Digital radio receivers capable of receiving DAB, DAB+ and DMB audio are available in the market and are selling in some of the major retailers (FNAC, DARTY, Boulanger, Auchan, Virgin).

Pure digital leads the way with the following models available: Pure Sensia, Pure Chorons iDock, Pure Evoke 1S, Pure Siesta Mi, Pure One Mini, Pure One Classic.

Other manufacturers with digital radio products in the market are REVO, Tivoli, Dual, Philips, Roberts and Sony.

## REGULATION

Digital radio licences will be issued in France with a duration of 10 to 15 years and any broadcasters going digital will get a five year extension of their analogue licences. Simulcasting, associated data and audio-visual communication services will be permitted. Analogue and digital licences are both issued free of charge. There is a quota for French music and new artists and the current analogue rules which govern advertising and sponsorship will apply to digital radio.

The French Law on digital radio released in March 2009 has been revised so that when 20% of the French population is covered by a digital radio signal, DMB will become mandatory in all devices which include radio. Similar to the first draft of the law there is a 12 month grace period after which all products containing radio must be digital with the exception of cars. The car industry has an 18 month grace period after 20% coverage is reached. These changes were made to the law by the French Senate on 17 May 2011.

## SPECTRUM

Currently in France there is a lack of FM spectrum which means the French radio market has no opportunity to expand. The French market in line with GE-06 has allocated Band III for digital radio. There has been some discussion into using the L-Band for coverage of motorways although this has not been confirmed.

Following a consultation on use of the L-Band last March (2011) by the CSA, a call for tenders has been sent out to use the upper part of the L-Band for satellite services which closed on 27 Feb 2012.

This is possible as the upper part of the L-Band is reserved for digital radio hybrid services with satellite and terrestrial broadcasting mainly based on SDR.

The tender launched by CSA is not for radio broadcasters but mainly for distributors. It is for a national network with 67 allotments based in the upper part of the L-Band. Coverage objectives are 20% within three years, 40% within five years and minimum 60% within seven years. The tender requires compatibility with MA02revCO07 which will preserve the L-Band for broadcasting. However, it allows DMB in the terrestrial part but also it opens up the lower part of the band for other technologies.

## GERMANY



 Population: 83 million



Coverage: 47%



## CURRENT SITUATION

On 1 August 2011, Germany launched broadcast digital radio services on a nationwide network using the DAB+ standard. Fourteen new stations from football to rock, pop, classical, talk and Christian radio can now be heard across Germany. Both public and private stations are available on the nationwide network. Germany's public service financing committee, the KEF, provided funding which allowed public broadcaster Deutschland Radio, to build out a national digital radio network using DAB+ technology.

The German Digital Radio project office (Deutschland Digital Radio) was created to co-ordinate the efforts of all stakeholders; the stations on the national multiplex, the regional public broadcasters (ARD) and Deutschland Radio (the national public station). Five Working Groups were created to guide all areas of digital radio development and roll out. Areas covered

include: networks, products, marketing and advertising, traffic and travel and automotive.

Alongside the national network funding was also given to the regional public broadcasters in each of the Bundeslander in Germany to launch digital radio on DAB+. To date each Bundeslander has now started to roll out networks or to allocate licenses to broadcasters for services on networks.

A marketing campaign in all media is being undertaken by broadcasters, manufacturers and retailers. This has been launched to inform the public and retail staff working in high street shops about the advantages of purchasing a digital radio. A digital radio education day was undertaken in January 2012 to inform retailers of the benefits of digital radio and further initiatives are planned throughout the year.

## COVERAGE

There are 27 transmitters covering the major towns, cities and motorways. Population coverage from 1 August 2011 is approximately 40 million people with planned coverage reaching 99% of the population by 2014. 19 new transmitters are going on-air in 2012 to extend this coverage, whilst

another 40 new or existing transmitters will extend the current network in 2012-2013. Coverage of each of the Bundeslander is increasing as the regional public broadcasters go digital. Information on coverage of each of the regions is available from the regulators in each region.

## SERVICES ON AIR

There is one regular national multiplex on air, with 15 stations on air from nine radio groups. Deutschlandradio and the commercial broadcasters on the nationwide multiplex have released the following list of audio and additional services:

Audio: 10 new live audio services (brands) with additional services. Deutschlandradio will broadcast 2 brands in DAB (MPEG 1 Layer II), one digital only brand in DAB+ as well as one special brand/channel. A separate data channel will be also available on the national multiplex.

Data: Dynamic Label (DLS), Dynamic Label Plus (DLS+), TMC (TPEG), EPG, Jornaline, SLS, MPEG Surround Sound other services being considered are Broadcast Website, RadioVis and File collecto. Media Broadcast will retain space on the multiplex for data services.

## REGULATION

Licenses on the national multiplex were awarded on a beauty contest basis. Band III, 174-240MHz, the band reserved in GE-06, is the frequency on which digital radio services are on air in Germany.

After extensive research, discussions and trials, DAB+ was selected as the standard for the future of digital radio in Germany. A Telecommunication Act is now under discussion which will include a suggested analogue switch-off date in 2015.

No restrictions apply on spectrum or formats to be used, broadcasters may chose mixed multiplexes containing any part of the Eureka 147 standard –DAB, DAB+, DMB.

## REGIONAL MULTIPLEXES

There are nine regional public broadcasters in Germany. Audio bitrates differ in the regional muxes. Exact bitrates are not yet specified.

## RECEIVER MARKET

Receiver manufacturers have made the commitment to release the right products into the market at all price points. All of the major manufacturers have DAB+ capable receivers in the market. The release by broadcasters of the 'Proposed list of services on-air' document ensures that manufacturers have the correct functionality in their receivers.

In Bavaria 7.7% of the Bavarian population (8 17 000 people over 10 years) have at least one digital radio receiver (home range: 7.1%, CAR: 2.9%). For information on DAB+ in the German automotive market please visit [www.worlddab.org](http://www.worlddab.org)

## SPECTRUM

Spectrum is assigned on a regional basis by the Media Authorities of each of the 16 states (Länder). There are two types of licences in Germany 'Telecommunication Licence and Media Licenses' the first is awarded to the network operator to run the network the second assigns frequencies to broadcasters.

## GIBRALTAR



 Population: 31,000

## CURRENT SITUATION

The transmission provider Arqiva announced in May 2012 that it had been awarded a contract to design and build two DAB multiplexes for Gibraltar. The two multiplexes will each allow for four separate services. The transmitters will be located at a single site on the Upper Rock, minimising the environmental impact of the antenna support structure which will replace two

television transmission sites. The DAB ensembles will operate on Blocks 12B and 12C and the new radio networks are expected to be on-air by 31 December 2012, allowing Gibraltar to switch off analogue television by that time. Test transmissions will start in November 2012. There are currently no plans to switch off FM radio in Gibraltar.



