

Eureka!

Reaching out to the WorldDMB Community



Issue 18

- 6 Future trends in receiver technology
- 8 The device revolution starts
- 9 Emergency Warning Systems in DAB
- 14 DAB+ Indonesia Technology Showcase



Trends and capabilities of the DAB family of standards

Today and into the future

Since its launch, digital radio has seen an evolution in the manner in which it is understood, applied and utilised by all sectors of the radio industry.

Successive governments who have adopted the DAB family of standards have understood its capacity to free up much valued spectrum, fulfil their responsibilities to provide diverse citizens with relevant, accessible cultural services and to provide the fundamentally important service of warning citizens in times of disaster.

Manufacturers of DAB chips and receivers have also seen an evolution in the manner in which devices and their capabilities have evolved. Technological limitations in early silicon chips and DAB receivers limited their perceived benefits over analogue radios. This perception has seen a dramatic shift in the last few years. Silicon chip manufacturers have invested heavily in the creation of cheaper, smaller and more energy efficient chips. This has had a positive knock on effect on receiver types, size, design and capabilities, which in turn greatly increases the variety of ways in which broadcasters are able to provide additional services to listeners.



WorldDMB exists to drive the digital radio market forward through its international network of industry experts



Jørn Jensen, WorldDMB President

“The widespread adoption of the DAB family of standards in car is reinforced by the growing number of car manufacturers who are joining WorldDMB.”

The role of WorldDMB is to inform industry stakeholders about all aspects of digital radio and provide a network of experts that will help drive the development of digital radio. Through collaboration and working with members through committees, events and workshops, a greater understanding of the capabilities of what the DAB family of standards can offer in a multiplatform environment is being understood more widely.

WorldDMB members as a result have invested heavily in the future of the technology. They are aware of its full market potential in terms of realising revenue and also what it can offer the consumer. Consequently, today we see a digital radio revolution. Digital radio now comes as standard in almost all leading high street electrical brands such as Sony, Pure, Panasonic, Samsung and many more. It is also available in devices that come in all shapes and sizes from prices as low as 20 Euro. We can expect to see this fall to 15 Euro by 2015.

WorldDMB has also successfully managed to work with the automotive sector, making progressive inroads into this fundamentally important industry. Without the automotive industry being fully on board, the implementation of digital radio would be near impossible. However this is no longer of major concern, since we now see that digital radio comes as standard line fit or as optional in virtually all car brands. In addition we have also seen an increase in the number of aftermarket adaptors available on the high street which will address the issue of getting digital radio in car for older models already on the road.

The widespread adoption of the DAB family of standards in car is reinforced by the growing number of car manufacturers who are joining WorldDMB. Daimler AG, the manufacturer of Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans join the already existing WorldDMB automotive manufacturers, AUDI AG, BMW AG, Hyundai Motor Europe Technical Centre GmbH and Mitsubishi Electric Automotive Europe BV.

WorldDMB have the technical and business expertise to drive the digital radio industry forward at all levels. We are able to provide information on successfully applied business models, ideas for new content and programming, technical expertise on network rollout and demonstrations and advice on how to implement and utilise the many features offered by the DAB family of standards.

A handwritten signature in blue ink that reads "Jørn Jensen". The signature is written in a cursive, flowing style.

Jørn Jensen, WorldDMB President

WorldDMB as a digital radio ‘knowledge broker’

WorldDMB acts as a knowledge broker on all aspects of the switch from analogue to digital radio. To this end we deploy our members to make vital connections across the globe to ensure that those planning a rollout of digital radio are able to do so with the help and advice of industry experts. Through our members, WorldDMB has access to specialist industry information and resources that we use in a variety of ways. One of the most significant ways we share knowledge and resources is through the approximately 20 events that we organise every year across the globe.

A most recent example is the DAB+ Technology Workshop and Transmission



Demonstration that took place in Jakarta, Indonesia. This event was jointly organised by the Asia-Pacific Broadcasting Union (ABU), Ministry for Communications and Information (KOMINFO), Radio Republic Indonesia (RRI), Commercial Radio Australia and WorldDMB. The workshop was a success with senior engineers and industry stakeholders learning about all aspects of digital radio rollout from industry experts. Topics covered included regulation and licensing, and WorldDMB together with the ABU provided technical support for the demonstrations and eventual network build-out [read more about this demonstration on page 14].

Technical issues resolved

WorldDMB relies on its members to set the agenda for discussions around topics of importance in the rollout of digital radio and this is particularly evident within the WorldDMB Technical Committee. Members of WorldDMB can elect to join the Technical Committee, and join also one of the task forces set up by this Committee. An example of a task force that has been very active over the past year is the Service Following Task Force which has now submitted a document



Bernie O'Neill, Project Director

for publication by ETSI. Members of the Technical Committee are able to raise issues they are working on and have access to that body of expertise in resolving any technical issues.

Finally, we welcome WorldDMB's newest member – DAIMLER AG.

