

# WorldDAB Automotive 2017

*DAB+ in the dashboard: today,  
tomorrow and in the future*

21 June 2017  
Munich, Germany

#worlddabauto

Event Partner Sponsors





# BR

## DAB+

More radio. Less ordinary.

# Welcome to WorldDAB Automotive 2017

## Dear colleagues,

This year we are in Munich, with the automotive industry here likely to play a key role in unlocking the potential of DAB radio in the car – both in Germany and across Europe.

Last year in Brussels I set out three key goals: establish DAB as the core future platform for radio in Europe; radio to be included in the EU's Digital Agenda; and all new car radios to have FM/DAB/DAB+ capability. Against each of these I'm pleased to report good progress.



There is a growing recognition by national and European policymakers, media regulators and broadcasters that DAB digital radio is the core future platform for radio. Just last month, the German Ministry of Economics and Energy (BMWi) announced that the Federal Cabinet has adopted an amendment to the Telecommunications Act, which would require future high-quality radio receivers to be capable of receiving standardised digital signals.

Research from JATO Dynamics, VDA, Glass' Automotive and CAP found that over 4.6 million new cars with DAB were sold in 2016 across eight key European markets and Australia. In Norway, Switzerland and the UK a majority of new cars are now fitted with DAB as standard. In the second wave of European markets, Denmark, France, Germany, Italy and the Netherlands, DAB is fitted as standard in a growing number of vehicles.

With Norway and soon Switzerland switching off FM signals, it is more important than ever for the automotive industry to fully embrace DAB. Our goal now is to encourage car makers and importers in these countries and the rest of Europe to accelerate adoption of DAB radio.

These are exciting times for digital radio and we have come a long way in the last 12 months. It's important for all players across the radio and automotive ecosystems to work together to ensure this momentum continues.

I hope you enjoy the day.

## Best wishes

A handwritten signature in black ink that reads "Patrick Hannon". The signature is written in a cursive, flowing style.

Patrick Hannon,  
President, WorldDAB

# THE SMART WAY TO ADD DIGITAL RADIO TO ANY VEHICLE...



New **SmartDAB**  
**Voice Control**

## UPGRADE TO DIGITAL RADIO...



**SWC**  
Fully integrated  
DAB interface  
controlled from  
your steering  
wheel



**FM**  
Fully integrated  
DAB interface  
controlled via  
a RF remote



**GO+**  
A plug & play  
4" touch screen  
device mounted  
on your dash in  
minutes



**MINI**  
Small portable  
DAB interface  
that can be  
used in your car  
or in the home

**AUTODAB**  
...digital radio on the move

digitalradio Approved Product

DIGITALRADIO

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# PROGRAMME AT A GLANCE

|   |       |  |
|---|-------|--|
| 08:30   | 09:00 | Registration   |
| 09:00   | 09:15 | Opening address  |
| <b>SESSION 1: Keynote speeches</b>                                      |       |  |
| 09:15   | 09:25 | Digital radio in the car – Germany   |
| 09:25   | 09:35 | Digital radio in the car – United Kingdom  |
| 09:35   | 09:45 | Digital radio in the car – Norway  |
| 09:45   | 09:55 | Digital radio in the car – France  |
| 09:55   | 10:05 | Digital radio in Europe  |
| 10:05   | 10:10 | Q&A  |
| 10:10   | 10:30 | COFFEE   |
| <b>SESSION 2: Digital radio in the car today – key market overviews</b> |       |  |
| 10:30   | 11:05 | Automotive country updates   |
| 11:05   | 11:15 | Q&A  |
| <b>SESSION 3: Digital radio in the car today – technology trends</b>    |       |  |
| 11:15   | 11:30 | In-car hybrid radio  |
| 11:30   | 11:45 | Digital radio usability and the user interface: Update from WorldDAB User Experience Working Group                     |
| 11:45   | 11:55 | DAB network coverage planning  |
| 11:55   | 12:15 | Panel discussion   |
| 12:15   | 13:15 | LUNCH  |
| <b>SESSION 4: Digital radio in the car in 5 years</b>                   |       |  |
| 13:15   | 13:25 | Digital radio sales today and a look to the future   |
| 13:25   | 13:50 | Panel discussion   |
| <b>SESSION 5: Digital radio in the car in 10 years</b>                  |       |  |
| 13:50   | 13:55 | Future trends on media consumption, personalisation and standardising technology platforms in the car                  |
| 13:55   | 14:05 | What will radio look and sound like in the autonomous car?   |
| 14:05   | 14:15 | How does radio evolve alongside long-term innovations in the car?  |
| 14:15   | 14:25 | Insights from an in-car product manufacturer   |
| 14:25   | 14:40 | Panel discussion   |
| 14:40   | 15:00 | COFFEE   |
| <b>SESSION 6: Digital radio data and the driver</b>                     |       |  |
| 15:00   | 15:30 | Panel discussion: Could DAB+ be the solution for big data and new technology opportunities?                            |
| 15:30   | 16:05 | Panel discussion: Radio and the consumer – is the digital radio message reaching the driver and what more can be done? |
|   |       | Closing remarks  |
| 16:05   | 17:00 | Networking drinks – sponsored by TT Micro  |