## HONG KONG



 Population: 6.9 million



Coverage: 70%



### CURRENT SITUATION

The first stage of broadcasting seven channels in DAB+ on a 24 hour basis in Hong Kong started in August 2011. So far 13 of the 18 channels have been soft launched from December 2011. After the completion of the network construction of seven hilltop sites on 19 June 2012, the 13 channels are broadcasting formally.

The Government issued DAB+ licences to three commercial operators – DBC HK (Digital Broadcasting Corporation Hong Kong Ltd, formerly Wave Media), Metro Broadcast and Phoenix U Radio, together with the public broadcaster, RTHK, four broadcasters are now broadcasting DAB+ on Mux 11C (220.352 MHz) in VHF Band III.

In Hong Kong there are now seven channels from DBC HK, three channels from Metro Broadcast, three channels from Phoenix U Radio and five channels from RTHK (public/Government broadcaster) bringing a total of 18 DAB+ channels in Hong Kong.

The four DAB+ stakeholders have formed a Consortium (an Industry Working Group) which together with its Technical Committee is looking after detailed network implementation. A Marketing Committee is planning marketing and promotional activities. RTHK will operate and maintain the network on behalf of the Consortium and the seven hilltop sites.

### COVERAGE

Seven hilltop sites are now transmitting DAB+ signals over all urban/sub-urban areas in Hong Kong and covering approximately 70% of the island and the Kowloon peninsula. In addition, four gap-filler stations will be completed in phases from the end of 2012 to early 2013, further expanding the signal coverage. The government of Hong Kong is committed to installing DAB+ repeaters for the four major tunnels in Hong Kong by the end of 2012 and for another seven tunnels before 2014.

### SERVICES ON AIR

In this country there is one regular national multiplex on air.

### RECEIVER MARKET

There are over 100,000 DAB+ receivers already sold in the market. DBCHK gave away 20,000 free DAB+ radios to taxi and mini-bus drivers. HKDRD (Hong Kong Digital Radio Development Association) an industry organisation, has been formed for the promotion and development of DAB in Hong Kong.

### REGULATION

Currently the regulator in Hong Kong is the Communications and Technology Branch under the Commerce and Economic Development Bureau.

## HUNGARY



 Population: 10.1 million



Coverage: 30%



### CURRENT SITUATION

Hungary has chosen DAB+ for its digital radio standard, and there is currently a test multiplex on air broadcasting eight radio programs to the Budapest area. The multiplex is operated by Antenna Hungaria, which also runs DVB-T multiplexes, national TV and radio stations in Hungary.

### COVERAGE

Coverage is currently at 30% of the population in Budapest and the surrounding area, but this is expected to reach 94% by the end of 2014 as Antenna Hungaria rolls out more transmitters and services.

### SERVICES ON AIR

In this country there is one trial national multiplex on air. Antenna Hungaria operates one multiplex with test programs from 2009. One commercial program in addition to the seven test programs have been available since June 2011.

### TRIALS

The first DAB trial was launched in 1995 by Antenna Hungaria and Hungarian Radio. It ran until 2008 and covered almost 30% of the population centred on the Budapest area.

In the past, Antenna Hungaria has also carried out DMB trials and mixed multiplex trials enabling direct comparison of DAB, DAB+ and DMB.

### SPECTRUM

The transmitters operate in the 11D block.

### RECEIVER MARKET

DAB+ receivers are available in special audio visual and online stores. With a full commercial launch, the number and type of available receivers will increase and a marketing campaign will support the sector.

### REGULATION

The government strategy for the implementation of digital broadcasting (both radio and television) was approved in March 2007. The Act on the rules of broadcasting and digital switchover was published in June 2007. It gives the legal background on the introduction of digital radio services, but specifies that more detailed regulation will be needed on local digital radio and issues regarding switchover. Although the statutes say that the switch from analogue to digital should begin in 2014, this will only happen if, by then, 94% of the population has coverage and 75% own a digital radio receiver.

In line with the provisions of this Act, in March 2008 the National Communications Authority (NCAH) published an invitation to tender for a national multiplex. The winner was Antenna Hungaria which subsequently announced its decision to broadcast in DAB+.

## INDONESIA



 Population: 240 million

### CURRENT SITUATION

The Indonesian government has announced an official decree that Indonesia has chosen the Eureka-147 family, which includes DAB and DAB+ for digital radio and DMB for radio and mobile TV as the national standard for digital radio.

Indonesia is the largest country in south-east Asia with a population of around 240 million. DMB trials have been running in the capital, Jakarta, since 2006. There are currently four services on air. The trial is operated by the regulator and MNC, the largest media company in Indonesia.

## IRELAND



 Population: 4.04 million



Coverage: 56%



### CURRENT SITUATION

The Republic of Ireland currently enjoys around 56% population coverage of DAB broadcasts.

In Cork, Limerick and the North East (including Dublin) RTE, the public broadcaster, operates a multiplex broadcasting 11 audio services and an EPG data channel. Six of these stations are exclusive to DAB and all are RTE channels.

In 2010 a trial multiplex was launched by Total Broadcast Consultants (Total DAB) in the south east of Ireland around the Waterford area. It was originally licensed by Comreg for a year but has been extended. This multiplex broadcasts a mix of commercial stations in DAB and DAB+. 10 audio services are on air plus slideshow data.

The most recent trial launched on 1 July 2012 is operated by Digital Broadcasting Ltd. This trial is broadcasting four digital exclusive stations on DAB and DAB+ to Dublin City. The trial will expand nationally to major cities by Q1 2013.

### RECEIVER MARKET

DAB sets from a range of manufacturers are widely available in electrical retail stores. Ireland has seen a steady increase in the sales of DAB radios. Industry monitor GfK reported 40% volume growth in 2009 (vs. 2008) with 14% of all audio home systems including DAB. Official radio ratings company JNLR list DAB receiver ownership at 281,000.

### REGULATION

The Broadcasting Act 2009 makes provision for the licencing of sound broadcasting multiplexes to RTÉ and the commercial sector. RTÉ have secured and are operating a 10 year multiplex licence. The Broadcasting Act also makes provision for existing commercial broadcasters in multiplex broadcasting areas to migrate to DAB which includes an extension to their licence of up to six years.

### COVERAGE

Coverage is focused on the main metropolitan areas. Transmitters on Three Rock Mountain cover the capital Dublin and Clermont Cairn provides coverage to Dundalk and Drogheda. Woodcock Hill provides coverage to Limerick while the Spur Hill transmitter covers the city of Cork. The Three Rock Dublin transmitter outputs 10kW ERP with the remainder at 5kW ERP. One additional transmitter was illuminated at the Kippure site in County Wicklow in November 2009 running at 10kW ERP.