Bernie O'Neill

Bernie O'Neill, Project Director



New team member at the WorldDMB Project Office

Patricia Lopez, has joined the Project Office team in London as the new Project Coordinator. She obtained her Bachelor's Degree in Business Administration at EDHEC Business School in Nice, France, before moving to the UK to complete a Postgraduate Certificate in Marketing.

Patricia who speaks fluent Spanish and French joins us from her previous role as an Executive Assistant at a venture capital firm and an internship with Bacardi.

Patricia will be coordinating the Project Office team, overseeing office finances and HR and will provide support for the WorldDMB committees.



Patricia Lopez joins WorldDMB

New WorldDMB Members

DAIMLER

Daimler AG is one of the world's most successful automotive companies. With its divisions Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans, Daimler Buses and Daimler Financial Services, the Daimler Group is one of the biggest producers of premium cars and the world's biggest manufacturer of commercial vehicles with a global reach.

www.daimler.com



ON Semiconductor is a supplier of high performance silicon solutions for energy efficient electronics. The company's broad portfolio of power and signal management, logic, discrete and custom devices helps customers efficiently solve their design challenges in automotive, communications, computing, consumer, industrial, LED lighting, medical, military/aerospace and power applications. ON Semiconductor operates a world-class, value-added supply chain and a network of manufacturing facilities and has sales offices and design centres in key markets throughout North America, Europe, and the Asia Pacific regions.

www.onsemi.com

WorldDMB Member Benefit: GfK Data



GfK and WorldDMB have an agreement whereby WorldDMB may share content of GfK reports with

members of WorldDMB. These reports look at product groups, countries and reporting frequencies with regard to DAB/DAB+ digital

radio in seven countries on a bi-monthly basis.

About GfK

GfK is one of the world's largest research companies. 11,000 GfK experts are working to discover new insights about the way people live, think and shop, in over 100 markets.

GfK is constantly innovating to use the latest technologies and the smartest methodologies

to give its clients the clearest understanding of the most influential people in the world: their customers. That knowledge empowers GfK's clients to make the right decisions, and position their businesses for the future.

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

Members' News

New radio transmission product



Harris Broadcast Communications have introduced new products ideal for international broadcasters operating large transmission networks and seeking to reduce network costs and complexity in the process

During IBC 2012, Harris demonstrated a new electronic data interchange (EDI) solution to support IP-based distribution of radio broadcast content over multipoint DAB transmission networks. This development enables low-cost, targeted content delivery to many transmitters across large geographic regions. An EDI module distributes content from the central headend to multiple transmitters, each with a receiving EDI module built into its Apex M2X exciter. This creates the industry's only integrated EDI interface on the market for DAB transmitters, eliminating expensive external components.

www.harris.com

Inrix and Garmin partner on Traffic Data via DAB

Inrix is to provide up-to-the-minute traffic information across the DAB network in the United Kingdom. By leveraging the latest DAB technology, Inrix will help Garmin deliver better, more detailed live traffic data, updated more frequently and without an internet connection. This new generation of Garmin 3D Traffic Live will provide Garmin customers access to fully featured live traffic information without any subscription costs.

www.inrix.com



Panasonic presents the smallest DAB/DAB+/DMB module for digital radio reception

With the new ATD8ZP family, Panasonic Industrial Devices Europe GmbH has developed the world's smallest* DAB/DAB+/DMB modules. The SMT-compatible components are intended for digital in-car radio reception using entertainment solutions (head units) or navigation devices. As well as original equipment, Panasonic also has its sights on retrofits (after market) for the up-and-coming DAB technology.

Bjoern Groencke, Product Manager Panasonic Industrial Devices Europe GmbH: "As DAB radio is considerably more widely established in other European countries than in Germany, we expect there will now also be a significant upturn here. Both public and private broadcasters have already achieved an area coverage of 60 to 70% in 2012. And the major German car manufacturers will be offering digital receivers for all vehicles from 2013. With our new ATD8ZP module, we are making it particularly easy for all manufacturers of car radios and other receivers to enable their customers to participate in the fantastic possibilities of this leading-edge technology."

*Status August 2012

www.panasonic.com

Panasonic
ideas for life

Factum Electronics signed contracts for deliveries to Hong Kong, South Korea, Australia and Kuwait and continue to supply other key markets in Europe

Factum has signed contracts for deliveries to Hong Kong and South Korea. Kuwait has also ordered two large systems covering 24 redundant DAB+ services hosted by two separate multiplexing and data broadcasting systems. In Australia the Factum main installation is the prestigious contract for the continental roll out of CRA and CBAA.

In Europe, Factum has already delivered to the German DAB+ build out during 2012, and orders have been received from France, Czech Republic and Norway and Ireland has chosen Factum for its test services in DAB and DAB+.

www.factum.se



Frontier Silicon transforms the listening experience with Advanced Bluetooth™ connectivity for digital radios

Frontier Silicon, has launched its new DAB 5.0 Software Development Kit (SDK). By adding Bluetooth connectivity to Frontier's Verona DAB/DAB+ module, DAB 5.0 introduces a closer level of integration between smartphones/tablets and radio/audio devices delivering a simple and intuitive user experience.

