

## Multicultural DAB+ Workshop

# Provides a Path to the Future



**Dr Les Sabel**  
WorldDAB Technical  
Committee



Mr Anupon Tajawanno  
Paneda



Mr Nils Ahrens  
Rohde & Schwarz



Mr Yahya Khaled  
ATDI



Mr Aaron Alphonso  
Macquarie Media



Mr Alex Ng  
Gates-Air



The DAB+ workshop held in Kuala Lumpur, Malaysia from 23-27 July 2018 saw a diverse mix of countries working together to take the next steps in establishing DAB+ digital radio.

The event was jointly organised by the Asia-Pacific Broadcasting Union (ABU), the Asia-Pacific Institute for Broadcast Development (AIBD), the Arab States Broadcasting Union

(ASBU) and the WorldDAB, the global industry body for DAB+ digital radio.

The intensive five-day technical workshop was attended by 35 representatives from 13 countries across Africa, the Middle East, South East Asia and the Pacific and was led by Dr Les Sabel of the WorldDAB Technical Committee.

The workshop covered a wide range of topics over the five days. Day one focused on the DAB+ business case and provided a review of radio's evolution, outlining the many reasons to move forward with DAB+ digital radio. The wide range of features available when using DAB+ were described and demonstrated using local demonstrator equipment and current receivers. The day concluded with a look at the future, and how hybrid digital radio can keep radio relevant and provide both commercial and public service broadcasters with exciting new features.

Day two started with a deep-dive into the structure of the DAB standard and how multiplexing systems are used to ensure high spectral efficiency and cost-effective transmission. This was augmented with presentations from Mr Anupon Tajawanno of Paneda on their head-end solutions. The presentations on the transmission side of DAB were assisted by a detailed presentation on high-efficiency transmitters by Mr Nils Ahrens of Rohde & Schwarz. The delivery of Programme Associated Data such as text and images as well as Service Information was assisted by a presentation provided by All In Media.



Day three saw the focus shift to receivers with emphasis on the broad range available – over 600 models and over 68 million sold to date worldwide. A number of receivers were provided by VQ, Pure and Richter and those were demonstrated along with presentations describing their wide ranges of affordable products. Mr Alex Ng of Gates-Air provided a detailed analysis of why DAB+ is the most cost-effective digital radio standard, as well as highlighting their world leading high efficiency transmission products. After a review of regulation topics, the group then focused on the technical details and theory of RF planning. The final session on day three was the start of the hands-on design exercise where four groups were formed to undertake the task as teams. Their mission was to select a design scenario, which could be based on a specific country or a hypothetical one, and develop a high level rollout plan.



Day four started with a practical RF planning session led by Mr Yahya Khaled of ATDI. He presented some design examples of how to determine RF coverage and how to analyse RF interference situations. This was followed by a session on network architecture and design, providing a wide-ranging overview of the options available and the pros and cons of different architectures with respect to cost, reliability and flexibility. The technical details of DAB+ systems having been supplied the work groups then continued in the afternoon defining their hands-on exercise and moving on





to the development of rollout plans. Day four concluded with a tour of the Radio Television Malaysia studios, showing that broadcasting in Malaysia is moving forward and continues to evolve with new facilities being constructed and state-of-the-art infrastructure planned.



On day five the group was addressed by Mr Aaron Alphonso, the CTO of Macquarie Media in Australia. He shared his experience of rolling out DAB+ in Australia from the technology and transmission perspective, but importantly also how the internal studio operations of radio stations needs to evolve to be able to provide multi-faceted multimedia content to ever more demanding audiences. This provided the delegates with an additional perspective to complete their design exercises.

The design teams were very multi-cultural and worked well together, nominating a leader and a presenter. The four teams presented wide ranging problems and solutions. Team 1 focused on a specific geographically transmission problem but also looked at how their deployment plan needed to consider service improvements and time to revenue issues. Team 2 looked into the specific issue of planning DAB+ for the populous city of Bandung in Indonesia and included consideration of the existing and likely new services. Team 3 studied the west coast of Malaysia, proposing a SFN transmission architecture to suit both the local programming demands and the geography while Team 4 expanded their problem space to cover the whole of the Malaysian peninsula and issues such as ATV switch-off and operations requirements. All teams presented well and demonstrated their newly found knowledge and design skills in a very professional manner.



The workshop concluded with a session on how to move forward, essentially encapsulating many of the issues that need to be covered across the radio ecosystem when deploying a new technology. Knowledge of the technology is essential, but a successful deployment involves many stakeholders including the government and regulator, all broadcasters including commercial, public service and community, receiver manufacturers and retailers and the automotive industry.



The final session also saw a receiver prize give away and addresses and words of encouragement from Mr. Utpal Mandal, Programme Manager at the AIBD, Dr Adnan Salhab, Head of the Technical Department of the ASBU, Dr Les Sabel from the WorldDAB Technical Committee and Mr Chang Jin, Director of the AIBD Pacific Broadcasting Union.



The success of the workshop is great credit to all the team members at WorldDAB, ABU, ASBU and AIBD. The delegates have now returned to their own countries to take the next steps in establishing DAB+ digital radio and enthusiastically taking radio into the 21st century.

WorldDAB is the global industry forum for DAB+ digital radio and is available to help and support all those involved in the rollout of DAB+ digital radio. WorldDAB runs workshops, shares best practice and works closely with established and emerging markets to help support the development of digital radio regulation and services.