### SERVICES ON AIR

There is one regular national multiplex and one trial regional multiplex on air. One trial multiplex operated under a wireless trial licence came on air in April 2010 on channel 9B to perform tests from sites in Waterford City and a high site in the Blackstairs Mountains, providing coverage in Co. Wexford, Co. Carlow, Co. Kilkenny and East Co. Waterford. At present there are six DAB+ services and six standard DAB services live on this ensemble 4fm, 160kbit/s Stereo.

On 1 July 2012 an additional trial multiplex went live from three sites (Dublin, Cork and Limerick) operated by Digital Broadcasting Ltd.

### SPECTRUM

Under RCC-06 Ireland has been allotted two frequencies for national DAB multiplexes, 12A and 12C, with other allocations for regional/local multiplexes. The RTE Multiplex is operating on Block 12C (227.360 MHz). The Total Broadcast Multiplex is operating on Block 9B (204.64 MHz).

## ITALY



 Population: 60.6 million



Coverage: 60%



### CURRENT SITUATION

Regular services in Italy will start in 2012 in the Trentino region following a decree by AGCOM published in May 2012 assigning one block for national public radio and two blocks for national commercial (12A, 12B and 12C) and additional blocks for local services (12D, 10A, 10B 10C and 10D). Currently the Department of Communications is releasing the licenses to the private consortia for the Trentino area.

The standard adopted for digital radio receivers in Italy, developed by the Associazione per la Radiofonia Digitale in Italia (ARD) includes WorldDMB Profile 1, FM with RDS, Band III and L Band. The receiver certification [www.arditalia.it](http://www.arditalia.it) was launched in 2010 and has been developed in collaboration with broadcasters, network operators and receiver manufacturers. It allows for receivers certified in Italy to work everywhere in Europe.

### COVERAGE

Coverage of the trial broadcasts is estimated to be around 60% of the Italian population (i.e. people in reach of DAB/DMB transmissions for outdoor coverage).

### SERVICES ON AIR

There are three trial national multiplexes and six trial regional multiplexes on air.

### RECEIVER MARKET

Pure receivers, carrying ARD white label, are currently available on business to consumer websites and at main chain stores such as Fnac, Mondadori, Unieuro.

### SPECTRUM

In Italy channels 10 and 12 of band III, channel 13 and the L-band will be used for regular digital radio service.

### REGULATION

Late in 2009, the Council for the Authority of Communications approved regulation setting out steps for the future roll out of digital radio across Italy. Broadcasters can opt for DAB, DAB+ or DMB and the regulation allows for the migration of services from analogue to digital. It provides clear regulation on coverage, networks for national services, spectrum allocation for services, local coverage and rules on simulcasting and new content. There will be one national network for the public broadcaster, RAI, and two national networks for commercial radio. Space will be available for local radio stations and the network operator will be given additional capacity to provide data services.

The Italian Media Authority has approved official regulations for DAB/DAB+, bringing an experimental phase to an end and paving the way for the creation of a successful digital radio market. Licences and authorisations will be issued initially to existing FM licence holders, with remaining spectrum available for new entrants.

Each radio station has the right of using 72 CUs of a multiplex for its programs. The licence period for content providers is 12 years and for network operators 20 years.

## MALAYSIA



 Population: 24 million

### CURRENT SITUATION

In June 2010, Malaysia's regulator, the MCMC awarded three blocks of L-Band spectrum to Asia Media, a broadcasting, advertising and digital media company. Asia Media will use the spectrum to broadcast up to twelve T-DMB channels, including radio and data services, as well as mobile TV.

Malaysia's public broadcaster, RTM, launched a DAB+ trial in Kuala Lumpur in 2010. This multiplex carries 15 audio services, all of which are simulcasts of existing FM stations.

Commercial Radio Malaysia (a group of private broadcasters) are in discussions with the regulator about policy framework for the adoption of this digital radio platform and the start of a trial.

A DMB trial multiplex from Malaysia DMB is also on air broadcasting two TV channels and one audio station.

### SERVICES ON AIR

In this country there is one trial local multiplex on air with three simulcast data services and 15 DAB+ simulcast services.

### TRIALS

Malaysia ran a DMB trial between January and mid-March 2008. It was a technical trial, organised with support from the regulator: the Malaysian Communications and Multimedia Commission (MCMC). The trial involved one transmitter on the Kuala Lumpur Tower plus a filler transmitter at the MCMC head office in Cyberjaya. It was broadcast on Band III, Channel 11B and carried two radio services and two TV channels.

### REGULATION

The first edition of the Malaysian Communications and Multimedia Commission's Spectrum Plan was released on 1 January 2002 which identified Eureka 147 (DAB) as a Digital Sound Broadcasting System (DSB) and has allocated spectrum in its Spectrum Plan.

The Malaysian Communications and Multimedia Commission (MCMC) is the regulator for the converging communications

and multimedia industry. There are two main broadcast groups under MCMC, Digital Sound Broadcast (DSB) and Digital Terrestrial Television (DTT). Both DSB and DTT have completed their standard submission for DAB and DVB respectively and the standards are now under public scrutiny. DSB proposed DAB and DMB as the DSB standard to MCMC. Due to the current development of DAB+, DSB is proposing DAB+ to the MCMC as an attachment to the previous document.

## MALTA



 Population: 405,600

 Coverage: 100% 

### CURRENT SITUATION

Malta was the first European country to roll out a DAB+ network and services were on-air in October 2008. There are over 30 services on the two national multiplexes which include unique digital only stations, MOT, EPG and DLS applications.

The multiplexes are operated by DigiB Network and covers 100% of the population. By the middle of 2011, 16% of Maltese radio listeners were tuning in via DAB+. A second national mux was launched in 2011. The use of the digital radio platform has increased by 4.12% to 10.71% over the same period last year (January-March 2012).

Malta boasts a vibrant and growing DAB+ community of services. The regulator, the Malta Broadcasting Authority, has embraced digital radio and multi-media broadcasting. DigiB Network, which operates the national mux, hopes to increase available services to around 40 channels. Among the stations already on air is an international mix including channels in Italian, French and German, plus the BBC World Service and Voice of America. There is plenty of choice among local stations with genres such as opera, pop, classical, news, religion, sport and jazz.

### COVERAGE

Coverage has now reached 100% in Malta.

### SERVICES ON AIR

There are two regular national multiplexes on air.

### RECEIVER MARKET

A range of DAB+ radios from manufacturers such as Pure and Revo and DigiB Network are available in Malta. In Malta the DigiB Network launched the first DAB+ in-car receiver which is currently available in Malta or online.