A Frontier Silicon DAB 5.0-based audio system delivers the following benefits:

- Use iOS and Android smart-phones and tablets to wirelessly control the digital radio, browse stations by name and enjoy programme-relevant information from the broadcaster in the form of text (DLS) and full-colour images.
- Switch between different smart devices at the press of a button.
- When no smart-device is connected, digital radio is still always available – making this an ideal audio solution for shared areas such as kitchens and living rooms.
- DAB 5.0 provides these features without the need for expensive colour displays or Wi-Fi components, making it a cost effective solution.

www.frontier-silicon.com



Future trends in receiver technologies

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

Variety of shapes and sizes

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

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

Additional Services and Visual Functionality

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

Broadcasters are making increased use of visual functionality to provide information on programming, now playing, promotion of broadcaster websites, competitions and registration features.

For the first time, radio is able to compete with TV to offer visuals which can be used for advertising and promotional purposes. Advertisers can use colour screens to display



special offers, product photos, advertiser's logos, store locations, opening hours – all of this new content can be delivered efficiently and effectively via the broadcast medium.

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

Connectivity

Radio is taking advantage of the connectivity that surrounds us all through a network connection, often wirelessly. This connectivity provides increased offerings in terms of content to the listener and also provides the potential for interactivity which opens up a broad range of possibilities for exciting new services such as real time voting to be available via the radio.



Factors driving the development of radio receivers for the future

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

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

Prem Rajalingham

VP Worldwide Sales and Support
Frontier Silicon

The future of digital radio apps

Increasingly major broadcasters are launching apps for their stations. Apps are the next step in the evolution of radio and provide stations with access to mobile platforms, offering new ways to listen on increasingly popular devices. Looking to the future, radio apps can also take advantage of hybrid radio. In the commercial sector, smartphone apps allow stations to innovate and experiment with new business models, from synchronised visual and interactive advertising to targeted in-stream audio advertising for mobile and tablet devices. The app revolution is now becoming a revolution in radio which all stations need to take advantage of.

Challenges to overcome

Since WorldDMB member, All In Media (AIM) launched its first app over three years ago the industry has witnessed the growth of radio listening on smartphones. For a number of AIM's clients, smartphones are starting to eclipse desktop listening especially on the move. However, while listening on mobile and tablet devices has become commonplace there are a number of challenges to overcome. Listening to IP-delivered audio streams on a 3G connection for example increases IP traffic on the mobile networks, can consume large amounts of data and

incurs streaming costs and complexity for the broadcaster.

Combining broadcast and IP

Looking to the future, utilising a combination of broadcast and IP delivery can help overcome these bandwidth, network capacity and cost issues.

"Hybrid" radio apps are currently being developed using the DAB family of standards and FM broadcast channels (where available) for high-bandwidth live audio streams. Hybrid radio allows basic visual services to be pushed out over broadcast networks, with the pull of the IP-connection adding a richer multimedia experience. The Hybrid model gives mobile phone and app users access to radio and value-added data services without significant additional costs, and offers the mobile sector a valuable competitive advantage where every USP service counts.

Expectations for the future

Over the coming months we will also see a rise in Connected Apps, with radio station smartphone apps allowing the consumer to control and push audio and multimedia content to other devices in the home and in-car. It would then be possible for listeners to use their phone to switch from live radio to on-demand content delivered over 3G and Wi-Fi networks. The UK industry is also using the future growth of apps to promote itself, with an industry-wide Radioplayer app launching this autumn unifying all radio content into an easily accessible format. Other countries seeing the benefits of this solution are looking to follow suit.

The future for digital radio apps is bright



“ The UK industry is also using the future growth of apps to promote itself, with an industry-wide Radioplayer app launching this autumn unifying all radio content into an easily accessible format ”

with many stations seeing the benefit of having their digital stations available in mobile handsets. Apps solve some of today's problems and offer listeners solutions to their current and future needs. For broadcasters, having a digital radio app can provide new opportunities to compete in the mobile sector and create revenues whilst keeping listeners loyal.

For more information about the future of visual radio and apps contact the WorldDMB Project Office.

Chris Gould
CEO, All In Media (AIM)

The device revolution starts

Up to now most radios on the European market have, with a few exceptions, been rather old-fashioned. They have offered audio, a line of text and not much more. Absent were the possibilities for advanced functionalities that enable greater interaction with media savvy consumers through visuals and interactivity.

IDAG (International DMB Advancement Group), an organisation for broadcasters and DMB/ DAB+ licence holders, has worked closely with Samsung to change this.

The world's leading global electronics consumer brand has just launched a device that does enable broadcasters to have greater communication channels with its listeners. The device, Samsung Galaxy 5.0 Wi-Fi combines DAB/DAB+ and DMB with the internet and supports TPEG.

An API ties together broadcasting and IP effectively

Samsung and IDAG have also importantly worked on an API (Application Protocol Interface) that enables developers to create apps that that will tie together broadcasting and the internet effectively on the new Samsung Galaxy 5.0 Wi-Fi gadget. It is powered by Android, is Google approved and is the first tablet device of its kind that enables broadcasting and the internet to be combined in the same app.

