

Eureka!

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REACHING OUT TO THE WORLD DMB COMMUNITY

The future of radio

I frequently hear people say things like "The Internet is the future of radio". Although I have long advocated the use of the Internet for delivery of radio programmes, the economics of the Internet are often misunderstood.

Unfortunately, many people think that the Internet is "free" – thus ignoring the reality that "somebody, somewhere" is paying for the infrastructure; the physical networks, routers and server farms. Much of that cost is currently borne by Internet Service Providers (ISPs) who certainly do not subscribe to the idea that "bandwidth is free". Indeed, ISPs in the UK have complained about the success of the BBC's iPlayer (which generates about 10% of UK Internet traffic) and have argued that the BBC should pay for this use of bandwidth.

Furthermore, broadcasters have learnt that it is expensive to buy and operate the servers needed to provide audio and video services – and that this cost increases in proportion to the number of simultaneous users. This does not matter too much if you have an audience of a few hundred, but it becomes crucially important if you have millions of listeners! Remember that the transmission costs for traditional broadcasting are independent of the number of listeners. Even if the ISPs are unable to persuade broadcasters to pay for their use of bandwidth, the ISPs need a viable business model in which "somebody,



somebody" pays for their continuing investments in infrastructure. Despite appearances, there is no such thing as a "free ride".

There is no doubt that the Internet can provide attractive features that cannot be matched by traditional radio services – for example, many broadcasters now offer audio-on-demand services via the Internet, such as the BBC's iPlayer which allows the UK public to access almost all of its radio and TV programmes broadcast during the previous seven days.

Given the outstanding success of the BBC's iPlayer, it is surprising to learn from RAJAR's latest audience figures (www.rajar.co.uk) that "radio via the Internet" (in all its forms: live streaming; on-demand services and podcasting) accounts for only 2.2% of radio listening in the UK. Comparable listening figures are 3.6% for

digital TV and 13.1% for DAB. It is important to recognise that only 33% of UK homes have one or more DAB radios, whereas 60% of homes have broadband and 90% of homes have digital TV. Taking these differences in penetration into account shows that DAB listening in the UK is 10 times more popular than listening via digital TV or via the Internet. The dominance of DAB is certain to continue as more and more people buy DAB radios (RAJAR's figures show a 22% increase in DAB ownership in the UK in the last 12 months).

In any event, much radio listening is "mobile" (e.g. in cars, buses or trains). Of course, mobile network operators would be happy to deliver broadband services to your mobile phone, but it would be foolish to expect them to provide audio services free of charge – unlike your car radio!

My message is very simple: the Internet allows broadcasters to offer new and attractive services, but it will NOT replace traditional broadcasting.

Philip Laven

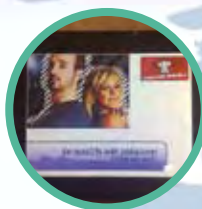
Vice-President, WorldDMB Forum

If you would like further details of WorldDMB membership, including our special academic and small businesses membership schemes, please contact Rosemary Smith at the project office:
caroline.brindle@worlddab.org

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WORLD
DAB

Letter from the Project Director

I joined WorldDMB 86 days ago and life hasn't been the same since! In a very short time I've had to not only start learning about the digital radio market, the technologies (with their multitude of acronyms and differences), members names, key committees but also I've travelled widely attending key events, meeting potential new members, supporting others and promoting the work that WorldDMB does. Needless to say that I have also acquired my first digital radio and have used my language skills far more than I ever did during the five years I worked for the Chartered Institute of Linguists.

Being a fluent Spanish and French speaker should allow for stronger relationships developed between WorldDMB and some of our European neighbours as well as Mexico, Chile, Colombia and Venezuela.

During this short period I've had the opportunity to meet some interesting and extremely knowledgeable people, become aware of a variety of challenges ahead, facing not only WorldDMB but the whole Digital Radio industry, and have been able to get involved in key projects.

The financial downturn currently experienced across the world will continue to be a concerning factor for WorldDMB and its members as many organisations may look at the cost of all membership bodies and the fees required to join these groups. The challenge is to continue developing membership benefits such as the WorldDMB ETI library launching at IBC, Amsterdam, September 2009 and a more user-friendly member section on our website. Networking opportunities, information sharing and technical developments will continue at the core of WorldDMB's offering to its members.

Benefiting from a fresh pair of eyes, WorldDMB needs to streamline some of its processes and strengthen communication lines; both aspects are currently being looked at.

Asia Pacific continues to be of high importance with particular focus on Australia, China, Indonesia, Korea and Malaysia. WorldDMB will continue its collaborative work with the ABU in order to increase the awareness and adoption of Eureka 147 technologies in the region.



