Eureka!
Reaching out to the WorldDMB Community

February 2013

WORLD DMB

Issue 19

Economics of broadcasting

via the DAB family of standards

The move to digital radio is greatly impacted on by the economics of broadcasting. When selecting which broadcasting system to upgrade to, decision makers will factor in issues such as the long term economic benefits of switching. They will review which broadcasting system is the most cost effective and efficient for network distribution and population coverage. They will also take into account other factors such as the freeing up of spectrum that could be auctioned off to generate additional revenue. The other vitally important factor is to ensure that consumers have access to affordable receivers that can be used for tuning into the new services put on air.

Today over 40 countries across Europe and Asia Pacific have seen the economic benefit of upgrading to the DAB family of standards. The work and research undertaken by each of these countries has enabled the international digital radio industry to understand why they have opted for these standards and why other countries continue to follow suit.

The broadcasting industry is fortunate as it has many case studies from which to choose and learn from. All markets are unique in terms of population, coverage and service requirements but having reference points when starting the process of upgrading from analogue to digital radio is of great help, especially to those countries looking to upgrade their own broadcasting systems.







A strong argument for switching to digital radio

Jørn Jensen, WorldDMB President

Buoyed by the German launch of DAB+ in late 2011 and the significant progress made in more established markets across Europe and Asia Pacific, 2012 was a year of significant progress for the DAB family of standards.

The introduction of cheaper silicon solutions and more receivers in a greater variety of shapes, colours and sizes has ensured that consumers are able to buy into the new services on air at an affordable price. The automotive industry is now also on board. Announcements have been made throughout 2012 by leading automotive brands that they will be line fitting the DAB family of standards across their ranges. January 2013 starts with BMW also line fitting DAB as standard in all their vehicles in the UK.

The automotive industry and receiver manufacturers are also taking more seriously the requirements of catering for the car park of vehicles that are solely analogue enabled. 2011 saw only a few in-car after market DAB solutions available but during 2012 this number has grown significantly. For WorldDMB, addressing the automotive industry and representing its member's requirements has been a top priority for the past few years and it will continue to be so. WorldDMB members will continue to be represented through attendance and active participation at international automotive events during 2013.

2012 was also a year in which emphasis was placed on the importance of demonstrating to the broadcasting industry the financial benefits of upgrading to the DAB family of standards. WorldDMB commissioned the Business Case Scenarios Report for this purpose. The report was presented at a number of key events throughout 2012. These were attended by broadcasters from Europe and Asia Pacific. The report provides evidence based research and case studies of tried and tested methods for generating additional revenue through the DAB family of standards.

The finale to 2012 for WorldDMB was the 18th WorldDMB General Assembly where we heard some very interesting presentations. We saw Germany demonstrating the significant steps that have been made one year on from launch with details on the progress of network rollout and coverage, new services on air and new revenue generation schemes for digital radio stations. We also heard about further strong financial incentives to upgrade to the DAB family of standards from more established markets on the economics of broadcasting such as from Norway and Australia. These statistics make for positive reading and provide an even stronger argument for upgrading to the DAB family of standards.

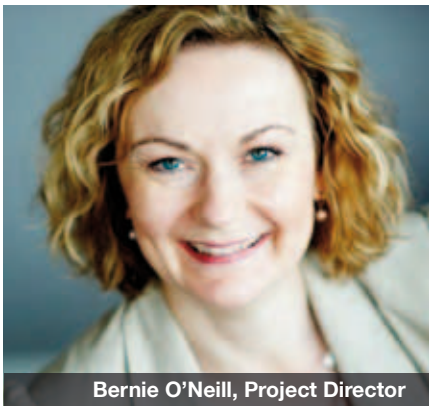
Jørn Jensen, *WorldDMB President*

WorldDMB Project Office Update

2012 was a busy year with WorldDMB members represented across Europe and Asia Pacific through attendance at events and WorldDMB led workshops. 2013 will see further tailored industry events for broadcasters and the automotive industry. The automotive industry will continue to remain a top priority for the Project Office. The focus on supporting the automotive industry will be highlighted in a series of tailored one-to-one automotive manufacturer information sessions on all aspects of going digital which will be held throughout this year.

WorldDMB will continue to focus on ensuring that members see value for money from their membership and urge members with questions about all aspects of digital radio rollout and implementation to get in touch with the Project Office. We encourage also members to actively participate in the different WorldDMB committees. Through joining one of the committees your organisation can have direct input on key decisions that affect the whole of the digital radio industry.

For more information about the different WorldDMB Committees and events visit the WorldDMB website www.worlddab.org


Bernie O'Neill, Project Director

Bernie O'Neill, *Project Director*

New WorldDMB Member

Magneti Marelli S.p.A. is an international Group committed to the design and production of hi-tech systems and components for the automotive sector. With more than 34,000 employees, 83 production units, 12 R&D centres and 26 application centres, the Group has a presence in 18 countries and supplies all the most major car makers in Europe, North and South America and Asia.

Magneti Marelli's mission, as a worldwide automotive parts supplier, is to make its key technologies available to its final customers at an affordable price by matching high quality and a competitive offer, technology and flexibility. Magneti Marelli is providing its know-how and wide-ranging expertise in electronics through a process of on-going innovation and environmental sustainability in order to develop intelligent systems for active and passive vehicle safety, on-board comfort and powertrain technologies.

www.magnetimarelli.com

Members' News

New DAB Radio Transmitter in Liberec, Czech Republic

The telecommunication company Teleko, s.r.o. launched a new DAB radio transmitter in Liberec, Jablonec and Nisou and surrounding areas on 19 December 2012. The transmitter 'Liberec – Proseč' broadcasts on channel LL with a radiated power of 1 kW and broadcasts a mix of 15 DAB and DAB+ programmes. 38% of the Czech population has terrestrial digital radio coverage. A signal is available in Prague, Příbram, Brno, most of Moravia-Silesia, Hradec Kralove, Liberec and parts of Central Bohemia. Users can tune in to Cesky rozhlas - ČRo 1, ČRo 2, ČRo 3, Leonardo, Wave, Česko, D-dur, private radio stations PROGLAS, GAMA RADIO and SeeJay Radio. Foreign programmes include informative programme Radio Vaticana, the hit commercial station RTL 102.5 and all-music programmes RTL Classic, RTL Groove and RTL Italian Style. The offer of new programmes and signal coverage will be increased in the coming months.

http://www.teleko.cz/

NXP Achieves Breakthrough in Audio Processing With Industry's First Single-Chip Multi-Tuner Car Radio IC

