

WORLD DAB Newsletter

International News and Strategic Analysis on Digital Sound Broadcasting

Impressions and Lessons from IFA 97 ~ Looking to IFA 99 28 August - 5 September '99

During our preparations for IFA 99 it would be foolish to ignore our performance of two years ago.

To recap a little, many of you will no doubt recall that at IFA 97 WorldDAB had a relatively large stand on which we demonstrated receivers from 7 different manufacturers - both in-car receivers and Hi-fi's. Broadcasters on the WorldDAB multiplex at the show included BBC national services, UK Commercial services, as well as French, Norwegian and Swedish national and commercial services. The stand attracted a lot of attention thanks to the "national days" which had been organised. The most memorable was the Scandinavian day. A chef was flown in from Sweden and specially served the most sumptuous buffet for special guests and journalists.

My visits around the exhibition to find out exactly what the receiver manufacturers were up to was another pleasant surprise! Right up to the very last minute I did not honestly believe DAB receivers would be on show for the consumer to see. However, there they were, over 20 different receivers on display from 17 different manufacturers. At last I felt that we were getting somewhere!

Nevertheless, some disappointment was felt when a scathing attack was led against DAB in some publications. We had committed the error of living in the hope that IFA 97 would mark the official launch of DAB receivers on the consumer market but of course it was not. The consumers were on display but not ready for the consumer market. Therefore this ill-chosen word led to our castigation, in which we were accused of being "too big for our boots". This was an ill-chosen word; it was

nowhere near a "launch" of DAB and no doubt we will suffer from this untimely and silly error for a long time to come.

On a more positive note we are now seeing adverts appearing in trade magazines. Certainly here in the UK, where I have now been living for 18 months, journals such as *Top Gear*, aimed at car enthusiasts, is one such publication in which manufacturers are advertising their DAB products.

Having said all of this, the "errors" made at IFA two years ago have helped us in developing our new strategy. It was at IFA that it became clear that the roll-out of DAB was not going to be as fast and smooth as we had all hoped and that like so many new technologies such as the Compact Disk, penetration on the consumer market is slow and laborious and requires cooperation, coordination and tenacity from all parties.

So, what will happen at IFA this year? From 28th August through to 5th September 1999, WorldDAB will share a stand with the European Association of Consumer Electronics (EACEM) and their German counterparts ZVEI in the dealers section. In order to fulfil our new strategy, we will be providing information hand outs about DAB services world-wide as well as organising high level meetings with manufacturers which will take place on the stand.

In conclusion we can now safely say that we are much more realistic with our expectations and more experienced than two years ago. By

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leaving the manufacturers to carry out their own promotions on their stands, WorldDAB can concentrate on many more strategic issues. At IFA '99, a wide range of new DAB products will be unveiled; these will be in the shops across Europe soon after, bringing DAB services to more consumers than ever before.



IFA - 75 Years On

Internationale
Funkausstellung 1999



Your world of
consumer electronics
Berlin, 28. August -
5. September

The Internationale Funkausstellung (IFA) in Berlin is the most important international exhibition for the entire range of electronic entertainment, communications and information products and is celebrating 75 years of existence in 1999. The leading manufacturers from around the world will be exhibiting at IFA 99, showcasing all their consumer electronics goods including DAB products for the public to see and test.

The show will be open from 28th August through to 5th September from 10.00 to 18.00 daily. A day ticket costs DM 25.00 and can be ordered in advance.

More information on
this event can be
found on the IFA
web site on
www.ifa-berlin.de.

For further information
please contact:
Julie Unsworth
World DAB Forum
Wyvil Court, Wyvil Road
London SW8 2TG
Tel: +44 207 896 9050,
e-mail: unsworth@worlddab.org
Or visit our web site on
www.worlddab.org

Digital Radio Industry overview, July 1999

The Digital Radio Industry overview has been compiled by the WorldDAB Roll Out Support Programme. The RSP's aim is to make a more detailed overview of the situation including predictions for expected sales volumes and different product types after IFA 99.