### TRIALS

DigiB is committed to bringing increased listening choice to its digital audience and will continue to run test broadcasts of new services.

### REGULATION

In early 2006, the Malta Communications Authority awarded the country's four terrestrial DAB frequencies. The licence runs for eight years, subject to review after six. The Broadcasting Authority in 2008 approved the rebroadcasting of 36 foreign digital radio stations, the simulcasting of 12 nationwide analogue radio stations and of one community radio station.

## NETHERLANDS



 Population: 16 million

 Coverage: 70% 

### CURRENT SITUATION

NPO will extend its existing DAB-mux from 70% to 95% coverage in the coming years. In June 2012 NPO and KPN Broadcast, Dutch broadcast infrastructure operator, signed an agreement for the enhanced roll-out of a nationwide transmitter network for terrestrial digital radio. The agreement is effective 1 December 2012 and will end 1 September 2023.

A new DAB+ network will be built in three phases. The first

phase will be operational as of 1 December, 2012 and entails the replacement and densification of the current main broadcasting network. Depending on the success of T-DAB, by 1 September 2015, NPO will decide on the extension of the network with a further 14 transmitter sites. By September 2017, the network will be further extended with an additional 24 transmitter sites, enabling good indoor reception in virtually all of the Netherlands.

## COVERAGE

There is currently 70% population coverage with sites including Arnhem, Den Haag, East Amsterdam, Hilversum, Haarlem, Lelystad, Loon op Zand, Lopik, Mierlo, Rotterdam.

## TRIALS

MTVNL is currently testing DMB transmissions in The Hague area. A test of DAB+ in L-band by CallMax was conducted in the Eindhoven area in 2010.

## SERVICES ON AIR

There is one regular national multiplex and one trial regional multiplex on air.

The National Public Broadcaster, NPO, broadcasts nine audio stations and three data channels on a national multiplex operated by NOS. The services are all simulcasts of existing NPO stations, including pop, classical, oldies, current affairs and news. Coverage of this multiplex is about 70% of the population.

## REGULATION

The Dutch government issues DAB licences and determines the terms and conditions that apply to the use of DAB in the Netherlands. It was announced that Band III and L-band should be used for DAB based services. Broadcasters may choose to use DAB, DAB+ or DMB. The majority of interested parties are likely to choose DAB+.

National commercial stations have now obtained a multiplex license for a minimum of 16 DAB stations. Regional stations (both public and commercial) had until 10 June 2011 to inform the minister if they would use a commercial regional mux, or piggy back on an already issued mux (operated by MTVNL). Local radio is assigned L-band frequencies.

Licenses have been issued in Band III to Mobile TV Netherlands (MTVNL) and in L-band to CallMax which plans testing in the Eindhoven area. TV Mobile Netherlands BV owns the license for nationwide mobile TV, radio and data broadcast and currently has an extensive test network operating in the Haaglanden, Hilversum and the Eindhoven region. A full nationwide commercial launch will begin in 2012.

There is no FM switch off date, but FM licences will be extended for six years until the end of 2017. Formal policy is that ultimately one to two years before the end of the FM licences, there will be a full review regarding FM switch off.

## NEW ZEALAND



 Population: 4.2 million

## CURRENT SITUATION

New Zealand's government owned broadcast and telecoms company, Kordia, has been operating a DAB test service in Auckland and Wellington since October 2006 with two transmitters operating in Band III. The multiplex currently delivers a mix of DAB and DAB+ services, including nine audio channels, slideshow and EPG.

Originally, New Zealand's digital radio allocation was in the L-Band, but the majority of broadcasters prefer spectrum in Band III. Band III, however, is currently being used for terrestrial television, so it is unlikely that a full roll out of services will happen before 2012 by which time TV will be digital in New Zealand.

## COVERAGE

New Zealand continues the trial of DAB/DAB+ services across Auckland and central Wellington with two transmitters operating in Band III.

## SERVICES ON AIR

In this country there is one trial local multiplex on air.

Broadcasting and telecommunications service provider Kordia owns and operates the DAB transmission equipment and has worked with a wide range of public and private content providers. Content is currently broadcast in a mixture of DAB and DAB+ formats.

## RECEIVER MARKET

Feedback from consumers who have DAB/DAB+ receivers and a number of listeners from overseas who have brought their DAB radios with them when they emigrated, has been positive. There is a small range of DAB/DAB+ receivers in the market where an audio product like an audio system comes with this function built in. There are no retailers actively marketing DAB products as there is no commercial network.

## TRIALS

Kordia's test transmissions in Auckland and Wellington are ongoing using a mix of DAB and DAB+ broadcasts.

## SPECTRUM

Timing of a commercial network is dependent on spectrum availability, changes to government policy and broadcast sector agreement. VHF Band III spectrum becomes available from the end of 2013 as analogue TV services are switched off. The government has no current policy on assigning this spectrum to use by DAB services, however no other use for this spectrum has been identified. Analogue FM spectrum is congested in major cities, but there is no agreement between the broadcast sector parties as to how or when digital services should be introduced.

# NORWAY



 Population: 5 million



Coverage: 81%



## CURRENT SITUATION

The government has set a switch-off date for FM broadcasting in January 2017, provided certain conditions have been met:

1. Coverage: the public broadcaster NRK must achieve coverage of 99.5% by 2015 for the shut-down to take place in 2017. Commercial broadcasters on the national network #1 are required to reach 90% of the population.
2. Listening: 50% of the listeners must daily use a digital platform by 2015 for the date to remain January 2017. This does not specify market share of listening, contrary to the UK requirement, only reach. "Digital platform" also includes listening via internet and via the digital tv-network.

3. In-car solution: there must be reasonably priced, well-functioning in-car adaptors on the market by 2015 for the switch-over date to remain January 2017.

4. Added value for the listeners.

If the criteria are not met in 2015, the switchover date will be moved to 2019.

After 2017, small local stations may continue to broadcast on FM. The criteria for exactly which stations will have this opportunity will be specified by 2013. The report leaves it to the broadcasters to choose between DAB or DAB+ transmissions.

## COVERAGE

National and regional multiplexes cover about 80% of the population. 90% will be reached by late autumn 2013. Coverage will get to 99.5% by autumn 2014 (NRK only will exceed 90%) but as the plan for this stage is not yet completed no map is yet available. Adding 10% population coverage will also greatly improve road and general outdoor coverage. Signal strength within the original 80%-network will also be improved.

## SERVICES ON AIR

In total the DAB networks offer 20 channels with seven commercial and 13 public, with two additional ones available in central Oslo only (DAB+). All major FM radio channels in Norway are also available via DAB. One student radio station, Nova, also has a temporary licence to broadcast in the Oslo central area on DAB+.