# AGENDA

## Opening address

Patrick Hannon, President, WorldDAB and Vice President  
Corporate Development, Frontier Silicon



Patrick Hannon

09:15 - 10:10

## Session 1

### Keynote speeches

In a watershed year for DAB with the switch-off of FM in Norway, a key area of focus is DAB in cars, with the need for cars in all European markets to be equipped with digital radio as standard. This high-level session looks at what each market is proposing for the future of digital radio.

#### Digital radio in the car – Germany

Siegfried Schneider, President, Landesmedienanstalten (DLM)  
Nathalie Wappler Hagen, Chair of ARD Radio Committee

#### Digital radio in the car – United Kingdom

Ford Ennals, Chief Executive Officer, Digital Radio UK

#### Digital radio in the car – Norway

Rune Hafskjær, Chief Digital Officer, P4

#### Digital radio in the car – France

François-Xavier Bergot, Deputy Head of Radio Directorate,  
Conseil supérieur de l'audiovisuel (CSA)

#### Digital radio in Europe

Helwin Lesch, Steering Group Board Member, European Digital Radio Alliance (EDRA)



Siegfried  
Schneider



Nathalie  
Wappler Hagen



Ford  
Ennals



Rune  
Hafskjær



François-Xavier  
Bergot



Helwin  
Lesch

## Digital radio in the car today – key market overviews

Over the past 12 months, DAB+ development has accelerated in key markets in Europe. This session will look at these developments, with a specific focus on the automotive market.

**Moderator:** Patrick Hannon, President, WorldDAB and Vice President Corporate Development, Frontier Silicon

### Automotive country updates

Laurence Harrison, Market Development Director, Digital Radio UK

Jacqueline Bierhorst, Project Director, Digital Radio Netherlands

Hanns Wolter, WorldDAB Regulatory and Spectrum Committee Chair and Technical Director, DAB Italia