With the introduction of the SAF775x, NXP has set a new milestone in radio processing, by integrating two independent tuners onto a single die and creating a much more compact solution to significantly lower system cost. This integrated dual-tuner device offers more than twice the processing power of previous generations, enabling superior radio performance and better all-round reception quality. The IC also includes an 'open' Tensilica HiFi 2 Audio DSP for customers to program their own features, or to run those of third-party software vendors. This gives car radio manufacturers the choice and flexibility to differentiate their car infotainment solutions without resorting to expensive external ICs.

http://www.nxp.com/

Arqiva Invests in Four New Multiplexes

Arqiva is investing 6 million pounds to launch four new local digital radio multiplexes in England. Working with the BBC, Global Radio and Oxford's JACKfm, the project will launch in phases, beginning with Oxfordshire which was launched in December, followed by Hertfordshire, Bedfordshire, Buckinghamshire, Northamptonshire and Derby. "Arqiva's investment in the new digital radio multiplexes will deliver more choice and new radio services to over 1.5 million people and present smaller radio stations with the opportunity to get on air more quickly, pushing local content and local talent to the forefront," said Paul Eaton, director of digital radio at Arqiva. "Working with the BBC and Global Radio gives Arqiva the opportunity to stimulate the digital radio market by demonstrating our commitment to the platform, driving improvements in coverage and increasing listening."

http://www.arqiva.com/

Featured WorldDMB Member Benefit

Members' Area

In the closed Members' Area of the website WorldDMB members can access a range of useful resources.

The Members' Area is broken down into the following sections;

Committees

WorldDMB has the following Committees; Technical Committee (TC), Regulatory and Spectrum Committee (RSC) and Asia Pacific Committee (APC). Each of the Committees has a dedicated section providing Committee information and relevant documentation, in addition to Committee participants and related Task Forces.

WorldDMB Meetings

Here members may register for upcoming WorldDMB meetings for example, Technical Committee and Steering Board meetings or the WorldDMB General Assembly.

Document Search

Search through our online library of documents, from Committee reports to MPEG Liaison Statements. Members can search by Committee or document category.

General Assembly

Members can view contact details for each registered member via the Member's Area of the website. This feature makes it easy for members to freely network with one another.

Share Point

This is where members can share documents with all members, certain committees, or individuals. Example of documents shared include, 'Guidance documents on the proposed list of visual and data services in Germany', 'Full list of digital radio receivers available in Germany' and 'Requirements on service following from Sweden' and WorldDMB Standards and Specifications.

ETI Library

Access a Guidance document, ETI File Converter, ETI FAQs and over 50 ETI Files. The WorldDMB ETI Library is a user friendly online database containing country snapshots of DAB, DAB+ and DMB (ETI files from different markets), ETI files configured with multiplexing equipment from specific manufacturers as well as files which can be used for demonstration and testing purposes.

Steering Board

In this section Steering Board members may view Task Forces and active member participants and a list of upcoming meetings to register for. Steering Board members may also download WorldDMB Steering Board specific documents, for example meeting minutes and strategy documents.

GfK Statistics

Quarterly GfK Statistics examining market growth in 6 key countries includes data covering;

- Digital Radio Sales
- Digital Radio Penetration in Radio Market
- Management Summary (an overview explaining the sales figures for each market)
- Car Audio Digital Radio After Market sales figures

Updated Country Information

Access to the twice yearly Global Broadcasting Update before it is released to the general public.

IPR Cost

Here members can access information on the current DAB royalty structure.

For more information or to join WorldDMB contact admin@worlddab.org

DAB Patents Expiry

A manufacturer's viewpoint – Pure

There has been much talk and quite some anticipation of the imminent expiry of various patents related to the DAB family of products. The patents generally referred to as the Philips patents, are in fact the intellectual property of various companies within a pool which is administered by Philips. The patent pool provides a one-stop shop to get all the licenses needed by the patent owners for the DAB technology - such as the layer 2 audio decoder and the channel decoder including synchronisation, time and frequency deinterleaving.

With the last "original" DAB patent expiring at different times in different countries, the picture is quite complicated. For example, did you know that by mid-August 2012, the original patent had already expired in Australia, Denmark, the Netherlands and a few other countries? But the big news for manufacturers is the expiry on 18 January 2013 of the last patent in some of the largest potential DAB markets - France, Germany, Italy, Sweden, Switzerland and the UK.

So what will this mean for manufacturers and consumers?

Put simply, lower costs and potentially lower prices. The actual saving depends on the total number of DAB devices shipped by each manufacturer, with the normal range spreading from €2.50 for low-volume manufacturers, down to €1.50 for large manufacturers like ourselves. From 18 January, any shipments into countries where the patents have expired are no longer liable

for the royalty payment. With standard retail multipliers it could mean that the price of entry-level DAB radios could be reduced by around €5.

If you're reading this in the UK though, don't get overly excited. The planned UK Digital Tick mark mandates DAB+ support in all accredited products, and that adds US$0.98 back onto the cost price of many products. So one door opens, and another door closes…

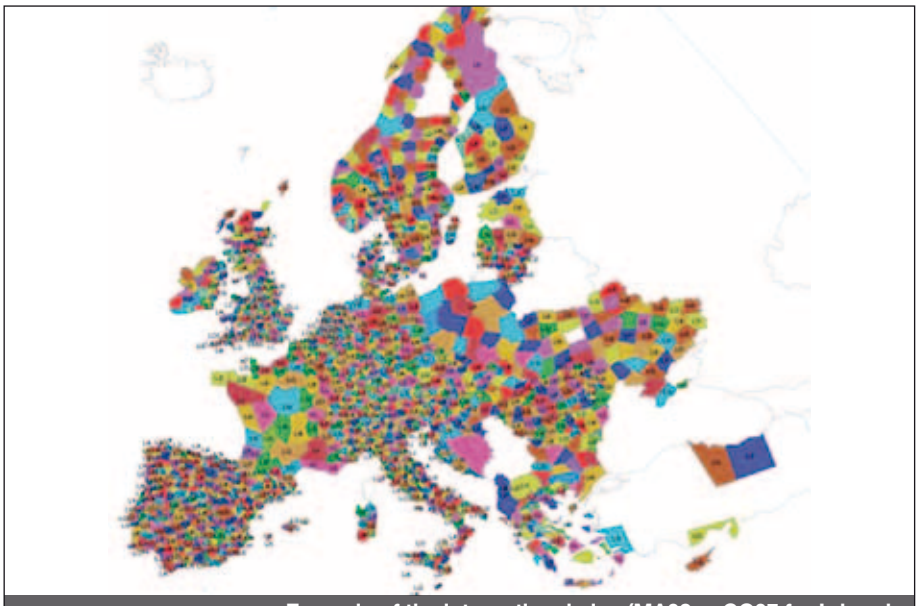
Colin Crawford
Director of Marketing, Pure

Coordinating Frequency

The basics of spectrum management

The basic task of radio spectrum regulation is to eliminate the possibilities of interference. Any use of spectrum has three dimensions; frequency, place and time. If more users are transmitting at the same frequency in the same place and at the same time their communication will be damaged or interrupted. An example would be WiFi or an overcrowded FM band.