- ★★ prototype
- ★★★ pre-production
- ★★★★ production, limited distribution
- ★★★★★ production, internationally available

Available digital radio products, July 1999

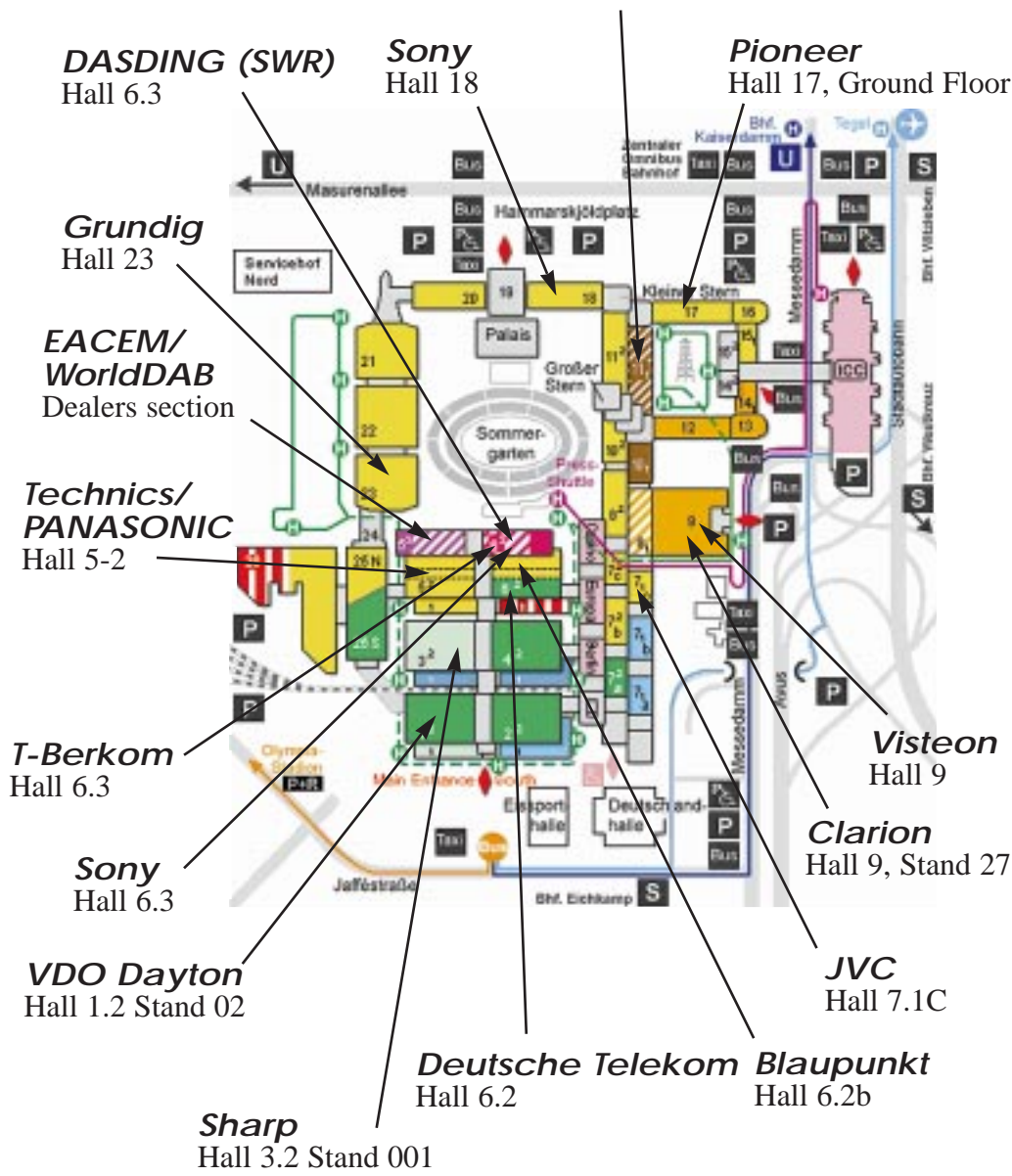
Manufacturer	Car	HiFi	Portable	PC Card	Chips	Module
Arcam		★★★★★				
Blaupunkt	★★★★★					
Bosch			★★	★★★★★	★★★★★	★★★★★
Clarion	★★★★★					
Cymbol Electronics		★★★★★				
Grundig	★★★★★	★★				★★★★★
Hitachi			★★		★★★★★	
JVC	★★★★★					
Kenwood	★★★★★	★★				
Philips					★★★★★	
Pioneer	★★★★★					
Radio Scape				★★★★		
Roke Manor						★★★★★
Sony	★★★★★	★★★				
Technics		★★★★★				
TechnoTrend				★★★★		
Temic					★★★★★	