Tobias Enné, Spokesman, National Digital Radio Campaign, Primetime

Michael Reichert, Future Radio Development, Bayerischer Rundfunk

René Wehrin, Project Manager, Digitisation and Convergence, OFCOM

Jean-Marc Dubreuil, Programme Manager, WorldDAB



Patrick  
Hannon



Laurence  
Harrison  
United Kingdom



Jacqueline  
Bierhorst  
The Netherlands



Hanns  
Wolter  
Italy



Tobias  
Enné  
Denmark



Michael  
Reichert  
Germany



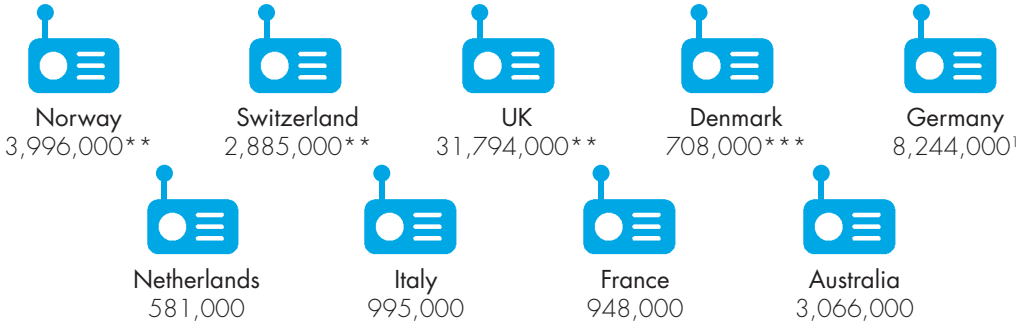
René  
Wehrin  
Switzerland



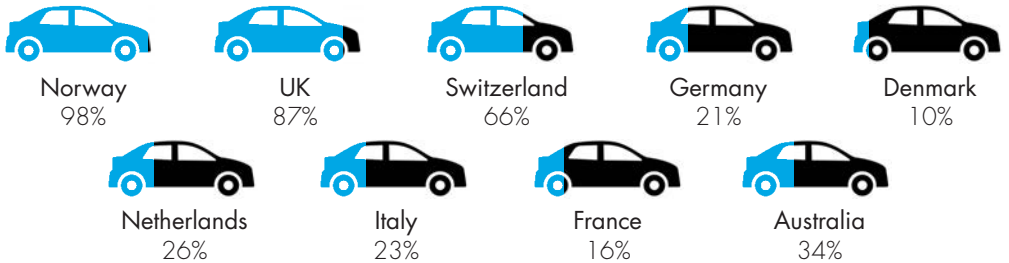
Jean-Marc  
Dubreuil  
France

# DAB/DAB+ DIGITAL RADIO EUROPE AND ASIA PACIFIC (Q4 2016)

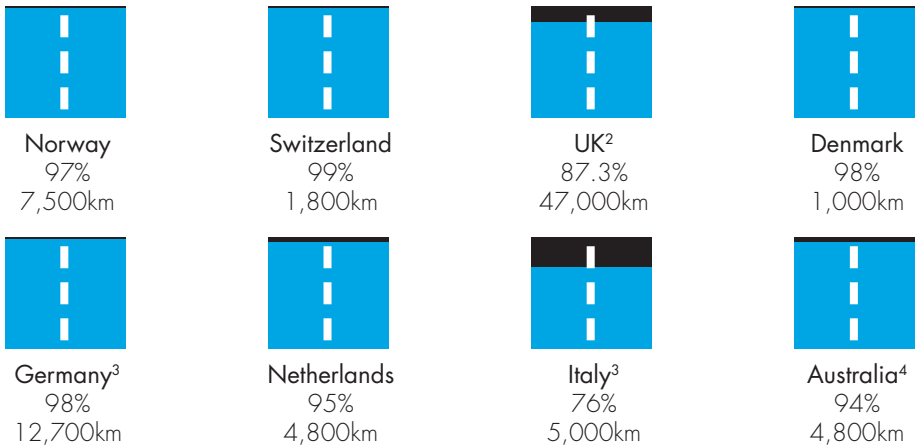
Cumulative DAB/DAB+ receiver sales including automotive 2008-2016



## % CARS WITH DAB/DAB+



## DAB/DAB+ 1ST LEVEL ROAD COVERAGE\*



\*KM 1st level road coverage (motorways, autobahns, autostrade, autostradas, autoroutes). However most countries also have equivalent coverage on 2nd level routes. | \*\* including pre 2008 sales | \*\*\* including sales starting from 2011 | <sup>1</sup> As of Q2 2016 | <sup>2</sup> BBC National | <sup>3</sup> National mux only, regional muxes provide further coverage | <sup>4</sup> Road coverage of DAB+ area covered in five metropolitan capital cities



# WorldDAB's Automotive UX Group – one year on



**Laurence Harrison**, Digital Radio UK and Chair, Automotive User Experience Group, WorldDAB

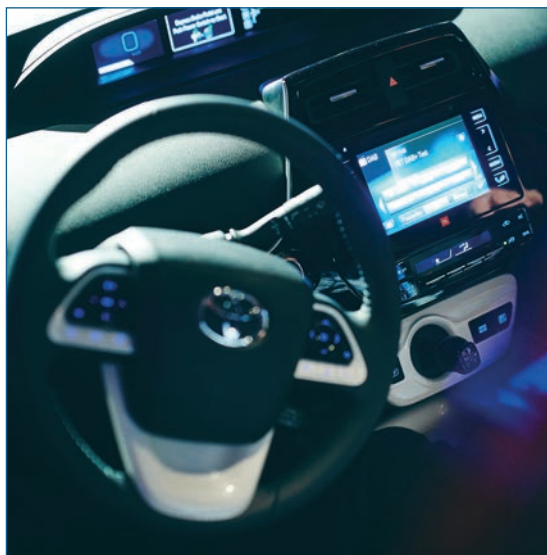
The Automotive User Experience (UX) Group was set up to focus on improving the user experience for in-car DAB radio and understanding the impact of future technology trends. It has a diverse range of members, from automotive OEMs and tier one manufacturers to those across the radio industry.