Having recently visited Australia for the launch of DAB+, my impressions can be summarised by a single message: a great deal can be achieved working together! Having clear goals with buy-in from all parties involved and a solid marketing campaign have so far showed great results. WorldDMB will encourage all its members to adopt a similar collaborative attitude.

WorldDMB also continues to assist in the consolidation of the 'Planet DAB' as the main format for digital radio in Europe, supporting those countries yet undecided and making sure the correct information is available in a timely manner.

Areas of particular interest to WorldDMB are convergence, mobile telephones, and the work with the car industry will continue.

Should you have a comment, an idea or would just like to share your thoughts on a given topic, please do not hesitate to contact me. I'm looking forward to your input and to working together.

By Letty Zambrano
WorldDMB Project Office Director

DAB – The right road for traffic information

In his recent Digital Britain report, Lord Carter set out a five-point plan to encourage the adoption of DAB.

Point 4 may well seem a little innocuous and misplaced; it refers to the promotion of more sophisticated traffic information.

Many people reading this section of the report may have been puzzled; after all – what has DAB (and radio in general) got to do with traffic information?

It turns out that radio has huge amount to do with sophisticated traffic information.

Not only is it the leading source for drivers to consume journey-relevant information through audio broadcasts on their favourite radio stations – but drivers have been receiving traffic information through a data channel on FM radio for many years. This has been used by their satellite navigation systems to highlight areas of traffic congestion and is called RDS-TMC.

The problem with RDS-TMC is that it is very limited in several ways; it only supports incident information (e.g. a lorry has overturned), the manner in which the navigation system can geographically locate incidents is outdated and ultimately it suffers from very limited

bandwidth (31 bits per second).

Transmitting traffic information over DAB (encoded in a format called TPEG) really is the future.

You can transmit live flow and prediction information (how fast is traffic flowing on a certain section of road and what are the likely flow conditions when I drive through there in half-an-hour). You can geo-locate anything on the road-network down to tens-of-metres (similar to GPS). And the bandwidth? The bandwidth available is several orders of magnitude greater than that on RDS-TMC.

TPEG over DAB not only overcomes the limitations of RDS-TMC but actually enables the broadcast of a wide range of traffic and travel related services such as dynamic parking information, updated fuel prices, journey-related weather information and dynamic speed information (to support such schemes as the UK's Managed Motorways where the hard-shoulder can be used at times with the speed-limit on the entire section of motorway adjusted).



What makes Lord Carter's support for traffic information over DAB so important is that perhaps for the first time we have a very strong and easily-articulated argument for the value digital radio delivers over analog. Whereas some consumers struggle with the common value-propositions for audio over digital (higher quality, more stations, visual and interactive radio etc), sophisticated traffic and travel information delivered over digital radio is faster than our current technology and will provide much better information allowing us all to enjoy driving better.

By David Levine
ITIS Holdings Ltd

Norway looking forward to a jump in car-related sales of DAB radios

This summer, a review of all major car brands present in Norway showed that more than 50% of the most popular car models can now be fitted with a DAB radio. Out of the 30 models sold in 2008, 16 had DAB as either standard or as an option – and the number of car models with DAB availability is steadily increasing. The car brands with the strongest contribution to this trend are VW, Audi, BMW, Toyota, Volvo and Ford.

Also Jaguar, Mercedes and Opel are now preparing for a digital radio future. For Norwegian consumers this is good news – the hills and valleys found almost everywhere in Norway are a challenge to analogue radio

reception. In the western regions of Norway, with fjords and mountains dominating the landscape, dealers are now recommending DAB radios for their reception stability. The road network has not yet been fully covered with digital radio signals, but for most Norwegians, listening to digital radio is possible during their day-to-day car journeys. Also with the recent

increase in availability of in-car DAB radios, enthusiasm is building among consumers and car dealers, 2009 thus seems to be a breakthrough year for the sales of in-car DAB radios in Norway.

By Jarle Ruud
NRK, Norway



Enabling the next wave of radio: DAB, WiFi and Multimedia



The next generation of product needs to not only take radio to another level of hardware technology but also be so easy to use that anyone can pick it up and immediately access the content that they want. It's when software and hardware come together to deliver a superior user experience that the next generation of radio will take off, delivering not only station driven content but a wealth of social network and application content too, making the radio far more central to the user's world. Imagination's technologies have already played a pivotal role in driving the DAB digital radio industry. The ENSIGMA communications and META SoC (System on Chip) processors are at the heart of more than 80% of all DAB digital radios shipping today, many using Frontier Silicon's range of advanced SoC solutions. Imagination Technologies is also the parent of PURE, the leading supplier of DAB digital radios in the UK and increasingly across Europe, Australia and other countries world-wide.