Other manufacturers, preparing for production of digital radio products, July 1999

Manufacturer	Car	HiFi	Portable	PC Card	Chips	Module
Alpine	★★					
AVI		★★				
Bang & Olufsen		★★				
Becker	★★					
Delphi Delco	★★					
Fujitsu Ten	★★					
VDO Dayton	★★★					
Meridian		★★				
Mission		★★★				
Mitsubishi	★★					
Panasonic	★★★		★★★	★★★		
Sharp		★★				
Tag McLaren Audio		★★★				
Teac		★★				
TechniSat	★★★	★★★	★★★	★★★		
Terratec				★★★		

IFA DAB Exhibitors

Various:
Sony, Blaupunkt, VDO
Dayton, Grundig, Pioneer
 Hall 11.1 "Mobile Multimedia Hall"



Dutch study on DAB and Traffic & Transportation Applications:

DAB useful, but acceleration of licensing required!

A study, commissioned by the Dutch Ministry of Transportation and public Waterworks, conclude that DAB is a useful platform for NPAD services in the areas of:

- dynamic traffic management
- road safety
- travel information
- efficient transportation

Each of these are priority target areas of the national plan on Telematics in Traffic and Transportation.

The study recommends that licensing for DAB, which has been postponed for various reasons during the last two years, should be accelerated. This is considered necessary in order to avoid loss of opportunities and the Netherlands lagging behind its neighbours in other countries.

These findings were presented at a "DAB Content Conference", held in Amsterdam on 10 June 1999.

The study contains a detailed comparison of DAB with other platforms, like DVB-T, RDS-TMC, Satellite, VBI, GSM-GSM-R and Cable. It highlights DAB characteristics like broadband capacity, transparency (broad variety of applications/services, media and information types), mobile reception and addressability.

The study will be used as a background paper for a series of meetings that the Ministry is planning to hold with commercial companies in the near future. The aim of the meetings is to inform commercial organisations of the possible use of DAB technology with reference to Travel, Traffic and Transportation and to prompt them to start developing these applications.

Two application areas for Travel, Traffic and Transportation have been elaborated upon in the report and some examples given include:

Dynamic road signs (large electronic displays):

Real time traffic information

- accident at exit...
- delays at...

Traffic flow instructions

- temporary deviation route to (Rotterdam)
- use right hand lane, road works

continued on back page...



News Bytes...

Fifth WorldDAB General Assembly

The 5th WorldDAB General Assembly will take place in Rome on 28 and 29 October 1999 at the kind invitation of Club DAB Italia. The meeting itself will take place in the exquisite XVII century Palazzo Taverna which is in one of the most beautiful Roman squares, the Piazza Navona.

The main task of the General Assembly will be to elect new officers who will hold positions in the Forum from 2000 to 2002. The General Assembly will also provide an excellent opportunity to assess the progress being made on the Strategy which was voted-in during the last General Assembly. As in previous years participants will be able to hear at first hand about the progress of Digital Radio from a cross-section of industry sectors and countries.

The last General Assembly before the Millennium promises to be a truly stimulating event and we look forward to seeing WorldDAB members there!

Essential Changes

On 1st June 1999, some existing codes prefixing UK telephone numbers were changed.

The code for London numbers beginning with +44 181 will now begin with +44 208 and London numbers beginning with the prefix +44 171 will now have a prefix beginning +44 207.

Although the old codes will still be operational until April 2000 it is a good habit to begin using the new codes as soon as possible.

Therefore the new contact details for the WorldDAB Project Office will be:

Telephone:

Julie Unsworth:

+44 207 896 9050

Andreas Maurer

+44 207 896 9052

Rebecca Dorta:

+44 207 896 9051

General Fax:

+44 207 896 9055

Good Luck!

EACEM Firmly Believes in Success of DAB

The European Association of Consumer Electronics Manufacturer firmly believes in DAB Success.

1999 will be the landmark year for Digital Audio Broadcasting. Although DAB has been available for several years now, the roll-out rate has been slow due to the lack of new services, frequencies available and of mass-produced consumer receivers.