Established data services such as



Slideshow, DLS, DL+, Broadcast Websites, EPG and Journaline all come to life in the first app that has been developed for the device by Syngenio of Germany

Slideshow, DLS, DL+, Broadcast Websites, EPG and Journaline all come to life in the first app that has been developed for the device by Syngenio of Germany, as does

integration with Facebook and Twitter. The listeners can by the touch of the screen share information on which radio station they are listening to, which track is playing or even share the slide that is currently showing. This integration opens up for radio programs to easier enable and integrate comments and discussions. An app for instant traffic information via TPEG is also being developed.

Play around with the possibilities

Not ground-breaking? Well, these are obvious examples. Any other internet service that you can think of may be added on a layer "on top" of the broadcast. Expect to see betting, gambling, touch screen shopping, personal coupons with ads and much more soon on a tablet near you. The radio industry, especially commercial broadcasters, should take the opportunity to play around with and add to the possibilities of what digital radio can do in a multiplatform future to benefit the consumer and keep radio relevant in a digital age.

Gunnar Garfors

CEO of NMTV (Norwegian Mobile TV Corporation)

President of IDAG (International DMB Advancement Group)



Samsung Galaxy 5.0 Wi-Fi combines DAB/DAB+ and DMB with the internet and supports TPEG.

Emergency Warning Systems in DAB

While digital radio evolves and the radio industry plays around with the possibilities of features for a multiplatform future, we must not forget that core underlying strengths of the DAB family of standards still remain, such as its use in times of national emergencies.

The DAB family of standards are an effective tool for enabling an effective Emergency Warning System (EWS). It enables free to air terrestrial broadcast over large populations areas and the special functionality of the Fast Information Channel (FIC), makes it possible to realise very robust systems with a maximum of coverage, making it the best way of transmitting emergency messages to citizens in cases of major natural or man-made disasters.

Broadcast radio has shown in successive incidents to remain on air whilst other communication channels fail such as internet or telecommunications networks.

A perfect case study of EWS in use

EWS should be designed for fast and far coverage with the ability to provide all necessary information. Some EWS will only

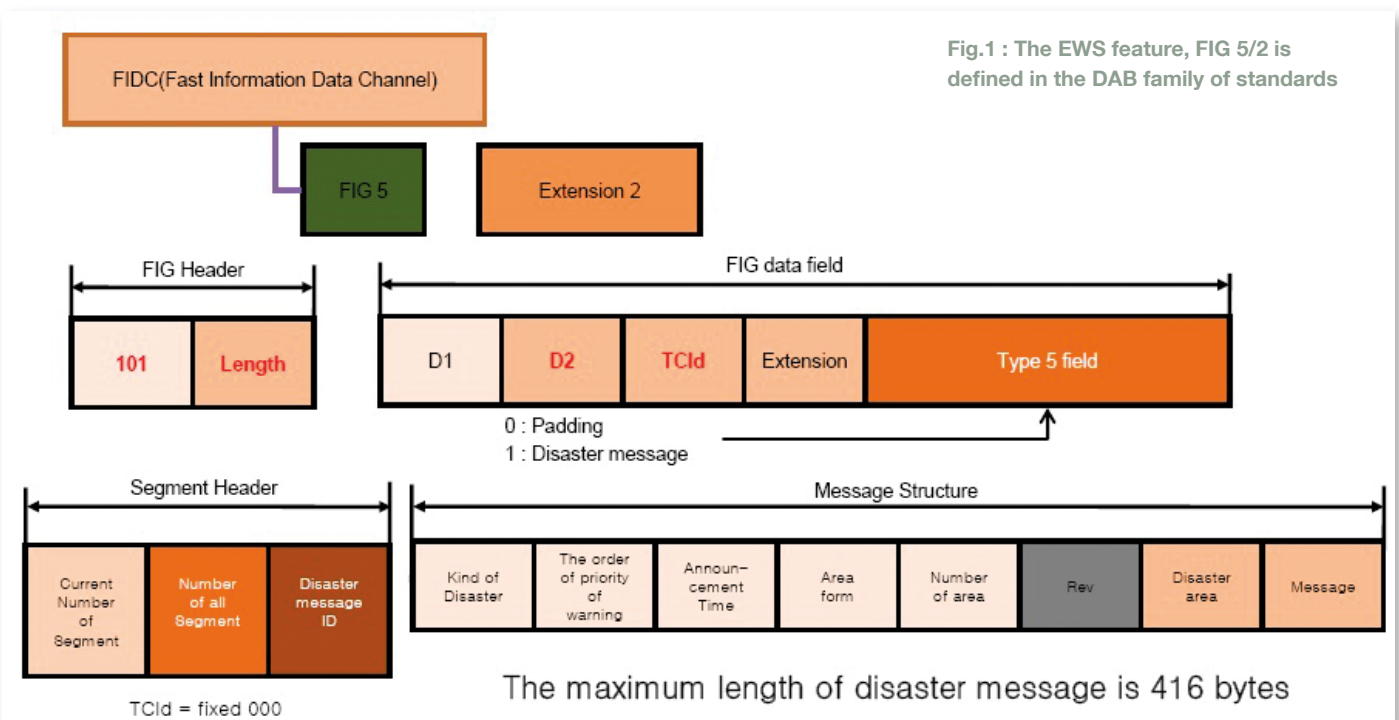


The DAB family of standards makes it possible to realise very robust systems with a maximum of coverage

inform key people that will take the necessary action while other EWS are designed to cover the whole population. In the first case, key individuals will have been equipped with dedicated receivers while the other case requires mass availability and usage of consumer receivers. The DAB/DMB system

can be used in both scenarios.