We need to avoid interference, for this reason plans are prepared and radio channels are coordinated on both a national and international level. It could be solved on the principle of first come, first served, meaning the first applicant will receive the requested frequency and the second one should choose another one. This principle is workable only if there is a very large amount of spectrum available. Otherwise it could lead to a situation where some users have more spectrum resources than others. All countries should have equal rights to use spectrum and that



Example of the international plan (MA02revCO07 for L-band, picture from the draft ECC Report 188)

is why the International Telecommunication Union is involved in the coordination and planning of spectrum allocation.

The differences between international and national spectrum planning

International plans are in their nature unlikely to respect different terrains. Consequently coordination between neighboring countries is needed before transmitters can be launched. Often there is the possibility to arrange for more transmitters using frequencies which are not included in the international plan. National spectrum management is based on

international agreements and involves the spectrum users as they have all the relevant information about radio conditions in the localities.

International agreements and plans like the Stockholm 61 Agreement are expected to be a transparent to provide a predictable environment for businesses. Currently the situation is changing and the Geneva 2006 agreement which is still not fully implemented is broken by so called digital dividends. The agreement does not give a certainty about long term use of already planned and coordinated frequency.

The latest development in the EU shows that EU policy takes priority over any national plans. In document RSCOM-57 related to 800 MHz (p.3) the Commission wrote: 'In several cases, derogation requests are justified by the continued use of the 800 MHz band for broadcasting purposes, either analogue or digital, in particular in border areas. Member States should take appropriate measures to prevent the spill-over of broadcasting emissions from their territory into adjacent Member State.'

Is EU limiting international agreement?

WorldDMB members are invited to the Regulatory and Spectrum Committee meeting where issues such as these are discussed. Visit the WorldDMB website for more information: www.worlddab.org

Radim Soukenka
WorldDMB Regulatory and Spectrum Committee

Economics of DAB+ Broadcasting: Use it or lose it

A highly competitive media landscape means radio, like all other media, must fight hard to keep increasing its audience and attract advertising dollars. The Australian commercial radio industry has loyal listeners and a solid revenue base. The industry introduced DAB+ digital radio to secure its future and ensure it continued to innovate. DAB+ allows the industry to continue to compete when presented with the challenge of competition.

Reliance purely on analogue only limits radio's ability to innovate. Online streaming cannot replicate or replace the reach of large broadcast radio to large audiences simultaneously. Radio must be available across all platforms – AM, FM, DAB+, online, in mobiles, on tablets, in cars and any other new device that comes to market.

Australian radio broadcasters recognised they needed to be in the digital broadcast space. DAB+ digital radio is powerful, spectrum efficient and offers broadcasters worldwide the ability to give listeners greater interactivity, more programming, better sound, plus scrolling text and slide show to complement the audio.

In Australia we had the benefit of learning from a number of digital radio rollouts worldwide and the economics of investing in the radio industry's digital future was clear. The benefits long term outweigh any initial investment outlay.

Benefits for broadcasters include:

- Keeping analogue spectrum
- Shared costs and all of industry work together
- Free spectrum and broadcasters to hold the spectrum licence
- No new entrants until market established (Australia 6 years)
- High powered robust indoor and mobile DAB+ signal
- Ability to generate new content
- Joint marketing to promote DAB+ as an industry to benefit all

Firstly, from the outset it is important for all of the radio industry both public and private broadcasters to work together on policy and regulation. One industry voice is much more powerful than a splintered approach when talking to government and regulators.

When developing industry policy, broadcasters must insist on access to spectrum and transmission powers that allow effective broadcast across the whole market and ask for incentives. One of the incentives for Australian commercial broadcasters was that each existing commercial analogue station was given 128 kilobits free as a basic entitlement. If a radio broadcaster had two stations they were given 256 kilobits. The only restriction placed on it was you had to use it or lose it.

3 FM antennae, one tower. BA Tower Mount Coot-Tha, Brisbane
Photo credit: Steve Adler

Installation of new integrated DAB+ and DTV Panels

The roll out of DAB+ digital radio provides

new, greener transmission infrastructure. Analogue broadcasters own and operate their own infrastructure and transmit on individual frequencies, DAB+ digital radio technology can combine up to 32 radio services in a single ensemble using shared infrastructure, lower power and only one shared frequency.

A single transmit antenna can be used for around 18 DAB+ services instead of generally individual antennas and frequencies for each AM and FM service causing congestion on towers or requiring multiple tower sites.

DAB+ offers drastically reduced infrastructure costs compared to analogue – instead of needing a transmitter per service, a single DAB+ transmitter can be used for a whole ensemble of services saving the same proportion of costs for floor space rental, power, spares and maintenance costs.

DAB+ offers **approximately 10 times better energy consumption** for 15 the equivalent FM services over a year

An incentive offered to broadcasters in Australia to invest in DAB+ was to not allow any new digital licences for a period of six years. This is to protect the investment, while broadcasters are carrying two costs of broadcasting – analogue and digital and allows time to move listeners to digital radio and find new revenue to cover costs. Radio broadcasters were also given the first opportunity to own and operate the multiplexes. In Australia joint venture companies were set up in each state to own and operate the multiplex.

It is also important for broadcasters to understand how new content can drive uptake of digital radio and grow revenue streams. New sponsor driven DAB+ pop up or event stations can create new revenue.

> *A single transmit antenna can be used for around 18 DAB+ services*

And finally, the shared cost of a carefully planned industry marketing and awareness campaign is essential. This makes sure listeners know about digital radio and what benefits it offers them – fundamental to winning their support and buy-in.

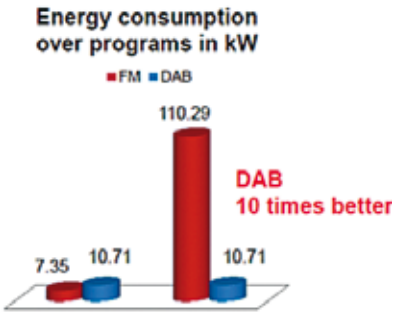
In Australia, the industry has been very pleased with the uptake of DAB+ digital after just three years and without an AM or FM switch off. The investment in digital radio has already proved to be prudent and the full financial benefits will be realised ultimately when analogue radio is no longer simulcast with DAB+.