## RECEIVER MARKET

DAB receivers are available in Norway from a range of manufacturers. 70% of Norway's top-20 selling car models now have DAB as optional or standard feature.



## TRIALS

Norway's three leading broadcasters, NRK, TV2 and MTG, jointly set up a new company, IDAG, to launch mobile TV services via DMB. MiniTV trials began in the Oslo area in 2009 with six live TV channels, on demand content and other related services. These trials, which reach 30% of the Norwegian population, will continue on air until 2013.

## REGULATION

Broadcasting in Norway is regulated according to the Broadcasting Act/Law. According to this Act, NRK has the right to broadcast nationally. Licences for the commercial broadcasters have been issued up to 2014.

## SPECTRUM

In Norway, there are two national multiplexes in use today, plus one local in the Oslo area. The national multiplexes are:

1. The NRK multiplex; this is divided into regions, please see our website for details on frequencies and borders.

2. The commercial multiplex: This uses 12D for the entire country.

There are also other multiplexes regulated for use in Norway, an additional commercial national mux, using 11A and 12A.

# POLAND



 Population: 38.5 million



Coverage: 5%



## CURRENT SITUATION

There is currently one trial running in Poland delivering a mix of DAB+ and DMB services. In the capital, Warsaw, Emitel operates a multiplex broadcasting 12 audio services using DAB+ and one mobile TV service using DMB. It reaches 2.5 million people and airs a combination of public and commercial stations. This trial multiplex launched in November 2009.

Polskie Radio together with four regional public radio stations: Radio Wroclaw, Radio Gdansk, Radio Poznan and Radio dla Ciebie had planned the launch of a DAB+ public multiplex to be broadcast in the four cities where the Euro 2012 football matches were played (Warsaw, Wroclaw, Gdansk and Poznan). Unfortunately due to lack of funding this project was cancelled.

## SERVICES ON AIR

In this country there is one trial local multiplex on air.

## RECEIVER MARKET

There are some online stores in Poland (Polish language version) with digital radio receivers available.

## TRIALS

In May 2009, public broadcaster Radio Wroclaw and infrastructure provider Emitel launched a DAB+ and DMB trial multiplex in Wroclaw, the biggest city in south west Poland with a population of around 640,000. Eight audio channels broadcasting both public and commercial stations in DAB+ and one mobile TV channel in DMB were broadcast in this region.

## REGULATION

There are two regulators for broadcasting media in Poland. The National Broadcasting Council manages and issues licences, while the Office of Electronic Communications governs the frequency spectrum. The two bodies work closely together.

## SPECTRUM

Polish frequency plans for TDAB will be started after the switch-off of analogue TV is completed on 31 July 2013.

## SOUTH AFRICA



 Population: 47.9 million



Coverage: 18%



### CURRENT SITUATION

MobileTV PTY has completed technical tests of DMB (Digital Multimedia Broadcasting) in Gauteng in August 2011. In July 2012 they applied for a commercial license and expect to get an answer by end 2012. They currently run two TV channels and one radio station on a test license which is valid until the end of 2012. If a license is granted they would then cover 15 million of the 45 million people in South Africa and expand coverage in parallel to sales of devices and uptake of services.

MobileTV PTY has teamed up with SABC, the public service broadcaster in South Africa. SABC reaches 76% of the population daily and is by far the biggest broadcaster and is partially financed by a TV license and partially by advertisements.

MobileTV PTY is in dialogue with the Department of Education to evaluate whether the technology can be used for educational purposes, such as to reach rural schools and colleges in a cost effective manner. The Department is primarily interested in the abilities of data transfer but an educational TV channel has not been ruled out.

SABC will offer their 18 radio channels. MobileTV PTY wishes to also offer distribution for private radio stations following the launch.

### REGULATION

The regulatory framework for digital radio in South Africa has yet to be established. The Digital Broadcasting Advisory Body (DBAB) established by the Minister of Communications completed its research into Digital Radio and Digital Terrestrial Television. The recommendations made to the Minister are available via the website of SADIBA, the Southern African Digital Broadcasting Association that actively supported the above processes, lobbied stakeholders and shared information on systems and standards implemented world-wide.

In 2005 the Minister of Communications established a Digital Broadcasting Migration Working Group, comprising representatives from the broadcasting industry, Independent Communications Authority of South Africa (ICASA), government, civil society, and organised labour and consumer groups. Its aim was to develop recommendations and contribute towards the development of a national strategy for migrating from analogue to digital broadcasting.

### COVERAGE

The signals for the transmissions by SABC will cover more than 50% of the population of 50 million by the end of the first year in operation. Coverage will thereafter be increased.

### SERVICES ON AIR

In this country there is one trial national multiplex on air.

SABC will provide their two main TV channels as well as a sport channel and a news channel, both made in cooperation with MobileTV PTY. A horse racing company will add one channel and the official South African lottery company will have one gambling channel. MobileTV PTY has secured a number of sports rights in order to add to those owned by SABC. The government of South Africa is looking at its media strategy, and has indicated a need to launch its own TV channel. This would be broadcast via MobileTV PTY's network.

### TRIALS

By late 1997, test transmissions started in both Band III and L-Band covering Johannesburg with a DAB signal. In November 1999 the demonstration audio services were replaced with seven live audio programme simulcasts of licensed FM and AM services currently on air in Gauteng. Included were commercial and public service broadcasters providing a mix of Talk Radio, Pop, Kwaito and Classical Music. Experimental PAD slide-show and dynamic label services were included on one audio service in May 2000. A two-transmitter Band III Single Frequency Network established in 2001 provided DAB coverage to approximately 18% of the South African population, these test transmissions ended in 2006.

## SOUTH KOREA



 Population: 59 million



Coverage: 80%



### CURRENT SITUATION

As the first country to commercially launch mobile TV, South Korea is the most successful DMB market in the world. More than 60 million DMB enabled devices have been sold, of which the most popular are mobile phones. This number is expected to rise even more with an increase in coverage; services already cover over 80% of the country. Hundreds of DMB devices are available in this market and usage of mobile TV increases year on year. Interactive services are also growing in popularity adding value to broadcasting services.

The Korean government has set up a digital audio project to recommend a digital audio broadcasting standard for Korea. Following ETRI's investigation of various digital radio platforms, a major decision is expected regarding the adoption of a digital radio technology for South Korean broadcasters.

Korea's latest innovation is an interactive mobile TV service, or Smart DMB, launched in May 2011 with six terrestrial-DMB operators (TDMB). With Smart DMB, mobile TV viewers are able to search the internet, receive EPG information updates, and even enjoy 'TV Screen Capture and Share Service' through SNS while watching television.

### COVERAGE

DMB services cover approximately 80% of the country (almost all residential areas).