A good illustration of how EWS can be implemented with DAB/DMB is the South Korean EWS which was implemented in 2007. They created a national standard based on the T-DMB standard called the Automatic Emergency Alert Service





In South Korea all Samsung and LG phones are equipped with the EWS feature

(TTAK.KO-07.0046/R2), (AEAS). This is designed to transmit basic and short text messages to T-DMB receivers of which over 60 million have been sold in South Korea. It is operated by KBS, with messages issued by the National Emergency Agency.

How does it work?

In the AEAS you will find the typical architecture of a EWS, similar to what has been used in other countries such as in the US.

The EWS message format should contain the following key elements:

- kind of disaster
- order/priority of the warning
- announcement time

- disaster area
- and finally the message itself

The kind of disaster is a typified by a three byte value such as FLW (flood warning) or EQW (Earth Quake). In South Korea four priority function levels have been defined meaning the receiver will signal the emergency in a different way to the user for each of these such as: no signal, flashing message, ringing signal and so on. For the implementation of this feature the Fast Information Channel (FIC) of the DAB system was used.

As the EWS messages represent a very low bit rate service the FIC (Fast Access Channel) is particularly well suited. It is a highly protected channel (code rate 1/3), which makes it very robust. It is decoded immediately (no interleaving) without reference to any other transmission frames. The FIC has been designed to transport the most important information of the DAB systems such as the multiplex structure with all labels and parameters. The FIC is organized in Fast Information Groups (FIG). For the EWS feature the FIG 5/2 is defined in the standard.

Receivers and EWS compatibility

In South Korea all Samsung and LG phones are equipped with the EWS feature as well as most of the car navigation systems. In Fig.2 you can see how the text message is shown in the devices. The user would see the

message on the screen and the T-DMB video services goes on in the background.

The Korean EWS has been used successfully during the earthquake and tsunami disaster in Japan in 2011. Another way of alerting a maximum of people with DAB consists in using the announcement feature in combination with the automatic frequency switching feature. In this case one DAB service would contain the emergency message and all the other services would switch over to the service with the emergency message.

The message can be in audio, text, program associated data services or all of them at the same time meaning multimedia messages are possible. Again the FIC would be used for this, in particular FIG (0/18) Announcement Support and FIG (0/19) Announcement Switching and FIG (0/21) Frequency Information. With this feature it is even possible to switch over to a service transmitted by another standard, making sure that the receiver always switches to the strongest signal on air.

Last but not least, it is also possible to implement a wake up feature with DAB. This feature would be used by dedicated EWS receivers that monitor permanently if a wake up signal is broadcast on DAB. As soon as this signal is detected, the receiver wakes up, alerts and transmits the emergency message.

Herman Zensen

Sales Manager -Specialist for Digital Radio
DIGIDIA

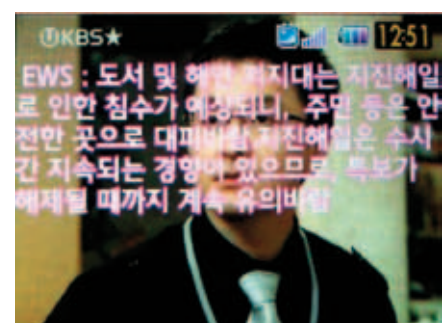


Fig 2: An example of how the EWS text message is shown on screen

“ The message can be in audio, text, program associated data services or all of them at the same time meaning multimedia messages are possible ”

Regulation and Spectrum Update

Broadband: progress or monopolization?

The last World Radiocommunication Conference of ITU (WRC) saw the WRC decision to allocate the 700 MHz band for mobile broadband. This is a significant blow against spectrum usage for broadcasting, especially after the 800 MHz band was also allocated for broadband usage. The WRC decision on 700 MHz band is not directly about taking the band from broadcasting but experience with the 800 MHz band shows that sharing is not possible. This means that a decision on sharing the band could lead to an insufficient amount of the available spectrum for broadcasting.

To address these issues, The ITU set up a special joint task force (JTG 4-5-6-7) to

review how to find more spectrum for mobile broadband and to assess the possibility of shared usage of 700 MHz band. The Russian contribution to the JTG 4-5-6-7 highlighted concerns that this would limit the competition and lead the way to technological monopolisation.

The first meeting of the group took place in Geneva in July 2012 and the discussion was on the structure and agenda of the subgroups. The work of another ITU permanent group, the WP5D, which specialises on mobile broadband technologies will influence the discussions of the joint task force. The WP5D is currently looking at suitable bands and discussions centre on bands 470-694 MHz and 1452-1492 MHz.