Recently, Imagination has made a series of announcements related to technologies

that will enable the next generation of DAB digital radios to deliver even more exciting and engaging features. The ENSIGMA UCCP Series3 IP cores deliver WiFi, digital TV and mobile TV standards in addition to all forms of DAB, enabling new price/feature set points to be established for radios. They combine the ease of use and high quality service offered by DAB with the flexibility and application power of an integrated WiFi back channel – a key enabler for a diverse range of applications from e-commerce to user-specific radio feature downloads. It is therefore becoming easier and more cost-effective to make more feature-rich DAB digital radios, as well as integrate DAB into other products such as WiFi media streamers, HDTVs, Set-Top Boxes and personal navigation devices. The META SoC processor technology has been significantly upgraded too, with the latest generation delivering new levels of performance for both general purpose processing and heavy duty DSP for audio and other multimedia functions. For example, the META family includes a

comprehensive audio framework, providing fully optimised support for all the popular audio codecs including eAAC+, HE-AAC v2, aacPlus v2, WMA, MP2/Musicam, MP3, Ogg Vorbis and more, as well as post-processing audio effects such as equalisation and Dolby Prologic and Dolby 5.1 surround. On the multimedia side, POWERVR VXD video decoders support extremely high speed, low power JPEG decode as well as multi-standard, multi-stream video decode up to HD resolutions, enabling not only very low power slide shows, but very fast browsing of slide show histories and caches. For user interfaces, expect more radios to use POWERVR SGX graphics acceleration to deliver the coolest and easiest to use experiences, as well as enabling a wide range of graphically rich widgets and other applications to complement the DAB audio. So, keep watching as technology companies continue to be at the forefront of driving innovation in DAB!

By David Harold
Imagination Technologies, UK

10 questions we ask everyone...

Name: Larissa Anna Erismann

Age: 34

Job Title: Head of Marketing and Music Programmes

Company: Swiss Satellite Radio (SRG SSR idée suisse)

Office Location: Berne, Switzerland (soon to be Basel, Switzerland)

Responsibilities: Head of both the marketing and the music programming team as well as responsible for the website concept and content of Radio Swiss Classic, Radio Swiss Jazz and Radio Swiss Pop, three Swiss music-only stations by the Swiss public broadcaster SRG.

Best part of your job: Most of all that I am never bored for a second. My daily work may easily mean drawing up the concept for a new web platform to satisfy a specific need of our listeners while calming the nerves of three marketing girls on their way to the first big festival of the season and explaining

our programme concept yet again both to an especially tiresome listener on the phone and to the music programmer who first took the call, while in between trying to concentrate on how to completely re-organise our unit to keep its efficiency with a 30% cut in staff... I love it when I don't hate it.

First thing you do in the morning when you get in: Currently (due to the fact that my 'office' for the first hour of the morning is the intercity train from Basel to Berne): juggling a cup of coffee, a yoghurt, a laptop, a huge bag and a phone while locating a seat on a train full of holiday travellers on their way to Milan.

What do you have for lunch: Vinegar. Oh, and some salad, eggs and rolls to go with it, of course. That is, if I can resist the urge to have Sushi for the umpteenth time that week.

First job in radio: Receptionist and switchboard operator for SRG SSR idée suisse while I was a student.



Question you have been asked most this week: Why is your team being moved to Basel? (One of the few questions I can't seem to find a straight and sensible answer to)

Biggest achievement to date: Keeping the entrepreneurial spirit of our small dynamic team alive in a hugely static and incredibly bureaucratic enterprise.

Next big thing in digital radio: The launch of the first Swiss commercial DAB+ platform in autumn, of course!

What 3 things would you save from a fire: Hmmm... quite apart from the fact that my partner would probably be saving me from the fire, I don't seem to possess three worldly things worth saving. What a relief.

Getting it right before your audiences tells you it's wrong

Tests and trials are the staple of the broadcasting world. In an industry where consumers have an emotional attachment to their radio services, when it comes to digital, it's crucial to get it right - before it goes live.

Whether it's broadcasters or a call from the government to look into digital technologies, tests and trials play a key role in influencing decision makers by showing the capabilities of the technology.

At the current time with spectrum becoming scarce in many countries 'going digital' is seen as the only way to secure the future of radio. The benefits of digital over FM are also important as commercial broadcasters look to compete for advertising revenue in an increasingly multi-platform world.