Bringing together broadcasters and car manufacturers to create the best in-car digital radio experience has instigated lively discussion and debate on what constitutes a great in-car digital radio experience. This is the first time this kind of collaboration has happened and people clearly care deeply about the subject, being willing to listen, learn and work together on better understanding what the digital radio UX is today and how to improve it in the future.

The group felt that setting key areas of focus would ensure clear goals and outcomes. These included: simplicity and intuitive nature of the user interface station search option – by multiplex or A-Z icons, logos and terminology radio's prominence in the dashboard hybrid radio and connected cars.

Although everyone has strong opinions on what constitutes the best user experience, there isn't always clear evidence available. That's why we set out to design and carry out consumer research to better understand the digital radio experience in cars today and how it could be improved.

The research has been carried out across



five major European markets: the UK, Germany, the Netherlands, Belgium and France.

Car manufacturer group members have told us that the initial findings have already been used to input on internal design discussions, showing how this work will make a difference.

The results are vital to inform the next step for the group – development of a set of UX guidelines for both broadcasters and OEMs. These will give clarity to both sides of the industry, ensuring the driver has the best experience with digital radio.

Today I'll be presenting the findings from our research so far and outlining the next steps for the group. I believe this is one of the most important pieces of work being undertaken within WorldDAB and we would like to encourage as many stakeholders as possible to join the group and help shape the in-car digital radio experience for listeners.



# DAB Italia

THE FIRST  
DIGITAL RADIO DAB+  
NATIONAL  
OPERATOR  
IN ITALY

18 NATIONAL PROGRAMS

75% POPULATION COVERAGE A GOAL  
TO REACH 80% BY THE END OF 2017

5,000 KM OF MAIN ROADS COVERED

INCREASING INDOOR COVERAGE



DAB ITALIA s.c.p.a.

With 10 programs, out of 18, in digital DAB+ only, dedicated to music genres, service information, breaking news and image slideshow with artist, album and song title information.



# Easy & Flexible DAB

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Intelligent digital communications

## EasyDAB

/// Test Multiplexer with RF or EDI/EDI output

- . DAB/DAB+ audio with DL/DL+, DMB audio & video, TPEG, EPG, BWS, Journaline,
- . Service Following & Linking (including ASF), Announcement Support & Switching ....

**And also:** ETI player&recorder, multiple multiplexers with multiple RF outputs

Test all DAB features in one box with live RF output!

**NEW**

Bring DAB TPEG on air!



## DAB TPEG Test Kit

/// Test multiplexer with TPEG Inserter and DAB/DAB+ Encoders

- . Prepared for use with 3<sup>rd</sup> party TPEG Encoders
- . Can be upgraded to an EasyDAB

## EasySPY

/// DAB RF Monitoring Receiver

**And also:** Audio decoding (DAB, DAB+,DMB), ETI Metrics, RF Metrics in Band III with display of MER, CIR, spectrum, PAPR(Crest Factor) and constellations, optional: SFN Monitoring (CIR&TII with GPS temporal position)

Save complete live DAB ensembles into ETI or IQ files!

**Common Features:** SNMP (MIB V2), Web Server, NTP Server (optional) with GPS HW module

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# THE SHORTCUT TO DAB+ IN CARS

## C5

## Plug & Play - Top model

- Bluetooth streaming
- Service following
- Bluetooth handsfree
- 10 preset button
- Large bright LCD
- Active film antenna included



Awards given to C5



## Digital radio in the car today – technology trends

The future of radio seems assured, but how are trends in technology changing the way that drivers can listen to radio. This session looks at hybrid radio, radio in the connected car and traffic information services over digital radio. It also looks at the usability of digital radio and how broadcasters and the digital radio industry are working towards a more standard way of delivering and showing information in the car.