DAB unlike new digital broadcasting technologies has been developed in a horizontal structure, where programme providers, network operators and receiver manufacturers have been separated from each other. They have discussed how to launch the new service without making any strong contractual agreement with each other. They have relied, as was the case with terrestrial analogue TV and radio, on the combined effect of independent actions to start and popularise the new system.

The European Association for the Consumer Electronics Manufacturer (EACEM), realising that to encourage DAB introduction requires a complex and time consuming co-ordination process at national and international level, has set up two project teams and a task force to fully address this with a view to ensure the success of DAB. The work of each is outlined below:

Project Team 1 "EMC specification of DAB receivers"

In light of the fact that available EMC standards in their current format do not include specific reference, requirements, methods and test conditions for DAB products, Industry has had to

determine suitable EMC requirements for the purpose of issuing the EC-Declaration of Conformity.

A group composed of the main manufacturers of DAB receivers within EACEM has identified the essential EMC tests and requirements suitable for DAB receivers. As a first step amendments to available standards have been proposed to CENELEC. It is hoped this will be finalised and approved by the end of this year. As a second step it is envisaged to approach the IEC for approval of the modified standard at an international level.

Project Team 2 "Characteristics of DAB receivers"

Since Eureka 147 is of the opinion that EN 50248 (December 1997) in its current status cannot be passed to the IEC due to several open issues, EACEM members decided to produce a draft proposal for a new version of the standard, which can be endorsed by CENELEC and then be passed to the IEC. All the necessary work will be finalised by the first half of this year after which it will be proposed to CENELEC for approval.

Task Force "Promotion of DAB receivers"

This task force was set up in an attempt to break away from the "chicken and egg" situation afflicting the deployment of services and receivers. Manufacturers have agreed to produce and make available in the shops a large quantity of receivers in the second half of this year.

It is hoped that these initiatives will help the roll-out of DAB receivers on the market place and that the take-up of DAB will be speeded up.

European Digital Radio Conference



The first European Conference on Digital Radio which was officially opened by State Minister Erwin Huber was a great success with more than 170 people participating from 20 different countries.

Pictured: Michael McEwen, President, WorldDAB Forum gives keynote address.

During the Conference it was announced that Bavaria had just begun operational services and that other Länder were following suite. The fact that there are also digital receivers on the market in Germany meant that it was a very appropriate time to hold such a conference in a country where the roll out of DAB to-date has not been as smooth as we would have hoped. Helwin Lesch, General Manager of Bayerische Medientechnik, and Bayern Digital Radio even allayed the most

sceptical participants' concerns saying that during the tendering process for the start of regular services in Bavaria 52 companies offering 90 different programmes applied for the 22 slots available!

Michael McEwen, President of the World DAB Forum, announced that the transition from analogue radio to digital was "crucial for the survival of radio as a medium!" Other presentations on marketing issues of DAB were given by Anita Tenling, Marketing Manager for Swedish Radio and Alicen Stenner, Marketing Manager at the BBC, which gave an excellent showcase as to how Broadcasters are dealing with the marketing of Digital Radio.

The Conference highlighted that a lot of work is still needed if DAB is to become the alternative to analogue radio for the millions of people who listen to radio every day. It was also disappointing not to see more dealers at the event. However, the conference was hailed a huge success and it is hoped that the on-going roll-out of DAB in Germany will continue at the same pace and with new-found enthusiasm!

Conference on the Regulation and Frequency Management of DAB Services

(in Europe and Worldwide)

EBU, Geneva, 16th and 17th November 1999

On 16th and 17th November 1999, the World DAB Forum is holding its first ever conference on Regulatory and Frequency Management Issues of DAB Services. The Conference will be attended by key players from international organisations such as the ITU, EBU, CEPT, EC, AER and ETSI as well as by National and Regional Regulatory Agencies, National Multiplex Operators, Transmission Providers, Programme and Data Service Providers.

Currently, in Europe and world-wide, different regulatory conditions apply to Digital Audio Broadcasting. In many countries access to new frequencies is a major issue and an essential pre-condition for a smooth and successful transition from analogue to digital services using the Eureka 147 system.