At the moment a number of countries around the world are testing different parts of the Eureka 147 family of standards, whether this is DAB, DAB+, DMB digital radio or DMB video. The latest DAB, DAB+, DMB trials launched in Europe in 2009 include:

Czech Republic



In March 2009 TELEKO acquired the registration to broadcast DAB+ commercial services in both Band III and L-Band and has since started a number of trials in the Czech Republic in L-Band. There are currently DAB+ trials on-air in Brno and Klinovec, previous trials have been held in Prague, Pribram and Plzen, all with content provided by the public broadcaster Czech Radio. The goal of the latest trial is to measure the use of L-Band for wide area coverage.

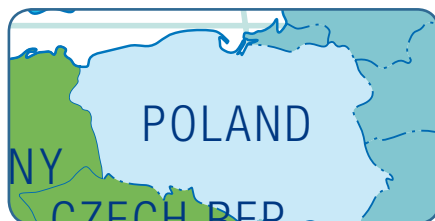
Hungary



Last year Antenna Hungária chose DAB+ for its terrestrial radio standard and the

public broadcaster began a DAB+ trial on 23 January 2009. There are currently three transmitters covering 20% of the population in Budapest. The trial offers a variety of services and the country is currently waiting for changes to the regulation to allow commercialisation to go forward.

Poland



There are currently a number of tests and trials of DAB+ and DMB being carried out in Poland with support from the National Broadcasting Council and the Office of Electronic Communications (OEC). A trial is being carried out by Radio Wroclaw near the city of the same name covering 35-40km. This trial aims to gather support for DAB+ in Poland, and to this end as many services as possible are being added to the trial as well as starting discussions on the how and when digital radio will roll out. It is hoped a further DMB trial will also go on-air shortly. The OEC recently announced the development of a frequency plan for digital radio in Band III and L-Band stakeholders may submit proposals before 11 September 2009.

Norway



Started on the 15 May 2009 'Mini TV' is more than just a trial of DMB mobile TV - it is the launch of a new type of mobile TV project. This jointly run project between the main broadcasters (NRK, TV2, MTG) which has six free to air TV channels, 15 radio channels and additional services on-air in the greater Oslo area, aims to show

the potential of mobile TV and explore the business opportunities offered by this open standard. The project is licensed until 2011 though it is hoped a commercial launch will follow. Norway already has a DAB network and a partnership with the telecoms operator Network Norway will make it easier to add more additional services including interactivity.

Sweden



Stockholm is the first city to take part in the DAB+ trial currently on-air in Sweden. This is a joint venture between broadcasters, network operators, suppliers, retailers and receiver manufacturers. The goal of this pilot is to evaluate commercial and technical aspects of rolling out a digital terrestrial radio network. It will include consumer focus groups and surveys which will test the format and the benefits offered. There has been increased interest from the Swedish radio industry for digital radio in general and DAB+ in particular. Several reports commissioned by the Swedish Government during 2009 state that DAB+ is the best solution for the Swedish market. The proposals being put forward for a government decision by the end of this year is that commercial licenses should be issued in the beginning of 2010. The proposals also state that the current digital broadcasts from public service radio should be extended and that DAB+ should be used.

Other on-going trials across Europe include: France, (DMB radio) Ireland (DAB, DMB), and Italy (DAB, DAB+, DMB radio and video). For further information on DAB, DAB+ and DMB tests and trials being carried out please visit the WorldDMB website www.worlddab.org



Digital Radio Unites Industry

More than 40 different radio stations in Sydney, Melbourne, Brisbane, Perth and Adelaide put rivalries aside and broadcast simultaneously to a combined potential radio audience of more than 8.5 million people on 6 August 2009 in Australia in a massive outside broadcast to promote digital radio.

The event, billed as "Radio United", saw the highly competitive commercial sector broadcasting side by side with their commercial counterparts and public service broadcasters from 5.30 am to 9.00 am in the central city locations; Sydney - Martin Place, Melbourne - Federation Square, Brisbane - Reddcliff Place, Adelaide - Victoria Square and Perth - Forrest Place.

Thousands of morning commuters in each state flocked to the various locations to see their favourite breakfast radio presenters.

In a world first, the metropolitan commercial radio industry effectively road blocked Australian metropolitan radio at 7.40 am on the day, when they simultaneously broadcast a four minute audio piece featuring competing commercial breakfast show presenters in each market describing their most memorable radio moment or a moment they would like to hear in the future, over a re-working of the iconic Australian song, You're The Voice. To listen to the Radio United 7.40 am audio piece go to the www.digitalradioplus.com.au website



and click on the Radio United 7.40 am audio link in the news ticker bar.

Commercial Radio Australia chief executive officer Joan Warner said the aim of the Radio United outside broadcasts and the playing of the audio piece was to demonstrate the importance of radio in Australian listeners' lives.