**Moderator:** Arjen Bongard, Editor in Chief, automotivET International

### In-car hybrid radio

Christian Winter, Development Engineer Connected Radio, Audi

### Digital radio usability and the user interface: Update from WorldDAB User Experience Working Group & release of report on user experience research

Laurence Harrison, Market Development Director, Digital Radio UK

### DAB network coverage planning

Hanns Wolter, WorldDAB Regulatory and Spectrum Committee Chair and Technical Director, DAB Italia

**Panel Moderator:** Arjen Bongard, Editor in Chief, automotivET International

### Panel discussion

- Christian Winter, Development Engineer, Connected Radio, Audi
- Laurence Harrison, Market Development Director, Digital Radio UK
- Hanns Wolter, WorldDAB Regulatory and Spectrum Committee Chair and Technical Director, DAB Italia



Arjen  
Bongard



Christian  
Winter



Laurence  
Harrison



Hanns  
Wolter

## Digital radio in the car in 5 years

Broadcasters support digital radio and no longer see internet radio as a competitor – more of a complement. Both the audio industry and the automotive industries are changing rapidly, faster than many previously predicted. How will radio in the car be affected in the near future by these rapid changes, especially with new players in the audio market and the changes in driving and listening habits?

**Moderator:** Nick Piggott, Project Director, RadioDNS

### Digital radio sales today and a look to the future

Thomas Glassenhart, Customer Services Manager, Europe, JATO Dynamics

**Panel Moderator:** Nick Piggott, Project Director, RadioDNS

#### Panel discussion:

- Benjamin Poor, Project Manager, Technology & Innovation, EBU
- Florian Franz, Manager Entertainment and Antennas, BMW
- Gereon Joachim, Vice President, Business Development Europe, XPERI



Nick  
Piggott



Thomas  
Glassenhart



Benjamin  
Poor



Florian  
Franz



Gereon  
Joachim

## Digital radio in the car in 10 years

In the longer term, there are many technology developments that will affect driving. Among these are autonomous cars. This session looks at how radio may look and sound in the autonomous vehicle. How will longer-term media trends potentially affect how radio is listened to and what would this mean for the driver?

**Moderator:** Mark Friend, Controller, BBC Radio and Music Multiplatform

### What will radio look and sound like in the autonomous car?

Caroline Grazé, Managing Director, Radioplayer Deutschland

### How does radio evolve alongside long-term innovations in the car?

Arjen Bongard, Editor-in-Chief, automotiveIT International

### Insights from an in-car product manufacturer

Damien Brion, Senior Engineer, Project Manager, Clarion Europe SAS

**Panel moderator:** Mark Friend, Controller, BBC Radio and Music Multiplatform

### Panel discussion

- Caroline Grazé, Managing Director, Radioplayer Deutschland
- Arjen Bongard, Editor in Chief, automotiveIT International
- Damien Brion, Senior Engineer, Project Manager, Clarion Europe SAS



Mark  
Friend



Caroline  
Grazé



Arjen  
Bongard



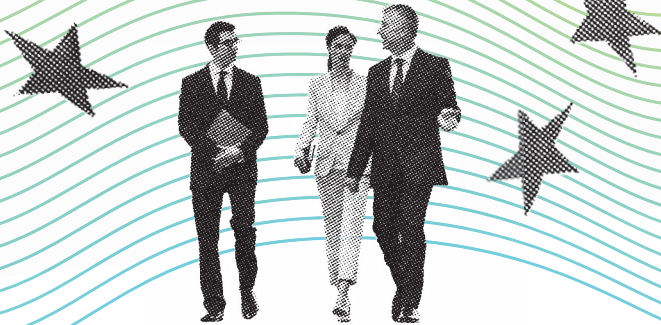
Damien  
Brion



Deutschlandfunk

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# Von Heute. Von Morgen. Von Relevanz.