This conference will aim to:

- help establish common short-term and strategic goals for DAB regulation, frequency allocations and spectrum management
- lay the foundation for an action plan that will allay broadcasters' concerns about

and encourage investment in DAB services within Europe and beyond

- align the introduction of digital radio with proposals for the release of sufficient spectrum in VHF and L-Band to accommodate existing and new radio services

The conference will begin by reviewing current regulatory practice and frequency availability. This will involve sharing information and experiences and then exploring in more depth key issues for the smooth introduction and take-up of DAB services.

Some of the key issues raised concerning services and frequency/spectrum issues will be:

- How should the bit-rate allocation be made to individual audio services within a multiplex?
- How should the priorities be set between data and audio programmes?
- Is there need to 'regulate' (or standardise) the PAD / audio quality trade-off within services or should this

be left to the market to decide?

- How much of the multiplex bit-rate capacity could be allocated for non-programme related data services?
- What are the long-term implications for S-DAB development of the proposed further expansion of T-DAB allocations in L-Band?
- What uses are being considered for the VHF Bands that will become available when analogue radio services are fully established ?
- What proposals are being considered for a common European DAB frequency range in Band III spectrum for DAB?
- What are the objectives of the forthcoming CEPT planning conference for DAB services in L-Band?

Programmes will be sent out shortly and we look forward to seeing you in Geneva!

**For further information please contact Julie Unsworth
World DAB Forum, Wyvil Court
Wyvil Road, London SW8 2TG
Tel. +44 207 896 9050
e-mail: unsworth@worlddab.org**

Up-date...

...Singapore

DAB was introduced in Singapore in 1997, with the commencement of DAB trials by two broadcasters, Radio Corporation of Singapore (RCS) and SAFRA Radio. In January 1999, the Singapore Broadcasting Authority (SBA) awarded the first commercial DAB licence to its national radio broadcaster, Radio Corporation of Singapore (RCS). RCS's DAB service includes 5 audio services, including a full classical radio channel, and a substantial number of NPAD services such as lifestyle, traffic and financial information. Newer applications are in the pipeline. The 1st DAB multiplex is currently carried on Ch 7B of the VHF Band III and full nationwide coverage is expected by

November 1999. DAB receiver sets from Blaupunkt, Bosch, Clarion, Kenwood and Pioneer are also available in retail outlets in Singapore.

The Singapore Broadcasting Authority has also spearheaded a "Multimedia Radio Forum" to bring DAB to a higher level and to create more synergy among industry players. The Forum comprises of a Steering Committee and 3 foras which look into the technical, promotional and content development aspect of DAB. The Forum is made up of approximately 100 members, comprising of both traditional and non-traditional broadcast players.

The Singapore Broadcasting Authority is ready to issue more DAB licences to potential players, both local and foreign, who can present a good business proposal and

enhance the quality of broadcasting services in Singapore. To facilitate growth, the Singapore Broadcasting Authority has adopted a non-restrictive and pro-business approach for its regulatory framework to ensure that the licence conditions do not inadvertently stifles licencees in their operation of the service.

...Australia

News from Australia has just been received and we are pleased to be able to report that on June 10 Digital Radio 2000 was launched. DR2000 is a Consortium consisting of 2KY, the National Broadcaster ABC and the two largest commercial FM networks Austerio and ARN. This is a two year trial of a two transmitter single frequency network in Sydney.

Historic Changes in the European Union

WorldDAB European Affairs Committee to adapt its strategies to historic changes in the European Union.

The European Union has gone through the most serious institutional crisis in its 42 year history with the bloc resignation in March of the 20 EC Commissioners following publication of an independent report into alleged fraud, corruption and mismanagement. The effect of this has been to put on hold all new policy initiatives, including the proposed "Communication on Radio" which is being developed with the active support of the WorldDAB European Affairs Committee.

Normal business will resume under the former Italian Prime Minister Romano Prodi who has been nominated as the next President of the Commission but new Commissioners will have to be endorsed by the newly-elected European Parliament at its inaugural meeting on July 21st.

The results of the European Parliamentary elections last month - with first-time gains made by centre right parties - will certainly have an impact on the appointment of the new Commissioners, as well as on the allocation of portfolios. The European Affairs Committee is tracking all these changes and developing a strategy for lobbying and briefing new parliamentarians and officials in the autumn. Getting the DAB message across to many new players in Brussels will be a vital activity over the winter.