"Competing broadcasters came together in Sydney, Melbourne, Brisbane, Adelaide and Perth to celebrate the start of digital radio in Australia and it was a fantastic atmosphere. Presenters were jumping in and out of each others programmes and everyone got into the spirit of the morning," said Ms Warner.

Digital radio switched on in the five state mainland capitals throughout May and June. There are already 11 new DAB+ only stations on-air with further stations

to be announced in the coming months and all analogue stations are simulcasting in DAB+.

Each city location had a digital radio "Listener Post" where digital radio manufacturers: Roberts, Sangean, Yamaha, iRiver, Bush, Revo, Grundig and Pure showcased a range of digital radios and enabled listeners to hear and see digital radio on a variety of different receivers.

The first screen based digital radio now available in Australia, the iRiver B30, was on display in each state and highlighted the new visual aspects of digital radio. A fully fitted out car showed how listeners could hear digital radio while driving with the Pure Highway digital radio adaptor.

Ms Warner explained more than 600 stores across Australia are selling digital radios. Early reports of sales before the massive Radio United event have been extremely positive with many retailers selling out and already in reorder mode.

DAB+ digital radio is available in Sydney, Melbourne, Adelaide, Perth and Brisbane. Commercial Radio Australia's focus now turns to the planning of the regional rollout of digital. A regional trial is expected to begin late this year. The industry is calling upon the Australian Federal Government to allocate VHF Band III spectrum to enable all Australians to access the new technology.

By Melissa Fleming
Commercial Radio Australia



WorldDMB at Broadcast Asia 2009

Once again WorldDMB and its members visited the Broadcast Asia Conference and Exhibition 2009 in Singapore. Although there were fewer participants than in previous years the quality of those attending remained high and the WorldDMB members confirmed that BA 2009 had been a success in their eyes.

The WorldDMB conference session, saw an increase in attendees on last year, 'Expanding the Opportunities of Radio' and included high level speakers from the world of digital broadcasting. The session aimed to look at the developments in terms of radio on the move, streaming via the internet and the ways in which broadcasters can meet the ever increasing demands of the consumer.

Highlights included a presentation by Grahame Lucas, Deutschwelle, on the convergence of technology platforms as a means of adding value to consumers and on the importance of investing in staff training in all areas of multimedia as radio becomes more convergent. Richard Redmond, Harris, gave a comprehensive insight into what broadcasters need to consider when rolling out digital radio networks and a comparison of the different platforms currently available. Joan Warner, Commercial Radio Australia, entertained the audience with a passionate presentation on the use of the digital dividend for the roll out of DAB+ digital radio in Australia. She said 'To get the digital dividend we were certain, united and persistent and went

straight to government regulator, gave advice and the government set the policy for the digital dividend'.

The Moderator for the day was the WorldDMB Technical Chairman, Lindsay Cornell, BBC, who ran the day with military precision, encouraging lively discussions during the question and answer sessions making the day enjoyable and informative.

If you would like a copies of the presentations from this session please contact rosemary.smith@worlddab.org

Special thanks to all speakers in the WorldDMB session!



Going forward in the Asia Pacific Region

Markets throughout Asia Pacific are looking to the DAB standard and tests or trials are currently on-air or planned in several countries in the region.

In China, since SARFT announced DAB as the industrial standard for China in May 2006, to date there are five licensed commercial broadcasters that have launched DAB and DMB Services: Beijing Jolon, Shanghai OPG, Guangzhou GTM, Dalian Tiantu and Henan Zhengzhou. There are also six broadcasters that have launched DAB, DMB trials providing digital broadcasting services in Yunnan, Liaoning Hunan, Zhejiang, Anhui and Shenzhen.

Hong Kong's commercial broadcaster Wave Media has obtained a DAB trial license and is planning a trial providing seven audio services using DAB in November this year.

The Hong Kong government is to auction the 11C frequency to broadcast DMB services at the end of 2009. Frequencies 11A and 11B will be available for auction

later next year for DAB and DMB broadcast services.

In April 2009, the DAB family of standards was announced as the official standard for digital radio broadcasting in Indonesia using Band III. Lead by the Minister of Information and Technology, a study tour has been organised by Commercial Radio Australia for a group of broadcasters. The tour will be visiting Australia late in August to study the DAB+ technology successfully launched there earlier this year.

In Malaysia, Asiaspace is currently preparing a pre-commercial DMB trial on L-Band to be launched in October this year. This trial will have three transmitter sites in the Klang Valley. The trial will provide three video programmes and three audio programmes. Additionally, Asia space is also planning a data services trial based on DAB in the near future.

