



RTM-WORLDDMB-ABU DAB+ TECHNOLOGY WORKSHOP AND TRANSMISSION DEMONSTRATION

28 Feb - 4 Mar 2014, Kuala Lumpur

This event, "RTM-WorldDMB-ABU DAB+ Technology Workshop and Transmission Demonstration", will showcase the DAB+ standard and its transmission technology demonstrating its features and efficiency improvements compared to analogue FM broadcast. The event comprises a 2-day technology workshop followed by a 1-day transmission trial and field measurement exercise in and around the city of Kuala Lumpur and half day session of the test result. The workshop will provide the participants with up to date information on implementation of DAB+ technology, its enhancements and its planning and digital radio implementation aspects. The project aims to equip the participants with expertise in the area of digital radio broadcasting helping them in carrying out similar implementations in their own countries.

PROGRAMME

Time	Topic	Speaker
DAY-1: 28 Feb (Friday)		
0830-0900Hrs Registration open (<i>in front of Dewan Cendekiawan of IPPTAR Hall in RTM</i>)		
Opening Session		
0900 – 1010Hrs	Welcome remarks Introduction, opening remarks and objectives Overview of Regulation and Planning in Malaysia Asia Pacific Overview	Dato' Abu Bakar bin Ab Rahim, Deputy Director General (Operation), RTM Zulkifli Rahim, Principal Assistant Director, Radio Production Section, RTM MCMC, Malaysia Dr Amal Punchihewa, Technology Director, ABU
Session 1: DAB+ Digital Radio Overview and Services		
1010 – 1030Hrs	How Malaysian broadcasters will benefit from DAB+ digital radio	Kath Brown, Head of Strategic Development, CRA
<i>Coffee/Tea break</i>		

1100 – 1230Hrs	Overview of DAB+ Digital Radio – capabilities and functionality Personal Receivers – types, features and trends Automotive Receivers – types, features and which vehicle manufacturers support DAB+ Automotive Best Practice	Dr Les Sabel, WorldDMB Technical Committee Kath Brown, CRA Kath Brown, CR Wilson Ng, Digital Systems Technologist, CRA
<i>1230 – 1500 Extended lunch break</i>		
1500 – 1630Hrs	Examples of new services and platforms Smartphones and Hybrid Radio Apps – Opportunities for Malaysian broadcasters Why DAB+ makes radio environmentally friendly	Kath Brown, CRA Steve Barnes, Managing Director, All In Media, Malaysia Alex Ng, Asia Tx Sales Support manager Harris Broadcast, Singapore
<i>Coffee/Tea break</i>		
1645 – 1730Hrs	RTM Kuala Lumpur DAB+ Trial System description Field Testing Exercise • What will be demonstrated and measured • How and why • Where	Zulkifli Rahim, RTM Wilson Ng, CRA
	Closing remarks	Zulkifli Rahim, RTM
- End of Day 1 -		

DAY-2: 1 March (Saturday)		
Session 2: Infrastructure System Planning		
0900 - 1015Hrs	Additional remarks and objectives Engineering aspects of regulation Structure of DAB+ broadcasting , Part 1a: Head end system – Services • Audio services • PAD types • Data services Structure of DAB+ broadcasting, Part 1b: Head end system – System Structure • Multiplexing and stream structure • Head-end architecture • Signalling • Delay systems • Service extraction from ETI	Zulkifli Rahim, RTM MCMC, Malaysia Dr Les Sabel, WorldDMB Technical Committee Hermann Zensen, Sales Manager, Digidia

<i>Coffee/Tea break</i>		
1030 – 1230Hrs	Structure of DAB+ broadcasting, Part 2: Transmission • ETI/EDI • Modulation and Coding • Transmitters and Repeaters PAD generation methods and hybrid operation overview Playout Systems and PAD Server RF planning Part 1: RF Planning overview • Antenna systems • Single Frequency Networks • Multi Frequency Networks • Network design	Nils Ahrens, Rohde & Schwarz Wilson Ng, CRA Dr Dominique Wenger, CEO, Zenon-Media Group Dr Les Sabel, WorldDMB Technical Committee
<i>Lunch break</i>		
1330 – 1500Hrs	RF planning Part 2: Coverage planning • Coverage planning principles and methods • Propagation models • Comparison with field test data and model tuning • Examples RF Planning, Part 3: Interference • Co-Channel – DAB+ to DAB+ • Adjacent Channel - o DAB+ to DAB+ - o DTV Network Planning • Network types • Multiplexer / head-end location options • Connectivity options • Cost benefit analysis • System construction options	Yahya Khaled, RF Specialist, ATDI South Pacific Milos Pavlovic, Sales Manager Broadcast, LS Telcom AG Dr Les Sabel, WorldDMB Technical Committee
<i>Coffee/Tea break</i>		
1515 - 1645Hrs	System construction phase • System design and documentation • Tendering • Construction planning • Project management • Commissioning Operations and Maintenance • Network Management systems • System monitoring • Maintenance programs • Operations management • On-going activities and financial control	Dr Les Sabel, WorldDMB Technical Committee Dr Les Sabel, WorldDMB Technical Committee

	Field Testing Exercise • What will be demonstrated and measured • How and why • Where	Wilson Ng, Digital Systems Technologist, CRA
	General Questions and closing remarks	Zulkifli Rahim, RTM Zulkifli Rahim, Principal Assistant Director, Radio Production Section, RTM
- End of Day 2 -		

DAY-3: 2 March (Sunday)		
Session 3: Field Measurement		
0900 - 1700Hrs	Field testing activities From RTM site to main transmitter or different OCRs 4 – 6 field trips of approximate 1.5 hrs each	Assumes one vehicle with 5 passengers plus the demonstrator in rear
- End of Day 3 -		

DAY-4: 4 March (Tuesday)		
(Session 4 will take place at Hotel Istana as part of the ABU Digital Broadcasting Symposium Workshops) Room: Safir 2, Ballroom Level, Hotel Istana		
Session 4: DAB+ Results and Discussion		
0900 - 1030Hrs	Opening remarks Presentation of field testing results Questions and Answers DAB+ Business Case Review	Zulkifli Rahim, RTM Dr Les Sabel, WorldDMB Technical Committee Panel session chaired by Dr Amal Punchihewa, ABU Patrick Hannon, President of WorldDMB
<i>Coffee/Tea break</i>		
1100 – 1230Hrs	Next steps to move forward • Regulation • Collaboration and commercialisation • Rollout timing, geography and cost Next Steps for Malaysia	Kath Brown, CRA Panel session chaired by Zulkifli Rahim, RTM

	Closing Remarks WorldDMB Closing Remarks RTM closing remarks	Patrick Hannon, WorldDMB Dato' Abu Bakar bin Ab Rahim, RTM / Zulkifli Rahim, RTM
Lunch		
- End of Day 4 -		

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