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## Informationen am Morgen

Montag bis Freitag, 5:00–9:00

Samstag, 6:00–9:00

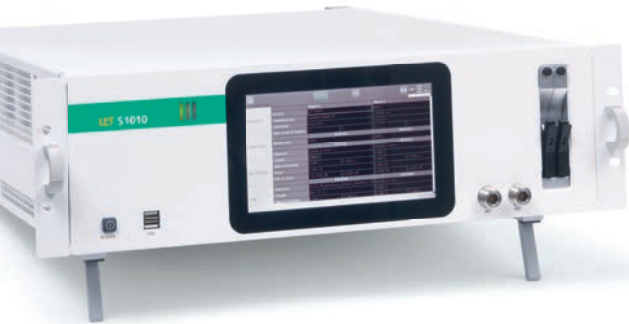
## Alles von Relevanz.

UKW, DAB+ und im Netz





# Solutions for DAB Testing and Head-end installations



## RF Recording and Signal Generation

- High-performance RF receivers
- Recording and data analysis
- Replay of RF signals
- Multi-channel signal generation
- Powerful impairments



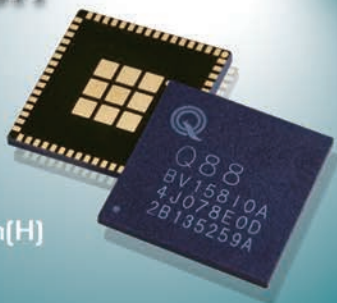
## Encoding and Multiplexer Systems

- Integrated audio encoding and data service management
- Reliable and efficient operation of DAB head-ends
- Suited for virtualization in IT data centers
- Developer Edition for receiver testing

→ Visit us at the exhibition area!

# Q88, SIP Solution for Vehicle Application

- ◎ EUREKA-147 compliant
- ◎ Service following compliant
- ◎ Ultra low-power consumption
- ◎ Small size 17mm(W) X 17 mm(L) X 1.15 mm(H)
- ◎ On-board stereo DAC
- ◎ Universal Serial Bus (USB) for firmware update
- ◎ RoHS/REACH/ DRUK tick mark-compliant



## Vehicle DAB+ Adapter

- ◎ DAB + Tuner
- ◎ Easy Installation
- ◎ Supports both 12V and 24V in-car power
- ◎ FM transmission, or via AUX (3.5mm)
- ◎ Multiple languages support



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## Digital radio data and the driver

DAB is both versatile and there to provide a service to drivers. With overloaded networks and more connected cars, how can DAB be used in the context of the big data issues that OEMs face? And is the message about digital radio getting to the consumer? This double session looks at two areas that are important in the development of DAB digital radio.

**Moderator:** Jacqueline Bierhorst, Project Director, Digital Radio Netherlands

**Panel moderator:** Ronald Haanstra, CEO MTVNL and Vice President, IDAG

### Panel discussion

**Is DAB+ the solution for big data and how can DAB technology be used to create other opportunities for the car industry?**

The automotive industry is experiencing an explosion in the amount of data that is generated and processed, with predictions of 250 million connected cars on the road by 2020. This panel looks at the benefits of using a hybrid (4G/5G and DAB+) system to fulfill demand and at other systems which offer opportunities for the car industry.

- Carsten Friedrich, Account Director Automotive Services, Mediamobile
- Rainer Biehn, Technical Manager, Bayerischer Medien Technik
- Martin Speitel, Group Manager Infotainment, Communication Systems Division, Fraunhofer Institute for Integrated Circuits IIS



Jacqueline  
Bierhorst



Ronald  
Haanstra



Carsten  
Friedrich



Rainer  
Biehn



Martin  
Speitel

**Panel moderator:** Jacqueline Bierhorst, Project Director, Digital Radio Netherlands

## Panel discussion

**Radio and the consumer – is the digital radio message reaching the driver and what more can be done?**

One key area in the development of digital radio in the car should be with the driver. How is the driver's relationship with radio changing as radio goes digital and what has been done to make this transition smooth? What can be done to help drivers get ready for the roll-out of digital radio across Europe?

- Paul Smith, Chief Executive Officer, Pure International Limited
- Eugenio La Teana, Head of Research and Development, RTL 102.5 Hit Radio
- Hans Christian Andersen, Chief Executive Officer, Sahaga AS

## Closing remarks

Patrick Hannon, President, WorldDAB and Vice President Corporate Development, Frontier Silicon



Jacqueline  
Bierhorst



Paul  
Smith



Eugenio  
La Teana



Patrick  
Hannon



Hans Christian  
Andersen



Networking drinks  
sponsored by TT Micro



# IN-CAR DAB SOLUTIONS

## OEM, SEMI OEM AND WHITE LABEL DAB SOLUTIONS TAILOR-MADE FOR YOUR NEED!

Dension is an experienced OEM and aftermarket solution provider in the field of automotive electronics and DAB integrations. The OEM Division of Dension combines both the know-how of the connectivity experience of the fast moving aftermarket world and the automotive quality processes, thus providing fast and reliable solutions to our customers.