CEPT, the European organisation of national regulatory bodies, established the Conference

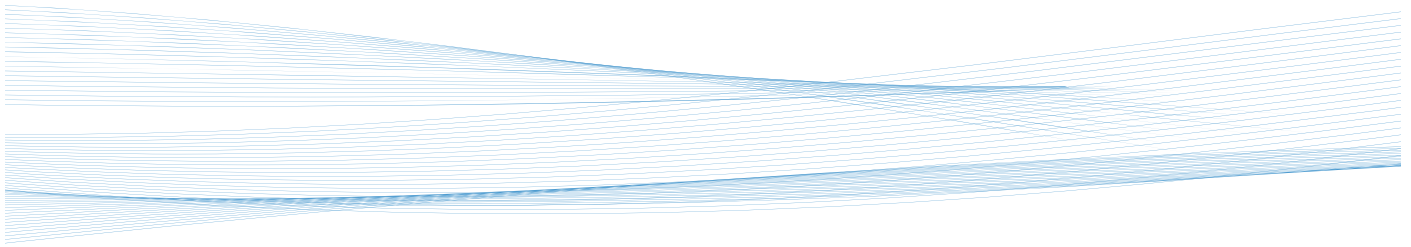
Preparatory Group. A subgroup, the Project Team will handle the preparation of the European position on mobile broadband issues for WRC.

It is important that the whole broadcasting community contribute to the preparations of the next WRC to ensure that the spectrum needs of broadcasting will be secured.

The WorldDMB Regulatory and Spectrum Committee will keep WorldDMB members updated on the outcome of these meetings which will be occurring in the last quarter of 2012. If WorldDMB members have questions on issues of spectrum and frequency allocation please contact the Project Office.

Radim Soukena

WorldDMB Regulatory & Spectrum Committee



Sweden: Proposals made to review possible FM switch off

Following the announcement made by Norway about a possible FM switch off date in 2017, Sweden has joined other countries that are now also looking to review their own switch over.

The Public Service Committee which was tasked by the Swedish government to analyse the conditions for public service radio and TV has suggested in its report 'New conditions for Public Service' that Swedish Radio (SR), the public broadcaster should be the engine behind digitalization of the Swedish radio industry. The report also suggests that

additional funds for network and content expansion should be allocated to SR for this purpose. This would be an incentive for commercial broadcasters to work in collaboration with the public broadcaster on digital radio expansion.

The report commissioned by the Ministry of Culture proposes that a review on the digital radio market should be made by the end of 2016 to assess whether it is possible to decide a specific date for the shut off of the existing FM network.

An update on the German digital radio market: One year on from launch

New research, new receivers and new marketing campaigns have all been released to coincide with the one year anniversary of DAB+ going on-air in Germany.

Digital radio listening on the up

In a recent ratings report released in Bavaria, the positive reaction to digital radio from listeners has been measured. According to the analysis carried out for this report approximately 800,000 people in Bavaria listened to DAB+ channels during a two week period and some 200,000 people listened to at least one digital radio channel per day on an average week day. This is the first research carried out in Germany which analyses all available channels alongside FM services on-air and it is a positive sign that digital radio listening is increasing.

Digital radio at the forefront of the biggest consumer electronics exhibition in Germany

At the 2012 consumer electronic exhibition, IFA, the German radio marketed celebrated the growth of DAB+ digital radio and the

introduction of even more DAB+ products into the market.

More digital radios could be seen on exhibition stands than ever before. With this in mind WorldDMB took a group of VIP guests from Ireland, Austria, Belgium, Poland and Sweden to the IFA event to showcase the development of digital radio in Germany. These key decision makers were given demonstrations of products, new digital radio functionality and information on how the German market has co-operated to bring digital radio to the listener.

The event was a great success with all of the guests exchanging knowledge, networking and learning about the services provided by WorldDMB members and the Project Office.

Promotion to the retail market

NDR, the public broadcaster in northern Germany, has hosted its fourth retail digital radio briefing session for 100 retailers from the north part of Germany. Three promotional events have been held in Hamburg, Hannover



and Schwerin, bringing together retailers with experts from the digital radio industry to inform and educate them on the new services and features. Retailers are in turn then able to inform consumers of all the benefits of digital radio.

Consumer marketing in the run up to Christmas

A new TV marketing campaign has been launched by the Bavarian public broadcaster, BR. A 50 second TV advertisement is being shown alongside radio advertising and an online competition with 99 digital DAB+ digital radios as prizes. This promotion is due to finish in October.

PURE, the world's leading supplier of digital radios, announced in August its commitment to invest a million Euros in marketing leading up to Christmas 2012. The majority of this investment will be made in promotional campaigns by the main broadcasters in Germany. The broadcast partners include Regiocast, Die Neue Welle, Relaxation Radio, Energy and ERF Norform. The campaign will run across all media – radio, television, in print and online.

Digital radio was high up on the agenda at this year's IFA with more digital radio booths with demonstrations of services available than ever before.