The public broadcaster Radio Television Malaysia (RTM) is now looking forward to launching a two year DAB, DAB+ and

DMB trial which will broadcast 16 audio channels, two multimedia video services and one data service in October this year.

The government in South Korea has set up a digital audio project to research a digital audio broadcasting standard for Korea. The digital audio group has recently visited Australia during its DAB+ launch in early August and plans to visit Europe to study DAB, and DAB+ technology.

VTV in Vietnam is planning to launch a commercial DMB service at the end of this year with six video services and two audio services.

As more countries look at the future of radio the growth of the digital industry is gathering pace and consumers are demanding the quality and choice which DAB, DAB+ and DMB digital radio and DMB video

WorldDMB Project Office

WorldDMB at IBC 2009, Amsterdam: 10 –15 September 2009

Visit the **WorldDMB stand**
on the **EBU pavilion 10 D.21!**

For information on the world of DAB, DAB+, DMB digital radio and DMB mobile TV visit the WorldDMB Stand on the EBU pavilion at IBC.

Find out information on:

- **roll out of digital radio services** worldwide
- **tests and trials** currently being carried out
- **latest receivers** in the market including those **in car**
- **content creation** and how to **add value on digital services**
- **network** with our members and **share experiences**
- **how the NEW WORLDDMB ETI Library** can benefit your company
- **how becoming a member of WorldDMB** can benefit you and your company or organisation

WorldDMB Networking Drinks Monday 14 September 2009

An informal chance to network with the worldwide digital broadcasting family, over a glass of the finest Dutch beer!

If you would like to reserve your place at this event please contact:

rosemary.smith@worlddab.org
or,
caroline.brindle@worlddab.org

Visit the WorldDMB stand to see demonstrations of DAB, DAB+, DMB receivers and the applications available DLS, EPG, Slideshow, TPEG, BIFS using the VDL DABSTOR and a demonstration of Journaline.

Visitor to the WorldDMB stand will also have the opportunity to **win a Pure DAB, DAB+, Internet digital radio!**

Join us for the exciting launch of the WorldDMB ETI Library!

**Saturday
12 September 2009
on the
WorldDMB stand**

The Library will provide ETI files to broadcasters and manufacturers for testing, trial and demonstration purposes as well as a place for users to share their experiences.

The WorldDMB ETI Library is the first of its kind and brings together:

- snapshots from countries broadcasting DAB, DAB+, DMB
- files configured by different multiplex manufacturers
- testing and demonstration files



Members Exhibiting at IBC:

- Arqiva
- BBC R&D
- Digidia
- Dolby
- Enensys
- ETSI
- EBU
- Factum
- Fraunhofer
- Grass Valley (Thomson)
- Harris
- IRT
- Media Broadcast
- NXP
- Radioscape
- ST Microelectronics
- TDF
- Unique Broadband Systems
- VDL
- VRT

Digital Radio Applications

In the 16 years since its birth, DAB digital radio technology has advanced at a rapid rate, quickly developing new technologies, standards and applications to provide a richer consumer experience.

Recently there have been some exciting and commercially attractive offerings from DAB manufacturers and broadcasters. Consumers can now choose to listen, pause and rewind their favourite radio programmes, or even record and listen at a later date.

There are several DAB radios which are also Internet enabled, giving a choice of not only hundreds of digital radio stations, but also thousands of internet channels too. The potential to incorporate DAB digital radio into mobile phones is already available, opening the world of mobile advertising spend which is estimated to be \$12bn by 2011.

There is a whole host of new multimedia digital radio applications available to making a rich, interactive experience for the consumer which also enables easy and quick collection of market data, which in turn can translate into all-important revenue for the advertiser;

Slideshow is an application that adds synchronised visual content (slides) to radio broadcasts on DAB or DAB+ and makes it easy to enhance your digital radio broadcasts with visuals using standard web image formats, and standard web publishing tools. Anything that you can turn into a JPEG, PNG or APNG can be broadcast over DAB, DAB+, DMB, and accurately triggered to appear in time with the audio, such as news pictures, presenter information, artist images, weather, travel, promotional items and of course advertising user interaction, giving the consumer a richer multimedia radio experience.



TPEG enables high-accuracy traffic and travel information to be delivered in real time to the consumer through DAB, DAB+, DMB. Research has shown that significant numbers of people in the UK, Europe and elsewhere are spending more time in their cars and use cases for TPEG include weather and related content for travellers, including flood warning or high air pollution areas; traffic flow and prediction, the transmission of status orientated flow information for road networks and current Fuel Price Information.

Electronic Programme Guide (EPG) can display a wealth of information from schedule guides and content listings, to text describing the structure and organisation about a broadcast channel and its associated services.