Dension OEM services cover the complete product lifecycle from concept development through to the serial production phase. Our main aim is to provide our automotive customers a flexible and reliable production service, utilizing high mix / low volume production techniques and automotive quality standards supported by an integrated production control system.

## DO YOU NEED A CUSTOMIZED DAB SOLUTION?

Our customers include both Automakers and Tier 1 suppliers:



Visit us at the WorldDAB conference!  
Our head of OEM division will answer all your questions  
and you can also test our current products!

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**DENSION**  
LEADING IN CONNECTED ENTERTAINMENT

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## Event Partner Sponsors



**Bayerischer Rundfunk (BR)** is Bavaria's public broadcasting service with around 8 million viewers and listeners per day throughout Germany. With ten radio and two television stations, two internationally renowned symphony orchestras, a celebrated chorus and approximately 5000 professionals, we are one of Europe's most respected broadcast institutions. BR operates broadcast centres in Munich and Nuremberg and 22 regional offices throughout Bavaria.



For 60 years, **Calearo** has been developing and manufacturing products for connectivity, setting the pace of technological development in various market segments, mainly automotive, terrestrial and satellite telecommunications. Initially focused on research and innovation, Calearo quickly evolved its product portfolio to complex multifunction antennas to meet the new connectivity requirements.

## Event Partner Sponsor & Delegate Bag Sponsor



**AutoDAB** is Europe's largest manufacturer/designer of retrofit DAB black box solutions, supplying many of the major European vehicle manufacturers. AutoDAB offers a full range of aftermarket universal add-on solutions as well as fully integrated hidden away adapters which work off the vehicle's steering wheel controls or handy RF remote.

## Networking Drinks Sponsor



**TT Micro** is a Norwegian company, founded in 2001, which today is one of Scandinavia's leading suppliers of mobile accessories and DAB products. We started early with the development of DAB radios and adapters, and our brands Pinell and Tiny Audio are now leading brands in the Norwegian market.

## Lanyard Sponsor



**Dension** is a black belt specialist in DAB receiver integration, DAB product development and production. We offer solutions for the automotive aftermarket businesses, but also to all participants in the digital radio community as we are capable of developing and producing OEM, semi-OEM and white label products for specific needs.

# OBSERVA Field Monitor

MONITORING & ANALYSIS

## Mobile DAB+ Measurements



Our professional USB receiver is specifically designed for the mobile measurements of DAB/DAB+ transmissions. The OBSERVA Field Monitor offers users a number of benefits including:

- Allowing users to monitor RF and ensemble.
- Ability to view modulation characteristics and RF statistics.
- Users can view slideshow, DLS, audio, ensemble and EPG encoding.
- Save-to-file options are available for ensemble (ETI), PAD and sub-channel recordings.
- The USB powered monitor removes any need for an additional power pack.
- Allows users to log metrics.
- Features an integral GPS receiver for coverage mapping.

*"We found the Factum Radioscape OBSERVA Field Monitor very helpful in deploying and troubleshooting DAB SFN networks as well as checking coverage continuity and data integrity."*

- Gilles Misslin, CREACAST

**For more information, visit  
factumradioscape.com or call +44 (0)20 7406 7990**

## Exhibitors



**Antennentechnik Bad Blankenburg GmbH** develops and manufactures antenna systems to the highest technological and qualitative requirements, to meet the standards of the automotive industry, public authorities, distributive trades and specialised industrial operators. The company is well established and highly respected within the antenna industry.



Since 1996, **AVT** has been the leading manufacturer of DAB system components such as audio encoders, redundancy switches, ETI/EDI converters and monitoring decoders.

Together with the DAB specialist IB-Mulka, the tunnel break-in system MAGIC-TBR and the DABRF test receiver with integrated modulator were developed as the first cooperation between the two German companies.