### SERVICES ON AIR

In this country there are three regular national multiplexes on air.

There are six major broadcasters providing a variety of services to the South Korean market including mobile TV services. TPEG services are available giving the consumer traffic and travel information.

There are 14 video services, five audio services and eight data services on air, five of them public and 22 commercial.

### RECEIVER MARKET

There are a large number of retailers in Korea selling DMB devices, and there are over 100 different models by over 30 different manufacturers on the market. The most popular are DMB mobile phones and GPS devices.

### REGULATION

The Ministry of Communication Committee (KCC) governs broadcasting. The KCC is responsible for the development of broadcasting technology, spectrum management, and the licensing of stations. The KCC is also responsible for regulation of content and advertising, as well as authorising and recommending licences. Only one licence is awarded

to the multiplex operator, who can then either provide their own programmes or can lease capacity to other programme providers. The government divided the country into six regional broadcasting areas and 13 new nationwide broadcast licences have been granted for DMB services.

## SPAIN



 Population: 47.2 million



Coverage: 20%



### CURRENT SITUATION

Spain first began broadcasting terrestrial digital radio in April 1998 covering Madrid, Barcelona and Valencia. From 2002 to June 2011, 23 transmitters covered the 52% of the Spanish population through three national multiplexes (1 SFN and 2 MFN). Besides, in some Comunidades Autónomas, DAB services were launched on additional regional multiplexes.

The Council of Ministers reached an agreement on Digital Radio in June 2011 and approved a Digitalisation Plan for Terrestrial Broadcasting with the following measures:

- Reduction of DAB coverage from 52% to 20%, in order to facilitate a migration to DAB+
- Flexibility for the broadcasters, in order to allow for migration to DAB+
- Study of a possible reassignment of the multiplexes
- Promotional activities through the Spanish DAB Forum
- DAB+ trials
- A study of the necessary conditions to determine the date of a possible analogue switch off

The Spanish DAB Association (Asociación Foro de la Radio Digital), comprising both national private and public broadcasters, is responsible for DAB/DAB+ in Spain.

### SERVICES ON AIR

In this country there are three regular national multiplexes and two regular and one trial regional multiplexes on air. A total of 29 DAB audio services are on air.

### RECEIVER MARKET

There are a small number of electrical retailers selling DAB digital radios in Spain and this is expected to increase after technical trials and a roadmap for digital radio has been approved.

### REGULATION

National station licences are issued by the central government, while local and regional licences are the responsibility of the regional government. Licences are valid for 10 years with an automatic renewal for a further 10 years and operators must commit to the promotion of DAB Digital Radio. Advertising and sponsorship are permitted under the same rules which exist for analogue radio, and data is permitted on up to 20% of multiplex capacity.

## SWEDEN



 Population: 47.2 million



Coverage: 35%



### CURRENT SITUATION

DAB transmissions started in 1995 and today reach 35% of the population with seven services from public service broadcaster Swedish Radio (SR). The license under which SR operates is valid until 31 December 2013. In 2009, pilot transmissions of DAB+ started and the coverage quickly reached 22% of the population with 16 services from public service radio, commercial radio and community local radio.

In 2010, the Radio and TV Act came into effect which, for the first time, allowed commercial radio companies to apply for digital licenses. This paved the way for a radio industry united behind DAB+, something for which both public and commercial

services have been lobbying for some time.

Sweden is anticipating the launch of commercial digital radio. The license process for commercial digital radio has started and is expected to run until the end of 2012. The commercial digital radio licenses will be valid from 1 January 2013 until 1 January 2020.

As for the public service digital radio network, this awaits political decisions expected to come in 2013, which means they can be effective in the coming licensing period that starts on 1 January 2014.

## COVERAGE

The DAB network (mux 1) is operated by Teracom and covers major cities Stockholm, Gothenburg, Malmo and Alvsbyn on a single frequency 12B. Mux 1 currently has coverage of about 35% of the population.

The DAB+ network (mux 2) is operated by Teracom and covers major cities Stockholm, Uppsala and Gavle using a multi-frequency network. DAB+ coverage reaches 22% of the population with around 16 services from all the major broadcasters; Swedish Radio, MTG radio and SBS radio, as well as some local community radios.

## RECEIVER MARKET

Digital radio marketing activities in Sweden are today awaiting the regulatory process. This means that there are no official DAB/DAB+ sales records to date. The Swedish home-electronics organisation has however roughly estimated the number of households with DAB and/or DAB+ digital radio receivers to be 15-20,000. Volvo Cars, which have a 20% market share in Sweden, have stated that in 5% of the cases where a new Volvo is sold, the customer has requested the optional DAB/DAB+ tuner.

## SERVICES ON AIR

There is one regular national multiplex and one trial regional multiplex on air. Mux 1 carries seven programmes from public service broadcaster Swedish Radio. Most of them are web channels only broadcasted in DAB and not on FM. Mux 2 carries 16 programmes from all major broadcasters; Swedish Radio, MTG radio and SBS radio, as well as community radio channels and channels today only available on the Internet.

In addition to the audio services there are also a few data services available which include: SR Plus, a BVWS service which contains a condensed version of the SR web and SR EPG, a trial version for testing electronic programme guides and SR TPEG, which is a test service for future TPEG streams.

## TRIALS

In 2009, Teracom started pilot transmissions of DAB+ with the purpose of letting commercial, community and public service broadcasters trial the latest technology.

## REGULATION

**Public Radio:** the government proposes and the Parliament decides on the national Broadcasting Act in which license conditions and terms are set for the public service broadcaster, Swedish Radio. The license period is six years. The current license is valid until 31 December 2013 and it allows Swedish Radio to broadcast digital radio using DAB/DAB+, to four regions in Sweden (Stockholm, Gothenburg, Malmo and Norrbotten) with a maximum number of nine services (Stockholm and Norrbotten) or 10 (Gothenburg and Malmo). In 2011, the Government commissioned an inquiry to broadly review the license terms for radio and television public service under the new licensing period starting 2014. Issues to be reviewed include digital radio. The assignment must be reported no later than 1 September 2012. A bill is expected to be presented to parliament in 2013 for the new license terms to take effect from 1 January 2014.

**Commercial radio:** In 2012, the national authority for Radio and Television issued the application process for commercial digital radio licenses. They will be issued in 2012 with a possible start of transmissions in 1 January 2013 and will be valid until 2020. The commercial radio licenses will be decided by the Authority for Radio and TV in the form of a beauty contest starting 2012. It will be possible to seek licenses for both national and regional broadcasts. There will be no requirements on bit rate per service in the licenses but the maximum number of services per commercial multiplex will be 16.