BIFS is the abbreviation for "Binary Format for Scenes" and enables various MPEG-4 media to be mixed together with 2D and 3D graphics and handles local or remote changes of a scene over time. It provides the input data to combine the transmission of audiovisual objects with the added capacity of user-interaction.



Journaline is a data application in which the listener can interactively access both programme related, and programme independent textual information. The former may comprise of services such as background information on the programme, or the station's contact information to participate in a radio chat show. Independent information can

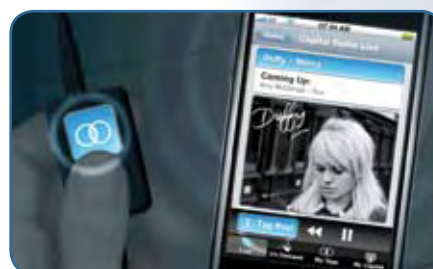
cover current news, sports results and the latest airport arrival and departure times.



Broadcast Website enables the transmission of complete web sites for offline use in a digital radio receiver which is equipped with web browser software. Besides linked HTML pages, multimedia elements like images, animated graphics, mp3 files or videos can be offered.

An exciting new application in development, Tagging, enables the listener to press a button on their radio or smartphone when they hear content – a song or an advert etc - that interests them. This sends data to the broadcaster explaining that 'Mr David Jones in London' expressed interest in content broadcast at 10.57am on the 11th August 2009, for example. The broadcaster then uses this data to send information on the relevant content direct to the consumer, through a personalised web or email account. From here there are many opportunities for the intelligent broadcaster to directly involve and engage the consumer – increasing both listener ratings and advertising revenue.

The time for colour touch-screens on digital radio receivers is not too far away. In an age where TV, the internet and social networks offer sophisticated and targeted applications to increasingly younger audiences, radio cannot hope to compete unless it is encouraged to become more accountable, more interesting and more engaging to consumer and advertisers alike.



Latest in the receiver market

Sony CMT-HX80R

SA DAB micro system with RDS and iPod dock player, the Sony CMT-HX80R plays audio CD, and supports WMA and AAC files. With an option for direct USB playback and direct recording from CD, the Sony CMT-HX80R is commercially available from approx €208.



Proline DAB401

The Proline DAB401 is a DAB/FM radio with five presets and is available in a choice of beige or brown. With both batteries and a mains charger, this radio also has a headphone connection. The scrolling text displays information on the song, artist and programme information. The Proline is commercially available from €46.

OXX Digital Classic DAB+

The OXX Classic is a DAB+ / FM / WiFi Internet radio, with a choice of over 15,000 internet stations and supports streaming music from your PC. Featuring a stereo line out and line in for iPod/MP3 player, the Classic DAB+ is encased in a timber cabinet for better audio quality. Available in Piano Black and Ivory White, retailing in Australia from €175 approx.



Mappy AP1 PND

The navigation software manufacturers M & Soft are offering their own hardware in the form of the Mappy AP1 – a personal navigation device that also offers a DMB tuner. With a 7 inch touchscreen, the AP1 PND also features video and audio playback and a photo/text viewer. Commercially available in Korea, retailing from approx €200.

Pantech IM-U490S

A mobile phone with a 2.6" LCD screen, the IM-U490S supports a DMB TV tuner and MP3 playback. Available in Korea, it also features a microSD card slot, an electronic dictionary and a subway map. Complete with a simultaneous two-way Picture-In-Picture camera, the Pantech IM-U490S is retailing for approx €230.



Fine Digital's FineDrive IQ

A GPS navigation device with a DMB mobile TV tuner incorporated, the FineDrive IQ also provides an English Language course constructed through voice recognition software, so commuters can learn English whilst commuting to the office. Currently only available in South Korea, the FineDrive IQ also supports traffic alerts and audio/video playback. Price currently unavailable.

Samsung YP-M1

The latest PMP with a DMB tuner from Samsung, the YP-M1 has a 3.3" AMOLED screen and offered in 8, 16 or 32GB models. Compatible with MP3, WMA, OGG, ASF, AAC, M4A and FLAC audio files as well as WMV, ASF, H.264, MPEG4, DivX, XviD and SWF video files, the YP-M1 weighs only 91g. Price currently unavailable, retailing in Korea.



iMovee STIK TV

A plug-in device which delivers Mobile TV via DMB to your PC or Mac, the STIK TV features an Electronic Service Guide, enabling volume adjustment, browsing TV channels by service or time and recording programs to your computer's hard drive. The STIK also includes features such as Video on Demand and is available commercially, price unknown.

Revo Product Launch

Digital radio is set to take a generational leap forward with the introduction of Revo's IKON, a multi-format digital radio that combines the benefits of a full colour 3.5" touch-screen, icon-driven user interface, multi-standard radio capabilities and iPod and iPhone docking.