In the meantime, the European Committee, in partnership with WorldDAB Module 2, produced a key document in response to the EC Green Paper on Radio Spectrum Policy. All interested parties, including industry, consumers, non-commercial users and public authorities were invited to comment and WorldDAB seized the opportunity to develop, for the first time, some core common positions on the use and requirements of radio spectrum for the implementation of DAB. Whilst recognising

the economic and political importance of radio spectrum, not least because it is the crucial component in the development of digital broadcasting, our response highlighted the following key points:

Priorities: priority should be given to those services which offer the greatest good (culture, knowledge, employment, etc.) to the greatest number of people. In this respect, radios claims carry a great deal of weight.

Efficient use of the spectrum: WorldDAB's definition of spectrum efficiency includes the proposition that every citizen is reached with as little spectrum as is technically feasible: maximum reach of audiences of free-to-air services with minimum spectrum. For radio, maximum reach includes notions of quality, range and diversity of content and maximum coverage, both in terms of service areas and numbers of people reached, and minimum cost to consumers.

Definition of Public interest: For WorldDAB, the public interest is in part secured by a mix of commercial and non-commercial players in the market. Beyond this, for the industry as a whole, we see merit in DAB being judged against a set of criteria which value the economic worth of spectrum. These would include the creation of new services and employment, technological innovation and European competitiveness, as well as economic growth. This prospectus sees radio as a new medium creating new partnerships across the industry and leading to much greater competition in the internal market. It is therefore a dynamic business model with important implications for European content provision, employment and the long-term viability of the Radio industry.

Impact on EC policies: DAB represents one of the few areas of consumer electronics technology where Europe enjoys a world lead. Maintaining that lead and ensuring that radio developments

remain at the cutting edge of technology - a key EC industrial policy objective - demands a robust and confident industry which can only flourish if its core resource - spectrum - is guaranteed in the context of a clear, long-term strategy.

Harmonisation, radio equipment and standards: WorldDAB believes in the importance of harmonised services and equipment. This would meet the ambitious objectives of equipment interoperability and services interconnection, and therefore achieve economy of scale and efficient use of spectrum. To avoid market fragmentation, harmonisation of radio equipment - both systems and receivers - is highly desirable, but a common non-discriminatory technical standard is essential. The European Community should wherever possible, seek to ensure a link between frequency planning and standards. In addition, it could promote the view that common standards are needed to create strong investment environments, and to help the migration towards any agreed standard.

Pricing and auctioning and Radio Spectrum Assignment: WorldDAB believes that any decisions about spectrum pricing should be left to Member States. If this matter arises, however, there could be a role for the community in ensuring that appropriate criteria for pricing are applied in each Member State. These might for example be determined by the nature of the business model for the service to be provided (pay-per-use or free-to-air; local, national or Pan European etc.). WorldDAB is opposed to spectrum auctioning. Auctions would lead to spectrum allocations being made solely on the basis of 'ability to pay'. This would place broadcasters at an enormous disadvantage and even within the broadcasting sector, only the handful of very large companies would be likely to succeed in such an environment. Radios pluralism - one of its core strengths - would be severely threatened.

WorldDAB President welcomes launch of DAB in Saxony Anhalt

Michael McEwen visits Germany's first State with operational Digital Radio service



Above: Andreas Maurer, Special Projects Officer and Michael McEwen, President, WorldDAB Forum

WorldDAB's president Michael McEwen and the BBC's Manufacturer's Liaison Manager Tom Livock gave presentations at the German media authorities in Halle and Frankfurt in May and June on behalf of the WorldDAB Roll-Out Support Programme (RSP).

The meetings were organised by the RSP as opportunities to exchange information about the status of the Digital Radio roll-out in Germany and world-wide.

The media authority of the State of Saxony Anhalt, Landesrundfunkausschuss (LRA) had invited some 30 representatives from media authorities, broadcasters and the state governments of Saxony and Saxony Anhalt to a one-day conference "Digital Radio in Central Germany" in Halle on 11th May.

Michael McEwen, Tom Livock, the head of the innovative German DAB radio programme DASDING, Markus Schuler and André Heuer of Fraunhofer Gesellschaft gave an update on current developments in the Digital Radio world.