Joan Warner
CEO, Commercial Radio Australia and Chair of the WorldDMB Asia Pacific Committee

Energy efficiency per program far better in DAB

Assumption for 15 Programs

	FM	DAB
Power	5 kW peak	3kW rms
Efficiency	68%	28%
Consumption	7,35 kW	10,71 kW
Programs	15	15
Price kWh	0,15 USD	0,15 USD
Needed Tx	15	1



Source: Harris Broadcast, 2012

Computer says DAB+… cheaper than FM, DRM

"I already have an FM network and I am not paying to build a new digital one".

Sound familiar? Well, it is still wrong. Some forget to take into account that it costs a lot of money to run an FM network. You may already have it, but running costs will remain considerable. An FM network costs more to run than a DAB+ network, a lot more if you want a selection of channels. FM needs one transmitter for every radio station while one DAB+ transmitter can broadcast up to 20 radio stations.

Let us look at figures from Norway, where FM will be switched off in January 2017. DAB/DAB+ already covers 84% of the population. By the end of 2014, the Norkring run DAB+ network will cover more than 99.5% of the population with almost 20 radio stations. Currently, only one radio station (NRK P1) covers the same amount of people.

FM now

To clarify, let us say that to transmit NRKs radio stations on FM costs 1,000 Euro annually (the real figure is many thousand times higher). This means one station (P1) can reach 99.5% of the population, while P2 reaches 99% and P3 reaches 95%. Two additional radio stations (NRK mP3 and NRK Always News) are available to 30% of the population.

FM upgrades needed if not phased out

FM would need a total upgrade if it were to be continued past 2016 and the price would then increase to 1,400 Euro annually from 2015. This is a cost that is usually forgotten.

DAB/DAB+ now

To transmit up to 20 radio stations to 99.5% of the population will cost 1,030 Euro annually. This may be 3% more than FM currently but there is the benefit of broadcasting up to 20 more stations and all those stations to everyone. Running costs are 36% lower than if staying on FM! More stations are more democratic and provides more choice, especially to those living in rural areas.

Double distribution

Distributing via both FM and DAB/DAB+ should also be accounted for. The FM costs will be as indicated above, although somewhat reduced as it will gradually be phased out during the last two years. This saves 1400 Euro annually as opposed to continuing with FM only. NRK currently has 15 radio stations, but will soon add to this.

To transmit DAB in addition to FM costs 250 Euro in 2012, 600 Euro in 2013 and 870 Euro in 2014 (before reaching 1,030 Euro per year from 2015). This additional cost of DAB for the five years of 2012, 2013, 2014, 2015 and 2016 adds up to 3,780 Euro. NRK will however save 1,400 Euro in the same period on FM being phased out. The real extra cost of double distribution for those five years is therefore 2,380 Euro.

As DAB (1030 Euro per year) is cheaper than an upgraded FM (1400 Euro per year), NRK will start paying less per year already in 2017,

DAB+ provides a modern network which can handle parallel services with many more stations for everyone

while the accumulated costs will be lower five and a half years later, in June 2022. The cost comparison can also be put in a different manner. Figures from Teracom and SRG SSR show that one radio station via DAB+ costs respectively 5 and 6 times less than via FM. There are many reasons to go digital, the chart sheet shows yet another. The computer says DAB+.

DAB+ provides a modern network which can handle parallel and additional services with many more stations for everyone, unlike FM. Both NRK and the listeners win.

DRM

When it comes to digital radio, we also hear a lot about DRM (Digital Radio Mondiale). It covers vast areas with few transmitters (i.e. India). It has also been used in Germany by Deutschlandradio, until it was switched off in late 2012. Why? It cost the broadcaster 12 million Euro per year to run the system, exactly the same costs as for DAB+. The difference? Their DRM capacity was limited to 40kbps, just about enough for one radio station. Their DAB+ offering provides 400kbps, 10 times as much for the same price. And while there are hundreds of receiver models capable of receiving DAB+, there are only a handful of DRM receivers.

DRM is a good option when you want to cover big areas with few radio stations or to reach remote areas. Simply put, DRM is 'the AM of digital radio' and should be seen in such a context.

Comparisons year by year. For this example's sake, a price of current FM distribution was set to 1,000 Euro per year. All other figures can be seen in relation to this. The costs are based on NRK figures.

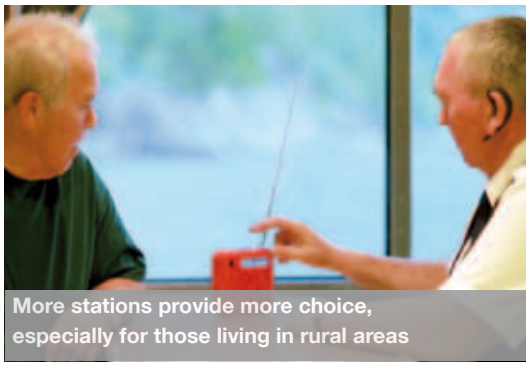
	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
1 FM with switch-off decided	1000	1000	1000	700	700	0	0	0	0	0	0	0	0	0	0
Accumulated	1000	2000	3000	3700	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400	4400
2 FM, if it were to be upgraded	1000	1000	1000	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400	1400
Accumulated	1000	2000	3000	4400	5800	7200	8600	10000	11400	12800	14200	15600	17000	18400	19800
3 DAB	250	600	870	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
Accumulated	250	850	1720	2750	3780	4810	5840	6870	7900	8930	9960	10990	12020	13050	14080
4 DAB, incl. double dist. 2012-16	1250	1600	1870	1730	1730	1030	1030	1030	1030	1030	1030	1030	1030	1030	1030
Accumulated	1250	2850	4720	6450	8180	9210	10240	11270	12300	13330	14360	15390	16420	17450	18480
Difference per year option 2 vs. 4	250	600	870	330	330	-370	-370	-370	-370	-370	-370	-370	-370	-370	-370
Accumulated difference	250	850	1720	2050	2380	2010	1640	1270	900	530	160	-210	-580	-950	-1320

Independent report on distribution networks

Just out is a related report by independent Dutch research institute TNO which compares various networks that may be used for digital radio and mobile television. Please get in touch with IDAG or the WorldDMB Project Office if the report is of interest.