Netherlands move towards digital radio



Since the announcement by NPO (Netherlands Public Broadcasting) that DAB+ was the successor of FM in the Netherlands in November 2011, significant steps have been made towards the digitalisation of the Dutch radio industry.

A Memorandum of Understanding on the cooperation to deploy a distribution network for DAB+ was signed by NPO and VCR (Association of Commercial Radio) in June 2012. They have agreed to simultaneously roll out their DAB+ transmitter networks starting 1 September 2013. As a result, in those areas where DAB+ coverage will be available, listeners will have access to a large and diverse range of public and commercial radio stations.

NPO and VCR also intend to jointly communicate with the Dutch government and the industry for consumer electronics with the aim of turning DAB+ into a success in the Dutch market.

WorldDMB hosted a booth which featured a wide range of products to interact with



WorldDMB at IBC



As part of informing the Dutch broadcasting industry about the benefits of going digital, WorldDMB together with the

Dutch Ministry of Economic Affairs held a workshop for broadcasters during IBC.

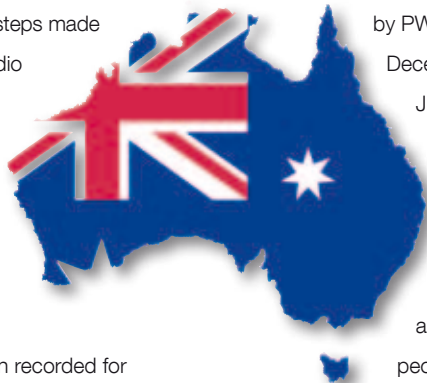
The conference session, 'The Digital Radio Experience: Case studies on Going Digital' was attended by over 140 commercial broadcasters and international digital radio experts. Issues discussed included cost, regulation, competition, and revenue generation by looking at lessons learned from Germany, UK and around the globe.



Digital radio three years on from launch

With the recent celebration of the three year anniversary of digital radio in Australia, the international radio community can appreciate the significant steps made by the Australian digital radio market in such a short space of time.

Digital radio sales continue to climb in Australia. Sales of nearly 75,000 in the second quarter of 2012 have been recorded for the GfK Marketscope report released by Commercial Radio Australia. This brings the total number of digital radios sold since the



2009 launch to 908,311 and now one in ten Australian households have a digital radio.

Household penetration is forecast by PWC to reach 16% by December 2013 and 18% by June 2014. The digital radio technology, switched on in 2009, is tracking ahead of forecast.

DAB+ digital radio now also has near to 1.3 million people listening in each week in the five state capitals of Sydney, Melbourne, Adelaide, Perth and Brisbane and extensive work is underway on

the planning for digital radio rollout to regional Australia. Proposed timelines are being developed for discussions with the Federal Government later in 2012.

Broadcasters join force to mark three years of DAB+ on air

More than 50 different commercial radio stations plus the ABC and SBS worked together to coordinate simultaneous broadcasts in Sydney, Melbourne, Brisbane, Perth and Adelaide on the 24 August 2012 to celebrate three years of DAB+ being on air. The event saw the highly competitive commercial sector broadcasting side by side with their



commercial counterparts and the public service broadcasters from 5.00 am to 9.00 am.

Toyota promotion to celebrate DAB+

Toyota, the first local car manufacturer to feature DAB+ digital radio as standard in selected locally built vehicles gave away five of what are now Australia's best sounding cars on the morning of the event. One winner in each state picked from a Camry Atara SL, Camry Hybrid HL or an Aurion V6 Presara.

Thai digital radio delegation visit Australia

Australia actively shares its experience of successful rollout of DAB+ digital radio with other countries considering adopting the DAB+ standard.

Nine delegates from the National Broadcasting and Telecommunications Commission of Thailand visited Australia to hold technical, policy and broadcaster meetings with key DAB+ digital radio stakeholders. Hosted by Commercial Radio Australia, the Thai radio delegation was led by Colonel Dr. Natee Sukonrat, the Chairman



of the National Broadcasting Commission and Vice Chairman of the National Broadcasting and Telecommunications Commission of Thailand. The delegation included senior representatives from legal, policy, licensing, engineering and technology areas.

Thailand is considering digital radio and met with Australian commercial and public service broadcasters, plus industry regulator the Australian Communication and Media Authority (ACMA) and the Department of Broadband Communications

and the Digital Economy (DBCDE), to discuss the successful switch on of DAB+ digital radio in Australia. The delegation visited the TXA Australia Artarmon tower site to inspect the DAB+ antenna, transmitters and multiplexes which are jointly owned and operated by the broadcaster consortiums and have been established to minimise the shared costs of DAB+ infrastructure.

The previous delegation that was hosted by Commercial Radio Australia was from Indonesia.

DAB+ Indonesia Technology Showcase: DAB+ Technology Workshop and Transmission Demonstration, Jakarta, Indonesia



The Indonesian radio industry and regulator have selected DAB+. With a population of more than 237 million people the adoption would make it one of the largest DAB+ markets.