Mr. McEwen emphasised that DAB is already happening in more than 20 countries all over the world and expressed his appreciation that Saxony Anhalt was the first German State to launch regular Digital Radio services in April this year (see *WorldDAB newsletter 12*).

Mr. Livock described the plans of the BBC and Digital One and gave an overview of the BBC's launch activities for the first DAB receivers in 1998.

Mr. Schuler presented SWR's innovative youth radio programme DASDING that is broadcast via DAB, the Internet and in the morning hours also on a television channel.

Mr. Heuer presented Fraunhofer's development of "Motion-PAD", a system that uses the Programme Associated Data channel of a radio programme to transmit moving pictures in a surprisingly good image quality at low bitrates.

On 8th June, Mr. McEwen and Mr. Livock gave presentations to key players of the Hessen DAB pilot trial as well as the Hessen State Government in a meeting organised by the media authority LPR (Landesanstalt für Privaten Rundfunk) in Frankfurt. In Hessen, preparations for the transition from pilot to regular Digital Radio services are underway and the meeting was an attempt to give local players some helpful information.

Andreas Maurer, WorldDAB's Special Projects Officer gave a talk at the Saxony media authority SLM's Forum "Digitisation of Broadcasting in Saxony" on the 7th June in Dresden. The conference dealt both with radio and television and was meant to support the SLM board in decisions on the regulation of the transition from analogue to digital broadcasting in Central Germany due this summer. Mr. Maurer reported both on the status of the DAB launch in Germany and on the situation abroad.

All meetings were seen as highly successful both by the organisers as well as the participants. The Roll-Out Support Programme was also able to gather important information about the situation in Germany. For further information on the WorldDAB Roll-Out Support-Programme contact Andreas Maurer, Telephone: +44 207 896-9052, email: maurer@worlddab.org.

Right: Markus Schuler, DASDING (SWR)



Shown left: Michael McEwen, President, WorldDAB Forum

ALL INDIA RADIO

All India Radio (AIR) was established in June 1936 and is the public broadcaster in India. Today it covers 97.3% of the population with an audio signal. Through its broadcasting, AIR strives to promote education, national integration and Indian culture. Although it is a public service broadcaster, AIR also runs a commercial service.

In order to better serve the culturally diverse population, All India Radio broadcasts programmes in 24 major languages and 145 tribal and other dialects.

Thanks to AIR's state-of-the-art technical infrastructure and facilities it has been able to keep up with the introduction of new technologies over the years and has been able to meet the challenges set by the ever-changing world of broadcasting.

AIR has been at the forefront of DAB implementation. In 1995 the Research Department of AIR acquired a 125 watt transmitter along with a couple of DAB receivers. The transmitter was installed in New Delhi and is connected to a DAB antenna which has been mounted on top of a 100 meter high tower allowing for a number of propagation studies to be carried out. In addition, the Research Department has carried out some useful laboratory experiments. An experimental DAB service has been running since 1997 in New Delhi and it is hoped that over the next couple of years pilot DAB services will be launched in four major cities: Delhi, Calcutta, Mumbai and Chennai.

The AIR's ultimate aim is to increase listeners choice and to satisfy the growing information needs of the listeners.

...continued from page 2

Safety instructions

- ghost driver: keep to the right and blink headlights
- heavy wind, trailers and campers take alternative route
- fog ahead, maximum speed... km/h

Environmental messages

- smog alert phase 2: trucks to take indicated route
- shut off engines (during extended stationary traffic jams)
- air pollution: city centre closed for all traffic

Hazards

- danger of explosions along route...
- poisonous gas pollution from fire in... area
- access for emergency services during rush hours

Public transportation on-board network:

Applications for trains, high velocity trains, street-cars, buses, etc.

- current location of vehicle on its route
- time deviation (positive or negative) from schedule
- announcement of delays for important connections (trains, planes, etc.)
- alternative means of transportation during hazards or delays

All examples presented relate to target functionalities that have been identified in the Dutch National Traffic and Transportation Plan and the report observes that DAB broadly supports all of these.

Finally, the report states that a number of private enterprises have expressed an interest in providing the necessary hardware and the services on a commercial basis. This would satisfy the Government's plans, which aim to outsource the services.

During the conference the ministry referred to another DAB study, aimed at revealing market interest in commercial NPAD services via DAB. The outcome of this study is in line with that of the other one: all 42 responding companies said they have some measure of interest in developing services on DAB.