IKON is capable of receiving the full roster of digital radio standards including DAB, DAB+ and internet radio – as well as conventional FM radio with RDS. Where available from the broadcaster – colour station logos, station descriptions, track and artist information, news headlines etc. will be displayed on IKON's colour screen.

IKON will also wirelessly stream digital music files from any 'connected' PC or Apple Mac, displaying full colour album artwork and track information where available.

Completing the hardware picture, IKON is one of only a handful of digital radios that is Apple certified for use with iPod or iPhone, allowing IKON to double as a high quality iPod/iPhone sound system.

In addition to its terrestrial and internet radio capabilities, IKON will also provide access to online music service Last.fm – courtesy of a free 30 day trial subscription. Simply choose an artist or genre and let Last.fm build the perfect playlist from its library of 5 million tracks – unique to the user, and fresh every time.

Revo Technologies CEO, David Baxter, said "We believe that IKON is the first product to truly deliver on the promise of digital radio, delivering a next generation radio experience complete with icon driven colour touch-screen interface, coverage of multiple radio formats, iPod and iPhone docking and access to



premium online music services such as Last.fm."

IKON is WorldDMB Profile 1 compliant and represents the debut of Frontier Silicon's powerful new multi-standard Venice 8 module.

IKON goes on sale worldwide in October and carries an SRP of £279.95.

By David Baxter, Revo

Upcoming events

4-9 September 2009

IFA, Berlin, Germany

10-15 September 2009

IBC, Amsterdam, Netherlands

4-6 October 2009

ABU General Assembly 2009, Ulaanbaator, Mongolia

13-16 October 2009

Hong Kong Electronics Show, Hong Kong

19-22 October 2009

Le Radio, Paris, France

25-27 October 2009

NAB Europe, Athens, Greece

29-30 October 2009

WorldDMB GA, Paris, France

Free Entry for members

29-30 October 2009

Medientage, Munich, Germany

29-31 October 2009

19th Broadcast India, Mumbai, India

4 -7 November

Broadcast and Multimedia Show, Jakarta, Indonesia

17-20 November 2009

NAT Expo, Moscow, Russian Federation

18-20 November 2009

Inter BEE, Tokyo, Japan

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The evidence has been gathered...

The evidence has been gathered, the conclusions unavoidable. We now know for sure how to make DAB succeed, and how to make it fail. The vital ingredients necessary for a successful roll-out of DAB are signal strength and attractive programme content not available on analogue. Omit either of these and we have already seen what happens.

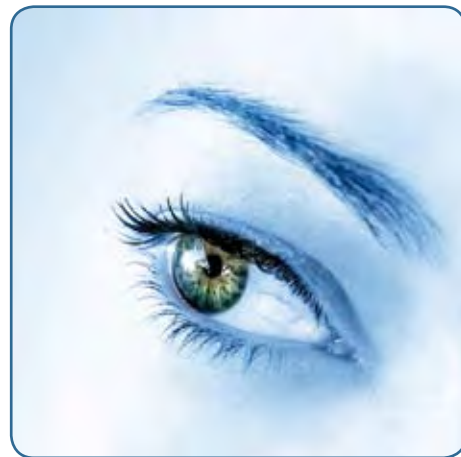
The successful roll-outs of DAB have both ingredients in common. In the UK, the public-service broadcaster provided listeners with an incentive - new services. Allegedly, the instant popularity of BBC 7 came as something of a surprise. It shouldn't have. Schedule some of the finest radio programmes ever made onto DAB, and Joe Public will want a receiver. (It helps that there is a signal inside the store so that Mrs Public can be persuaded too!) The commitment of the commercial multiplex operator Digital1 Network in rolling out a robust national coverage

(ensuring in the process that the BBC's own coverage couldn't afford to remain too far behind) was crucial.

Denmark, Norway and Switzerland all have strong transmission networks and attractive programming exclusive to digital. Receivers are selling.

The countries who have not seen take up of digital radio are; Canada merely duplicated the analogue offering. Joe Public kept his money in his wallet. In Germany as a whole, with low transmission powers and no 'must-have' services, DAB failed to take off. Only Bavaria with its superior coverage, the participation of both public and private sectors and political backing seems to be continuing to move forward.

Their progress in moving the local ensembles from L-band into Band III is important not only for its own sake but because such progress builds confidence.



Wohnort may focus on configurations in its global listings, with so many DAB transmissions around the world that the site's very viability is now endangered, but we'd be the first to state that it's not the technology that sells receivers, it's programmes www.wohnort.org/DAB/

By Wohnort

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