WorldDMB members are entitled to a 35% discount on the report.

Gunnar Garfors
CEO of NMTV (Norwegian Mobile TV Corporation)
President of IDAG (International DMB Advancement Group)
Advisor on Distribution, NRK (Norwegian Broadcasting Corporation)



More stations provide more choice, especially for those living in rural areas

Digital Radio in Germany: a spotlight on Bavaria

Bavaria, a state in the south west of Germany, has a long history with the DAB standard of families. It was the first region to see a DAB station network in 1995 and paved the way in terms of DAB deployment in Germany. The state is the second most highly populated in Germany with 12.5 million potential listeners in the region. Bavaria is becoming a case study in how to rollout digital radio and make the transition from DAB to DAB+.

The success in Bavaria has been mainly due to the cooperation between public broadcaster, Bayerischer Rundfunk and some of the major commercial broadcasters in the region, such as Antenne Bayern and Absolut Radio to name a few. This broadcaster cooperation is also helped by a proactive regulator, the Bavarian regulator the Bayerische Landeszentrale für neue Medien (BLM). Throughout the implementation of

DAB in the region and as part of the transition to DAB+ the BLM offered help, support and incentives to broadcasters to ensure long term benefits to switching to digital radio.

The development in Bavaria would also not have been possible without Bayern Digital Radio (BDR). Founded in 1998 and based in Munich the company combines the know-how of Bayerischer Rundfunk, Media Broadcast (the national network operator), Bayerische Medien Technik GmbH and includes the participation of the Bavarian Regulatory Authority for Commercial Broadcasting. Core business of the company is the swift and efficient expansion of the digital radio network in Bavaria. In addition, the company undertakes the marketing of capacity units for digital radio and data services. Their consumer website, promotional events and marketing have ensured that consumers in the region were aware of digital radio from the start and continued to support the marketing of digital radio for the benefit of all broadcasters - not always an easy job with the changing landscape of digital radio in Germany.

Hybrid radio on the agenda at Mediantage

MEDIENTAGE MÜNCHEN

WorldDMB's long term collaboration with the Mediantage event continued at the end of 2012 with a WorldDMB hosted panel on Hybrid Radio in Munich, Germany.

The panel discussion was held on the 24 October was moderated by Patrick Hannon, Frontier Silicon and included high level speakers such as Dr. Willi Steul, Director of Deutschlandfunk, Germany and Ford Ennals, CEO of Digital Radio UK. Sebastian Kett, Consulting Engineer in the Radio Dept. of SWR Radio and Radio DNS provided a hybrid radio vision from the German association which is bringing together radio platforms. Ole Jørgen Torvmark, CEO of Digitalradio Norge AS provided a point of view from a developed market which has announced a switch off date. A hybrid radio vision from the community of European public broadcasters was provided by Mats Åkerlund, Chairman of the EBU New Radio Group and Head of Digital Strategy at Swedish Radio, European Broadcasting Union.

The panellists discussed some key themes such as the future of hybrid radio and the automotive industry

Automotive

Bavaria is at the heart of the German automotive industry and broadcasters in the region have been working closely with the car industry over the past couple of years to promote the benefits of digital radio to the automotive industry. Bavaria has one of the most developed digital radio networks and so makes a good region for in car testing. Regular discussions are held with BMW and Audi, who are both in the region and a press conference was held in Munich in 2010 to allow the German automotive industry to voice its support for digital radio.

Moving to DAB+

Unlike the rest of Germany where the launch of DAB+ is heralding a new era for digital radio Bavaria is having to adapt its DAB networks, deal with the issue of legacy receivers and, in some respects start from a new beginning as the choice on digital expands locally, regionally and now for the first time nationally. However, the Bavarians are attacking the challenge and using the knowledge gained from their experiences of DAB to make DAB+ a success. It was announced in mid-2012 that 200,000 listeners tune into digital radio (DAB+) on at least one digital radio channel per day on an average weekday in the region of Bavaria…this is only one year after the start of DAB+ digital radio in Germany and is an impressive start! Bavaria can also boast that its listeners have the greatest choice of digital services of all the Bundeslander in Germany, both from the public and commercial sector. Stations on-air can be viewed at the WorldDMB website under the German country information section. http://www.worlddab.org/country_information_/germany

Coverage and future plans

2013 looks like another good year for the Bavarian market with plans for new data services from the public broadcaster – BR already broadcasts additional programme related information such as news, weather, traffic and travel information, sports scores and airport information. The marketing initiatives in this region are also going ahead with the backing of campaigns now from the nation digital radio network.

18TH WorldDMB General Assembly – Celebrating a year of successes and individuals in Germany

The WorldDMB 2012 General Assembly took place in Leipzig, a media hub of Germany. The event was attended by over 100 international delegates from as far afield as China, Australia and America. The conference programme focused heavily on the key strategic areas for WorldDMB; Germany, the automotive industry, working with the retail industry and marketing to the consumer, second generation standards and digital radio in car, with emphasis on the developments made by the WorldDMB Technical Committee in the areas of service following and linking.

The General Assembly was also an opportunity to mark the achievements and contributions made by digital radio proponents. The 2012 WorldDMB Award for Outstanding Services to Digital Radio was awarded to Joan Warner, Chief Executive Officer of Commercial Radio Australia, Chairperson of the WorldDMB Asia Pacific Committee and WorldDMB Steering Board member.

In receiving this award Joan Warner was recognised as a change agent who has made a significant contribution to the development of digital radio broadcasting in the Asia-Pacific region, and globally. Acknowledged as a visionary by the digital radio industry, Joan has overseen the successful implementation of digital radio for commercial radio broadcasters across Australia. Today Australia has a thriving digital radio broadcasting industry with all the major commercial networks and stations airing a variety of stations on digital radio along with national public broadcasters ABC and SBS stations. Over a million DAB+ receivers have been sold and over with 1.3 million people tune into a DAB+ device each week.

The Award for Outstanding Services to Digital Radio 2012 was awarded to Joan Warner, CEO of CRA and Chairperson of the WorldDMB Asia Pacific Committee and WorldDMB Steering Board member

The text-book launch of digital radio in Australia three years ago has become a benchmark for best practice and the success of digital radio in Australia has provided impetus for other countries to pursue their own implementation of digital radio. Joan is at the forefront of encouraging and supporting these countries through hosting delegations, running workshops, technology demonstrations and speaking regularly at international and regional conferences.

DAB Rollout in Italy

After the release of the first licenses for regular DAB+ services in Italy during the summer, December saw the first transmitters go online in the Trentino region. This area has been selected by the Italian Authority as the first roll out area for regular digital radio services.