Source: "DAB applications for Traffic and Transportation" (Dutch, January 1999) by Beam-IT BV Leidschendam, for the Ministry of Transportation and Public Waterworks, The Hague. Permission for this WorldDAB newsletter by the Ministry is gratefully acknowledged.

DAB - The story so far...

This extract is taken from RADIO-L, a discussion on Digital Audio Broadcasting which can be subscribed to free of charge by going onto the web site <http://magi.com/~moted/dr/>. The discussion is moderated by Ted Ledingham.

In response to Ted's note of 1st June I would agree that it's been quiet of late - that also seems to be true in the world in general - at least as far as the market for home hi-fi is concerned.

Having said that at Arcam we have bucked the trend in one area because we now have almost 100 UK dealers who are able to demonstrate our Alpha 10 Digital Radio tuner to interested consumers. As ever the 80 - 20 rule applies, meaning that most of the sales come from a relatively small number of enthusiastic dealers who have actually bothered to try out the unit and have worked out the benefits for themselves and potential customers. Currently, Bedford (a small town in middle England) is probably the Digital Radio capital of the world, in terms of sales per head of population, with about 20 consumers up and running in the first 4 months; that is of course down to 2 local dealers and no doubt some word of mouth. It is of course early days yet. Also remember these tuners retail for about 1300 USD.

UK press reaction, after a couple of luddite journalists got in early comments about how no data reduced system could possibly be as good as, let alone better than, FM radio (they are seriously mistaken in my opinion) is now turning in favour of DAB. For example, there's a pretty sensible set of comments in June's *What Hi-Fi?* which concludes: "Clearly DAB is capable of superb quality and how well it performs is in the hands of the broadcasters - for now, the Arcam makes a very strong case for itself and the DAB format, and is a pleasure to use." The July issue of *Gramophone* examines the system in some detail, with the help of a frank interview with Glyn Jones of the BBC, and in a separate piece, Geoffrey Horn who reviewed the Alpha 10 concludes: "Yes, the vote must go to Digital. I am buying the Arcam."

Outside the specialist hi-fi media there has also been a good quarter page write up of the system in the *Daily Telegraph* (a leading broadsheet with approx 1 million circulation) on May 2nd, a big spread in *T3* (Tomorrow's Technology Today) magazine and a very positive review in the July issue of radio enthusiasts' magazine, *Radio Today*. We are following up other

national media as fast as we can, within the limits of our resources, because I believe than winning the PR battle now with the nation's opinion formers is vital to the long term success of the system.

Interestingly, many reviewers have ended up buying the tuner, which is both very satisfying for us and bodes well for the future.

Consumer feedback from those who purchased has been uniformly positive in terms of sound quality (we are lucky that the BBC is doing a good job here) and ease of use. Reception has usually been OK but there are plenty of localised blackspots which require some sort of half decent (usually external) aerial. By the way this is often true in dealers, where the store is often inside a steel framed building and because it isn't always easy to get planning permission for an external aerial. However the freedom from interference and lack of background hiss and/or stereo birdies once you've got enough signal has wowed everyone. It is also worth observing that the BBC is managing to cover some 60% of the population, i.e. 34 million people, with an (approximately) 8 station multiplex with a total transmitter power of less than 200kWatts.

My conclusion is - so far so good. We are meeting the (admittedly modest) sales targets we set ourselves and customer response is better than even I could have hoped for. The next stage is to broaden our reach in the UK via the commercial operators (the Digital One commercial multiplex is due to launch in the Autumn) and to start to talk to opinion formers overseas. We have also started to brief our distributors in the DAB aware countries that this is something new and positive to shout about. As a result we are seeing a steady trickle of sales in countries such as Sweden, Belgium and Germany. I am hopeful that this will grow to at least a modest stream as people become more aware that you can actually purchase a proper home tuner to receive DAB broadcasts.

I would welcome constructive comments from others in the receiver field, particularly those in-car guys, as to how they are getting along launching this great new system. I believe we can all learn from each others' experiences, which is why I've tried to start the ball rolling here.

John Dawson (Managing Director, ARCAM),
1st June 1999, updated 2nd July 1999

More on Arcam at <http://www.arcam.co.uk>

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