**bmt** is the competence centre for the fulfilment of projects in the field of digital broadcast. For years, the bmt has been active in the specification and implementation of Transport Protocol Expert Group (TPEG) services, including both consulting services and products like TPEG ON AIR, TPEG Analyser, TPEG Editor and TPEG Library.



**Factum Radioscape** is featuring the OBSERVA Field Monitor at WorldDAB Automotive 2017. The OBSERVA Field Monitor is part of Factum Radioscape's Encoding, Multiplexing, Monitoring and Analysis product range.

Factum and Radioscape, which merged to become Factum Radioscape in 2014, have been delivering innovative, reliable and cost-effective products for digital radio broadcasting since 1997.



**Hirschmann Car Communication** is one of the world's leading specialists in transmitter and receiver technology for mobile communications. All around the world, our high-quality infotainment, antenna and tuner systems enable perfect reception of broadcasting services and mobile radio and data services – particularly for communications in and to vehicles.



**IRT** is a world-renowned neutral research and competence centre for audiovisual technologies. Involved from the very beginning, IRT supports broadcasters, device manufacturers and the automobile industry with operational issues and the standardisation of DAB+. IRT presents DAB EDI Archiver, DAB Scout.2 and its HybridRadio app.



# DAB-XPlorer – DABRF

## DAB test receiver with integrated modulator

- ▶ Test receiver and modulator rolled into one
- ▶ RF recording with 1.6 MHz bandwidth
- ▶ Can be combined with software components of the DAB-XPlorer family
- ▶ COFDM modulator for simultaneous generation of up to four DAB blocks
- ▶ GPS receiver integrated
- ▶ Gigabit Ethernet interface



## MAGIC TBR – DAB Tunnel Break-in Rebroadcast System

- ▶ Receiver/Demodulator
- ▶ Modulator output
- ▶ Replacement of all subchannels in case of emergencies
- ▶ DLS, Slideshow and prepared announcements
- ▶ Optional break-in via VoIP



ODR-Edition

## MAGIC AE1 DAB+ Go & ODR DAB Multiplexer





### **Innovationszentrum für Telekommunikationstechnik GmbH IZT**

provides equipment for signal generation, receivers for signal monitoring and recording, broadcast systems and channel simulators. The portfolio includes solutions for DAB head-ends. IZT's signal generators and RF receivers are powerful tools for the analysis of broadcast signals and for the development of radio receivers.



**JVCKENWOOD Corporation** operates in three business sectors – Automotive, Public Services and Media Services – with a focus on its superior technologies in imaging, sound and radio technologies. The Automotive sector centres on car navigation systems and car audio systems with Consumer Business and OEM Business divisions.



**Sony Corporation** is a leading manufacturer of audio, video, imaging, game, communications, key device and information technology products for the consumer and professional markets. With its music, pictures, computer entertainment and online businesses, Sony is uniquely positioned to be the leading electronics and entertainment company in the world. Sony Global [www.sony.net](http://www.sony.net)



**V-Traffic** collects, analyses, refines and distributes European-wide traffic information and mobility solutions. Quality, reliability and up-to-the-minute services are our key values. With over 20 years of experience, V-Traffic has positioned itself to offer the safest and most useful traffic information for the comfort of all users – anywhere, anytime, anyhow!

**Our thanks to bmt for their assistance as local event partners**



## Driving antenna technology forwards



An AM/FM/DAB antenna with a short 23 cm mast and shallow mounting depth. Can used to replace an existing whip antenna.

This active antenna gives outstanding reception, delivering a clear crisp sound.



A high performance sleek active AM/FM/DAB sharkfin antenna with fully optimised digital radio reception. A series of separate seal adapters are available for use with new Mercedes and VW/Audi vehicles. \*NEW version 3785.01 has just been released with added GPS receiver.



Our classic "matchbox" 15 dB DAB gain amplifier/splitter for use with passive antenna.

This unit needs a separate 12 volt supply, the output side of the amplifier will supply this voltage to the cable centre core.



Active radio splitter designed for use with existing rod antenna. A simple and cost effective splitter for legacy vehicles upgrading to digital radio. For simple installation the splitter is available with a range of connectors.



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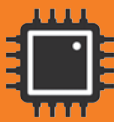
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