WorldDMB with the Asia Broadcasting Union (ABU), the Ministry of Communication and Information Technology of Indonesia (KOMINFO), Radio Republik Indonesia (RRI), and Commercial Radio Australia (CRA) organised a successful four day DAB+

Technology Workshop and Transmission Demonstration. The two day technology workshop followed by a two day transmission trial and field measurement exercise in and around the city of Jakarta, Indonesia (24- 27 September 2012) provided senior engineering executives from the region with up-to-date information on all aspects of planning and digital radio implementation of DAB+, its transmission technology and demonstrated its enhanced features and efficiencies compared to analogue FM broadcast.

Key findings from the workshop and demonstration include a set of recommendations for broadcaster and regulators to consider when planning the digitalisation of radio in their countries. These recommendations are available from the

WorldDMB Project Office.

The organising committee would like to acknowledge the significant support provided by WorldDMB members, Factum multiplexers, Harris transmitters, Radioscape monitors

along with chipmaker Keystone and receiver manufacturers Pure and Revo. Appreciation also goes to Australian antenna systems specialist RFS and their Indonesian partner Megatech who helped get the four RRI services on air in DAB+.

Of course my new car has digital radio... what do you mean I have to pay for it?

If you work in the digital radio industry you will have heard many stories of listeners buying a new car which they assume will have digital radio as standard only to get home and discover that they can only listen to analogue radio.

In fact, you probably know some senior member of the digital radio industry who, embarrassingly, have tried to buy a new car with digital radio. Only to find that the digital radio option is like searching for a needle in a haystack or, on finding it as an option, it still costs the equivalent of digital radio in the early nineties (expensive).

For years we have heard why digital radio isn't in cars – lack of coverage, no consumer demand, no economies of scale or multi-country roll out, no enthusiasm/incentive to 'sell' digital radio at dealership level, no automotive grade DAB+ chips, difficult to find digital radio option in the many layers of packages available, cost of digital radio as an option.

On the whole however all of these issues are being tackled in countries where digital radio is maturing as a technology, such as in the UK, Switzerland, Denmark, Norway and in newer markets, such as in Australia and Germany.

Automotive manufacturers are continuing to expand their commitment to DAB+, offering more options in even more vehicles

The automotive industry is now responding by adding digital radio into its ranges. Volvo sent the following statement to WorldDMB earlier



this year saying:

"Volvo customers are in general modern and interested in digital technology. Volvo has therefore the ambition to be early on the market and fully supports the digital generation. Volvo has for years offered USB, Bluetooth hands free, Bluetooth Audio Streaming, Sirius satellite radio, HD-Radio and DAB-radio. Volvo is now launching a second generation DAB-radio. The new radio tuner DAB+ supports the new more effective decoding standard ACC+ which will utilize the bandwidth better and enable better audio quality. The customer can now tune into more digital radio stations than before. The DAB+ radio tuner will available from the early summer 2012 and will be introduced simultaneously across the platform in S60, S80, V40, V60, V70, XC60, and XC70".

This statement comes alongside support from other car manufacturers who are adding DAB/DAB+ to their ranges. Daimler AG, the

manufacturer of Mercedes-Benz Cars, Daimler Trucks, Mercedes-Benz Vans join the already existing WorldDMB automotive manufacturer members, AUDI AG, BMW AG, Hyundai Motor Europe Technical Centre GmbH and Mitsubishi Electric Automotive Europe BV.

As consumers are finding digital radio is not so easy to come by and still has a price tag that many do not figure into their car purchase. The option for including DAB+ in many high end brands remains around high 200-300 Euros. In the short term the future for in-car digital radio should look at ways to reduce the cost of digital radio as an option.

In the long term due to the commitment by the automotive industry, we are starting to see that digital radio will be standard and the stories of new cars purchased with analogue only will be a thing of the past.

“ Volvo customers are in general modern and interested in digital technology. Volvo has therefore the ambition to be early on the market and fully supports the digital generation ”

Radio Industry Key Events 2012

Mediantage Munich

Munich, Germany Germany
24th - 26th October 2012

Telematics Munich

Munich, Germany Germany
29th - 30th October 2012

Drive 2 Digital: Accelerating Growth

London, United Kingdom
5th November 2012

WorldDMB Automotive Workshop

Berlin, Germany Germany
14th November 2012

WorldDMB 18th General Assembly

Leipzig, Germany Germany
15th - 16th November 2012

Le RADIO!

Paris, France
10th - 12th February 2013

ABU Digital Broadcast Symposium 2013

Kuala Lumpur, Malaysia Malaysia
5th - 8th March 2013

Radiodays 2013

Berlin, Germany
18th - 19th March 2013

WorldDMB General Assembly



15–16 November, 2012

Leipzig, Germany

- Update on German digital radio rollout from the perspectives of regulator, ARD, commercial broadcasters and Deutschlandradio
- Marketing plans of Digital Radio Deutschland
- Working with the retail market, marketing in-store and retail in the automotive industry
- 2nd Generation standards – DAB to DAB+, case studies from Switzerland, Germany and Norway
- Connecting to the automotive sector

Register at www.worlddab.org

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