The license holders will cooperate in technical matters including choice of network operator. Coverage requirements may be imposed to ensure that the digital broadcasts reach a certain proportion of the population within the broadcasting area. The public service radio licenses are awarded to Swedish Radio by the Government on a four year basis.

## SWITZERLAND



 Population: 7.5 million



Coverage: 99%



### CURRENT SITUATION

Switzerland first launched DAB digital radio services in 1999 when the public broadcaster, SRG SSR went on air. Marketing activities started in 2006.

Today there are five regional multiplexes covering the German, French and Italian speaking areas of the country, with a mix of public and commercial services.

There are a mix of standards broadcasting in Switzerland with multiplexes transmitting both DAB and DAB+ services. By the middle of October 2012 the standard DAB will be switched over to the standard DAB+. Two to three programs per region will remain on simulcast service DAB/DAB+ until 2015.

The original four multiplexes are run by the public broadcaster SRG SSR, the first commercial DAB+ multiplex which was launched on 13 October 2009 now broadcasts 18 commercial radio stations in the German-speaking part of Switzerland. There is a second commercial DAB+ multiplex planned to start in December 2012 in the German speaking part and a first commercial DAB+ multiplex in the French speaking part in 2013.

### COVERAGE

Digital radio on DAB or DAB+ in Switzerland reaches over 99% of the population (outdoor 99%, indoor over 90%).

### SERVICES ON AIR

There are five regular regional multiplexes on air with 31 programmes on DAB/DAB+ in the German-speaking part of Switzerland, 12 programmes on DAB/DAB+ in the French-speaking part of Switzerland, 12 programmes on DAB/DAB+ in the Italian-speaking part of Switzerland and 14 programmes on DAB+ in the Romansh-speaking part of Switzerland.

### RECEIVER MARKET

1,000,000 receivers had been sold by mid-2012. Currently, over one third of all households have access to a digital radio. All radio and TV retailers as well as the major chains now sell DAB+ receivers in Switzerland, and there is a huge choice of different receivers in the market. More than 50 brands and over 150 different models are available.

### TRIALS

In June 2012 Swiss importers of Audis, BMWs and Minis fitted with DAB+ car radios participated in digital radio tunnel tests. The trials, which serve to benefit Switzerland as well as its neighbours, tested the capacity of the latest digital radio gear as well as the capability to interrupt broadcasts with emergency travel information.

The Swiss public broadcaster SRG SSR carried out the experiments in collaboration with the Federal Office of Communications (OFCOM), the Federal Roads Office (FEDRO), SwissMediaCast and various manufacturers.

## THAILAND



 Population: 69.5 million

### CURRENT SITUATION

Thailand is considering DAB+ digital radio and in August 2012 nine delegates from the National Broadcasting and Telecommunications Commission of Thailand visited Australia in August 2012, to hold technical, policy and broadcaster meetings with Australian commercial and public service broadcasters, plus industry regulator the Australian

Communication and Media Authority (ACMA) and the Department of Broadband Communications and the Digital Economy (DBCDE). Hosted by Commercial Radio Australia (CRA), the delegation included senior representatives from legal, policy, licensing, engineering and technology areas.

## UNITED KINGDOM



 Population: 60.6 million



Coverage: 93%



### CURRENT SITUATION

Digital radio platform listening stands at 31.5% of radio listening hours (RAJAR Q2 2012) – up from 26.9% the year before. DAB maintains strong growth as the dominant digital platform representing 69% of all digital listening. DAB digital radio listening hours have reached 208 million, up 13% year on year. 21.8 million adults have access to a DAB digital radio (up 8% year on year) and according to GfK digital radio sales increased by +12% in the same quarter (Q2 2012). Digital listening in cars has grown and now shows a weekly reach of 5 million people, compared with 4 million in Q2 2011.

The Digital Economy Act 2010 gave the Secretary of State the flexibility to set a date for digital radio switchover. The Government-Industry Digital Radio Action Plan, published in July 2010, sets out a detailed timetable and tasks to build momentum and prepare for the switchover to digital radio. Switchover will be consumer-led and specific criteria will have to be met before Government decides when it will take place.

Before a date can be set, two criteria need to be met: 50% of listening must be to digital platforms and digital coverage for national services must be comparable to FM and local DAB reaches 90% of the population and major roads.

A Memorandum of Understanding signed by Government, the BBC and commercial operators in 2012 establishes an agreement in principle to fund the build-out of local DAB to FM equivalences over the next five years, with a commitment to consider further funding if necessary. It confirms also the Government's commitment to a decision on radio switchover in 2013.

### COVERAGE

The UK radio industry is taking action to improve coverage and is investing in new infrastructure. New transmitters are being built all the time and further expansion in coverage is being planned.

Today, digital radio already has wide coverage: 93% of the population is predicted to receive BBC national stations on digital, 85% can receive commercial national stations and around 66% of the population is predicted to receive local and regional stations on digital.

### SERVICES ON AIR

There are two regular national multiplexes, 10 regular regional multiplexes and 38 regular local multiplexes on air.

### RECEIVER MARKET

There are hundreds of digital radio products on the market in the UK being sold through a large number of high street and online retailers as well as most of the big electrical chains. The lowest cost receivers are sold at under GBP20, with well-known brands from GBP25.

## REGULATION

A Royal Charter and Agreement govern the public broadcaster; the BBC, with new stations subject to Government approval and the Office of Communications (Ofcom) regulate the commercial sector. Multiplex licences are currently awarded on a beauty contest formula rather than auctioned. Regulation controls such things as minimum bit-rate for music stations, mandatory 'must carry' obligations, maintenance of service providers' stations commitments and the amount of data content.

## SPECTRUM

In the United Kingdom media and communications regulator Ofcom advertise and provide the licenses for digital radio services in the United Kingdom, under the Broadcasting Acts of 1990 and 1996. Ofcom awards licenses for digital radio services differently depending on the type of service and the platform. Ofcom advertises the licences of new digital radio ensembles and are subject to an open competition to the highest bidder. Ensemble licence awards are awarded for twelve years. Licences are awarded on a national, regional and local basis.

Broadcasters also need to contact the ensemble or multiplex operator of a local or national DAB ensemble or digital terrestrial multiplex to broadcast within a region, subject to a fee payable to the ensemble operator.

## VIETNAM



 Population: 87.8 million

### CURRENT SITUATION

VTV has been broadcasting T-DMB services on air in Ho Chi Minh City since December 2010 with three transmitters covering the city area. T-DMB Total Solution has been developed by ETRI to provide a T-DMB pay service and includes CAS (Conditional Access System), MOS (Monitoring Operating System), CMS (Customer Management System), and BS (Billing System). VTV plans to draft a Memorandum of Understanding with ETRI and launch a T-DMB commercial service in Hanoi in 2012.