Club DAB Italia switched on two new transmitters which guarantee coverage of the cities of Trento (Paganella tx site) and Bolzano (Penegal tx site) and surrounding areas and roads. Two more transmitters to cover Rovereto and the rest of the A22 highway in the Trentino region will follow soon.

Club DAB Italia is also working on the extension of the test network in Alto Adige, Veneto and Lombardy which will soon guarantee continuous coverage from the Austrian border to Bologna along the A22 highway and to Turin along the A4 highway with an additional eight transmitters. Also the most important transmitter for Lombardy (Valcava) will be upgraded to extend coverage area and increase reception quality.

This rollout will guarantee excellent indoor reception in a number of urban areas, including the cities of Brixten, Meran, Bozen, Trento, Rovereto, Verona, Milan and Turin. It is engineered to guarantee continuous coverage of the major highways in northern Italy allowing listeners to stay tuned to their favourite DAB station during their car trips.

In the Trentino region digital radio services are also provided by Rai, the public service, and DBTAA, a consortium of local broadcasters, which broadcast also from the Paganella tx site. A second local multiplex is also expected to go on air over the next months, which means that around 40 digital radio programs will soon be available in this area, provided by four different multiplexes.

In the adjacent Alto Adige region digital radio services are already provided by an extensive DAB network operated by RAS - Rundfunk Anstalt Suedtirol which broadcasts public and private stations both in Band III and L Band.

It is expected that other areas for digital radio roll out will be announced by the Italian regulator soon, allowing for the extension of the national networks and the launch of new local multiplexes during the coming year.

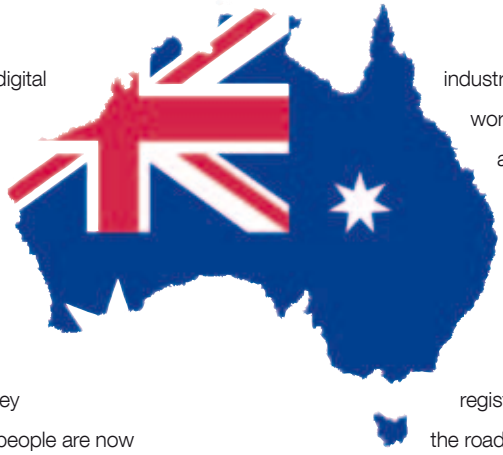
About Club DAB Italia: Club DAB Italia s.c.p.a. is a consortium of enterprises which is authorised to operate a national network provider. The Consortium is a holder of a broadcasting license for the pilot area Trentino and for a trial license for all the regions in Italy where the analogue TV switch-off process has been completed.

Hanns Wolter
Project Manager, Club DAB Italia and Chair of WorldDMB Regulatory and Spectrum Committee

Australian DAB+ Update

In 2013 Commercial Radio Australia (CRA) will begin serious dialogue with the Federal Government and the Federal Opposition about funding for the rollout of DAB+ in regional Australia. Over 60 percent of the Australian population has access to DAB+ in the five state capitals of Sydney, Brisbane, Adelaide, Perth and Melbourne, and through the low power trials in Canberra and Darwin it is clear that both the industry and listeners are very keen for regional radio to have access to DAB+ digital radio, like their metropolitan counterparts.

Official data shows the DAB+ technology tracking well ahead of forecasts. CRA's most recent release of data, at the end of the 3rd



quarter of 2012 revealed digital radio sales and listening figures recorded a significant rise. The total number of receivers sold since the 2009 launch is over 1 million (1004,966) and listening figures from Survey 8 show nearly 1.5 million people are now listening via a DAB+ device each week.

Dab+ in regional Australia

After a complex channel planning and cost modelling exercise with regional broadcasters, CRA has developed and submitted a Regional Rollout and Funding proposal for the Federal Government.

DAB+ digital radio will result in a significant upgrade to existing towers and site infrastructure in regional Australia.

The rollout of digital radio in regional Australia will involve building integrated digital radio multiplexes with new broadcast antennae and transmission equipment in each of the 98 regional licence areas, and smaller infill transmissions to ensure consistent reception across the population centres of regional licence areas

DAB+ in vehicles

With 34% of radio listening in the car, the industry continues to work closely with automotive suppliers to encourage them to line fit DAB+ solutions.

With 16 million registered vehicles on the road in Australia, the DAB+ aftermarket will be a focus in early 2013.

CRA is planning a DAB+ breakfast workshop for the automotive aftermarket installers in February 2013 to provide advice and information about coverage, receiver solutions and how to optimise reception through antenna placement. DAB+ is now available as standard in Australia in; Toyota Camry Atara SL, Aurion and Hybrid sedans, Hino trucks and Lexus GS. BMW, Audi, Land Rover and Mercedes offer DAB+ as an option. After market receivers available include: Pure Highway, Philips, Crystal, JVC, Kenwood, Sony and Directed Electronics' Orion

DAB+ trials in Canberra, Darwin and On Channel Repeater in Melbourne

The Australian Communications and Media Authority (ACMA) has extended the DAB+ scientific licences in Canberra and Darwin and for the On Channel Repeater in Melbourne. Trial activities include testing the tradeoff between capacity and signal robustness for different Forward Error Correction (FEC) code rates, under a range of geographical conditions.

Other activities include single frequency network SFN research which will have implications for regional roll out, and evaluation of DAB+ transmission performance under extreme weather conditions such as tropical storms and cyclones.

DAB+ in multimedia devices including mobile phone handsets

CRA continues to test adaptors and mobile handsets which offer DAB+ as these further develop the platform and offer listeners and advertisers a hybrid device which uses the push and power of free to air broadcast to provide information whilst supporting interactivity through the pull of the back channel with information able to be sourced on demand.

DAB+ in the Asia Pacific region

Broadcasters and regulators in the Asia Pacific are increasingly aware of, and interested in adopting, the DAB+ platform. CRA will continue to host study tours from interested broadcasters in the region and following the successful DAB+ Showcase in Jakarta in 2012, is planning a DAB+ Technology Showcase in Thailand in March 2013 on behalf of WorldDMB.

UK update on digital radio

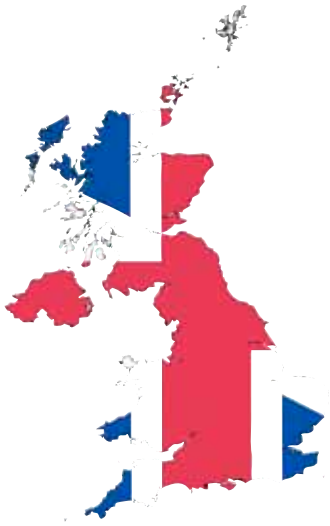
Digital radio platform listening stands at 31.3% of radio listening hours (RAJAR Q3 2012) – up 6% year on year.