VTV Broadcom, a subsidiary of State-run Viet Nam Television (VTV), has applied to the Ministry of Information and Communications for a new national license to carry out T-DMB services nationwide after a two-year trial run in Ha Noi and Ho Chi Minh City. The services aim to cover 10 cities in Vietnam in

the next two years. VTV Broadcom said if it received permission, it would invest an initial VND50 billion (US\$2.4 million) providing a DMB service, also called mobi TV in Vietnam, in Ha Noi and Ho Chi Minh City. It said it expected to make a profit from the service within two years. VTV have partnered with XONE FM, a radio station with a target focus of young audiences, to provide digital radio content through T-DMB networks. They also plan to launch self-branded mobile phone receivers at a retail price of approximately \$100 per unit. VTV was granted a 15 year digital broadcasting license in 2011 to provide T-DMB services, in Vietnam and also plans to apply for a Telecom operator license in the near future in order to converge digital broadcasting and telecom services in Vietnam to provide more diverse services including data and traffic services.

### SERVICES ON AIR

VTV launched two TV channels and one DAB Radio service in Hanoi at the beginning of 2010 and by the end of 2010, VTV had increased their services to six TV channels and one Radio. There are currently three multiplexers in Hanoi.

### TRIALS

ETRI has performed a T-DMB Total Solution integration test with VTV, Broadtech SC from 1 October to 7 October 2008 in Hanoi.



# Join WorldDMB

WorldDMB is responsible for defining the digital radio standards DAB and DAB+ for digital radio and DMB for radio and mobile TV.

Our goal is to promote the standard around the world. We work with sound and data broadcasters, network providers, car, receiver, chip and equipment manufacturers, governments and official bodies to encourage international co-operation and a smooth, coordinated roll-out of services.

Through our network of more than 85 companies and organisations from across the industry and from over 25 countries, WorldDMB is in the best position to assist the transition from analogue to digital radio.



## MEMBER BENEFITS

### Global contact database

- commercial and public broadcasters
- chip, receiver and equipment manufacturers
- network operators
- regulatory bodies
- automotive manufacturers (OEMs, Tier 1s, Tier 2s)

### Market Intelligence

- country rollout plans
- coverage maps
- industry news
- Eureka! member newsletter

### Industry Events

- free registration to WorldDMB events
- speaking opportunities
- free or discounted exhibition opportunities
- discounted admission to industry events
- opportunity to distribute promotional material

### Support to Broadcasters

Advice on switching from analogue to digital radio

- regulation
- technical trials
- licensing
- marketing
- network build out
- best business case scenarios
- production of new digital radio content

### Business Development

- advertise products in WorldDMB publications and at industry events
- sponsorship opportunities
- targeted networking opportunities

### Technical Information and Support

- advice on regulatory and spectrum issues
- ETI files and guidance on trials and testing
- opportunity to shape the development of future applications
- automotive sector specific technical information

### WorldDMB Committees

- attendance at Committee meetings
- access to all Committee documents
- opportunity to join Task Forces and influence the industry

### Resources

- ETI Library
- GfK Statistics – quarterly/ market growth
- presentation and document library
- exclusive member document sharepoint



// At WorldDMB we join the community that is shaping the experience of digital radio for the next decades. We understand digitisation is not just a change of technology, it will deeply affect the way listeners use radio and what they expect from it. As a manufacturer in the automotive industry, maintaining a strong hold on radio is of vital interest to us and WorldDMB is our key to the technology. //

**Andreas Goršak, JVC Kenwood Corporation, Germany**  
(automotive audio manufacturer)

It's easy to join – just call +44 20 7010 0744 ...

*“ Broadcasters are facing unprecedented competition for their spectrum and their audiences. Working through WorldDMB with chip and receiver manufacturers, spectrum planners and broadcasters throughout the world ensures innovation and best practice is developed and shared. WorldDMB members can be assured that free to air radio has an exciting digital future. ”*

**Joan Warner, Commercial Radio Australia**

## WorldDMB Committees – Involving Members

Only WorldDMB members can join and attend WorldDMB Committee meetings and access all current and past committee documents. The committees provide opportunities for international networking, sharing information and skills and making valuable professional business contacts. They are core vehicles for issue-based interaction on technical, regulatory and spectrum issues. The committees are member-led and self-managed, each with its own programme of meetings, task forces and internal communications.

### WorldDMB Technical Committee

- oversees the standardisation of the DAB family of standards
- ensures that receiver equipment and broadcast technologies are compatible
- upgrades and advances the standard in line with technical developments
- looks to the future-proofing of receiver and broadcast equipment

### WorldDMB Regulatory and Spectrum Committee

- lobbies to ensure the availability of sufficient frequencies for digital radio
- identifies problems related to frequency availability and works to resolve them
- provides guidance on what works best in the regulatory framework



*“ The principle benefit of being a member of WorldDMB is networking, you meet people here who have done what you’re thinking of doing already, you want to learn from their experiences, avoid their mistakes and build on their successes. ”*

**Phil Laven, European Broadcasting Union, Switzerland**

## WorldDMB Member Representatives – Linking the Experts on Digital Radio

**Member Representatives** are the backbone of WorldDMB membership. They are **key staff** from **member** organisations involved in digital radio – country or regional managers, sales, technical, strategic, marketing, press- who are connected to the WorldDMB network. Member representatives receive regular industry updates, discounted or free registration to WorldDMB events and access to valuable members only information via the WorldDMB website.



### WorldDMB Asia Pacific Committee

- supports the implementation of digital radio in the Asia Pacific region
- advises on regulation, licensing, technical trials, network build out, marketing and production of new digital radio content
- offers information on business case scenarios, retailers & manufacturers, affordable receivers, marketing & PR strategies

## WorldDMB Events Facilitating exchange on best practice for rollout of digital radio



Every year WorldDMB organises over 20 events, conferences, tailored workshops and seminars bringing together industry stakeholders for information exchange and valuable networking opportunities. These include the WorldDMB General Assembly, our automotive workshops in Europe and Asia Pacific and several digital radio workshops that are a part of the industry’s major global events and exhibitions (IFA, GSMA, IBC, Telematics Munich, Broadcast Asia). Through these events WorldDMB offers members the opportunity to share best practise, sponsor and promote their products and services.

... or email [projectoffice@worlddab.org](mailto:projectoffice@worlddab.org) or visit [www.worlddab.org](http://www.worlddab.org)





† +44 (0) 20 7010 0740 • [projectoffice@worldcab.org](mailto:projectoffice@worldcab.org) [www.worldcab.org](http://www.worldcab.org)

**Registered office:**  
c/o EBU CH-1218 Grand-Saconnex GE Switzerland