Coverage

Today, digital radio already has wide coverage: 94% 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.

The Memorandum of Understanding on Local DAB funding established a two phase plan for the launch of 13 new local DAB multiplexes.

These new local multiplexes will bring 7.5 million people into local DAB coverage for the first time. The first phase involves the launch of 7 new local multiplexes by the end of 2013 while the second phase



- DAB maintains its strong growth as the dominant digital platform representing 20.4% of all radio listening hours, up from 18% in Q3 2011.
- On a weekly basis, DAB now reaches 15.3 million UK adults, up 10% from 13.9 million in Q3 2011. DAB listening hours have reached a record 209 million, up 8% year on year, representing 65.2% of all digital listening hours.
- 42% of the population now has a DAB digital radio set, up from 39.4% in Q3 2011. This equates to 22 million adults now having a DAB digital radio, up 7% year on year. Latest Q3 GfK digital radio sales data released today shows that digital radio sales were up 10.6% in the quarter to September 2012.
- 33.3% of new cars currently have DAB included as standard. (CAP/SMMT Q4 2012)

covers the later launch of 6 further new local multiplexes in accordance with the switchover implementation plan.

Services on Air

There are two regular national multiplexes (one BBC and one national commercial), 10 regular regional multiplexes and 38 regular local multiplexes on air.

Receiver Market

Latest Q3 GfK digital radio sales data released shows that digital radio sales were up 10.6% in the quarter to September 2012. 33.3% of new cars currently have DAB included as standard.

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.

A variety of digital radios can be viewed at http://www.getdigitalradio.com/digital-radios

Digital Radio and the Automotive Industry

WorldDMB calls for the automotive industry to include DAB digital radio as standard at the 4th European Automotive Event

The 4th WorldDMB European Automotive Event was hosted at the Federal Ministry for Transport, Construction and Urban Development on 14 November 2012 in Berlin.

Discussions centred on future trends in the connected car. Jørn Jensen, WorldDMB President,emphasised the message that in-car digital radio should be all about the consumer. He said 'Digital radio is now standardising in Europe and WorldDMB wants to see digital radio come as standard in cars to meet consumer demand. To do this the broadcast and automotive industries need to continue working together and WorldDMB provides a framework for this partnership'. An update on the work of the WorldDMB Technical Committee's on Service Following and Linking was given by Lindsay Cornell, Principal Systems Architect for the BBC's Future Media division and WorldDMB Technical Committee Chairman.

During a panel discussion 'Connecting platforms – hybrid and what does this mean' Ralf Hinz, Project Manager for radio and TV from Daimler AG highlighted the possibilities of adding new functionalities and opportunities for additional data from the internet for broadcast radio. Keynote speaker Thomas Kusche, Senior Editor at Westdeutscher Rundfunk (WDR) spoke of the proactive role that the ARD has taken with regards to the launch of digital radio in-car with an emphasis on the hybrid solution combined with DAB+.

Further updates on the European market was provided and examples of automotive and broadcaster collaborations were presented. An Australian perspective on the progress of digital radio was provided by Joan Warner, CEO of Commercial Radio Australia who called for automotive manufacturers to cater for consumer demand for digital radio in-car in Australia just as they were now doing for the European market.

All the presentations from this event are available in the WorldDMB website in the Member's Area.

WorldDMB at Telematics Update 2012; Digital Radio the Forgotten Connection

WorldDMB brought together high profile speakers from the broadcasting industry for a panel discussion 'Digital Radio the Forgotten Connection' at Telematics Update conference, Munich, Germany on 30 October 2012.

The panel, moderated by Laurence Harrison, Director of Technology and Marketing Development at Digital Radio UK, included Mark Friend, BBC Controller for Multiplatform and Interactive, Dr. Ralf Hinz, RD/RTF, System Functions and Features from Daimler AG, Helmut Bauer, Strategic Digital Radio Analyst and Adam Bowie, Head of Strategy and Planning at Absolute Radio. Speakers discussed the importance radio continues to play in everyday life and especially for drivers. A poll of the audience revealed that 80% continue to listen to the radio every day whilst driving.

The panel considered the recent announcement by the European Broadcasting Union of a "Euro-chip" ensuring the interoperability of all new digital radio receivers in European countries where broadcasters are using DAB, DAB+ or DMB, and/or analogue AM and FM and Ralf Hinz from Daimler expressed the wish for alignment of radio standards worldwide. Mark Friend, BBC, advised "Common standards are needed in broadcasting and in-car so that the focus and money can be spent on innovation and developing in-car media" he continued 'Broadcast and IP can work together and there is a vision being built on how this will be done'.

The panel called for greater co-operation between broadcasters and the automotive industry

The panel called for greater co-operation between broadcasters and the automotive industry and concluded that radio is still an important connection in the car with digital radio offering opportunities and innovative ways to connect with the driver.

Presentations from WorldDMB session are available on the Member's Area of the WorldDMB website.

The UK Drive to Digital Event

Tim Davie (acting Director General of the BBC) spoke at the Drive to Digital event that attracted over 300 delegates from the broadcasting and automotive industry

In 2012 we saw real momentum in the in-vehicle digital radio market. This is set to continue and in Q4 2013 we will see a UK Government decision and announcement on a digital radio switchover. Increased take-up in vehicles is vital and although 25 million people listen to digital radio each week and over 42% of homes have a digital radio, only 5% of cars have it.

The Digital Radio UK (DRUK) Drive 2 Digital conference in November 2012 attracted over 300 people from Government, industry and media from the UK and Europe. The UK Broadcast Minister Ed Vaizey confirmed government would make a public announcement on a switchover in 2013 and that industry needed to prepare. Minimum receiver specifications are now available and manufacturers should be starting to build to those requirements. We heard from speakers such as Ford, Peugeot/Citroen, Pure, BBC and the European Broadcast Union about progress and what to expect in 2013.

By Q3v 2012, 26% of new cars came with DAB digital radio fitted as standard (CAP/SMMT), up from 17% the previous year and only 5% in the same period in 2010. In 2012 Vauxhall, VW and BMW all announced they would be fitting DAB as standard across their ranges. More announcements will follow this year and Digital Radio UK predicts that the majority of new car registrations will have DAB as standard by the end of 2013.

There is now a much wider range of aftermarket adapters and we know that this will continue to grow in 2013. The first fully integrated adapters launched last year as

well as over 3,000 franchised vehicle dealers starting to offer aftermarket adapters to customers for the first time. A new training and accreditation has also been launched for installers.

Coverage improvements continue. National BBC DAB coverage is now 94% and the target is to reach 97% by the end of 2015. Last year also saw a landmark agreement between government, BBC and commercial radio to build out local DAB coverage. As part of this agreement, 13 local DAB multiplexes will be launched by the end of 2013.

As well as DAB, streaming radio over IP in a car is also set to grow, supported by new connected cars and devices, new radio apps such as Radioplayer and improved 4G services.

To drive consumer interest and take-up, the new industry advertising campaign "If you love radio, go digital" featuring digital radio evangelist D Love, launched in November 2012 on BBC TV, BBC radio and commercial radio and will run throughout 2013.

We are expecting another strong year for in-car digital radio in 2013 and we hope progress in the UK will help boost other international markets.

Laurence Harrison
Technology and Market Development Director, Digital Radio UK (DRUK)

German DAB TPEG situation

Traditionally Germany is a leading force in Traffic Information and for over 50 years broadcast has played a major role in this business. Beside spoken on-air services, Traffic Management Channel (TMC) plays a major role today with more than 24m receivers in operation. To improve quality of service, ARD has decided to launch a national TPEG service on digital radio. The focus of this service will be any safety related content as stipulated by the European Union. All ARD stations have invested in new TPEG based editorial systems to contribute to road safety and services will be broadcast without encryption and an additional fee – of course.

To create not just a national perspective for Public TPEG Services, ARD has founded the "BEST" consortium (Broadcasters European Solution for Travel Information). This comprises of the Austrian public broadcaster, ORF and the Swiss Public broadcaster SRG SSR. In cooperation with the Norwegian public broadcaster NRK these public service broadcasters together have pushed for the TPEG Public Service Media Profile within TISA, the global organisation for standardisation of TMC and TPEG. The spec will be finalised early 2013 and will help device makers design products for the European market.

Thomas Kusche, Senior Editor at WDR provided an update on digital radio and TPEG services in Germany market at the 4th WorldDMB Automotive Event in November 2012

But ARD is not just thinking about smart services for individual transport. A much wider part of ARD's audience makes use of public transport. Therefore the provision of information on all public transport will be a challenge for the next few years, too. The ARD network will start TPEG Services during 2013 which will no doubt make an important contribution to the success of digital radio in Germany.

Thomas Kusche
Senior Editor, Westdeutscher Rundfunk (WDR)

News Roundup

Digital radio gaining popularity in the Netherlands

December 2012, Netherlands

Around one million people in the Netherlands listen to the radio from their tablet, double the number reported for 2011, according to industry association RAB, based on data from Intomart GfK's Trends in Digital Media. More people are expected to listen to the radio digitally in the coming years, not only from the PC, laptop, smartphone or tablet but also in the car. Public and commercial radio stations plan to rollout services next year, via DAB+. *(Telecompaper)*

National digital radio coverage grows in Germany

December 2012, Germany

The national network for digital radio will be supplemented in 2013 with new stations. According to interviews with Dr. Chris Weck (Deutschlandradio) and Thomas Wächter (Media Broadcast) in the magazine INFOSAT, six new transmitters will extend the distribution range in the channel 5 C in the upcoming year. The locations are as follow: Geislingen, Würzburg, Wendelstein, Chemnitz, Minden and Gelnhausen. *(www.bayerndigitalradio.de)*

Gibraltar turns on DAB Multiplexes

December 2012, Gibraltar

Gibraltar Chief Minister, the Hon. Fabian Picardo MP, officially launched Gibraltar's digital broadcasting network at midday on Dec. 18, 2012. He also unveiled a plaque at the Upper Signal Station on the top of the Rock where the transmitters and mast are located. The new network comprises of two DAB radio multiplexes, each capable of carrying four radio programs, along with two digital television multiplexes. *(www.radiomagonline.com)*

New club aims to establish digital radio in Austria

November 2012, Austria

The Association of Electrical and Electronic industry and well-known radio operators have set a common goal and wish to establish digital radio in Austria. Consumers will benefit in addition to the existing successful programs, especially through new thematic channels such as sports, talk, news, info, classical, jazz or children's programs. *(Digital Radio Club Austria)*

Imagination Technologies' boss Hossein Yassaie features in the New Year Honours List

January 2013, United Kingdom

Sir Hossein Yassaie, the winner of the 2011 WorldDMB Award for Outstanding Services to Digital Radio is being knighted "for services to technology and innovation". WorldDMB would like to congratulate Sir Yassaie for this honour.

WorldDMB at Le Radio

Februay 2013, France

WorldDMB hosted a session during Le Radio 2013, Paris on Monday 11 February. Speakers from the UK, Germany, Norway and Switzerland provided an overview of the current status of digital radio in the European market to French broadcasters. Presentations from the session are available on the WorldDMB website to members. *(WorldDMB Press Release)*

Denmark: Digital radio switchover in 2019

October 2012, Denmark

The signing of a new media policy agreement by the Danish government for the period of 2012-2014 has seen a clear focus on DAB digital radio and its expansion with a proposed date for FM switchover in 2019. (WorldDMB Press Release)

French CSA releases list of new DAB broadcasters for Paris, Marseille, Nice

October 2012, France

The CSA released its selection of broadcasters for the launch of DAB in Paris, Marseille, and Nice. *(www.radiomagonline.com)*

Radio Industry Key Events 2013

Helping grow and inform the international broadcasting industry
WorldDMB Workshop at Le Radio! 2013
Paris, France, 11 February 2013

EBU Digital Radio Summit during Radio Week 2013
Geneva, Switzerland, 13 February 2013

DAB+ Technology Workshop and Transmission Demonstration
Bangkok, Thailand, 1-3 March 2013

WorldDMB Workshop on Digital Radio
Kuala Lumpur, 5 March 2013

ABU Digital Broadcasting Symposium
Kuala Lumpur, 5-8 March 2013

Radiodays Europe 2013
Berlin, Germany, 17-19 March 2013

WorldDMB Automotive Event
Munich, Germany, 16 May 2013

BroadcastAsia 2013
Singapore, 18-21 June 2013

IFA 2013
Berlin, Germany, 6-11 September 2013

IBC 2013
Amsterdam, Netherlands, 12-17 September 2013

19th WorldDMB General Assembly
Amsterdam, Netherlands, 23-24 October 2013