



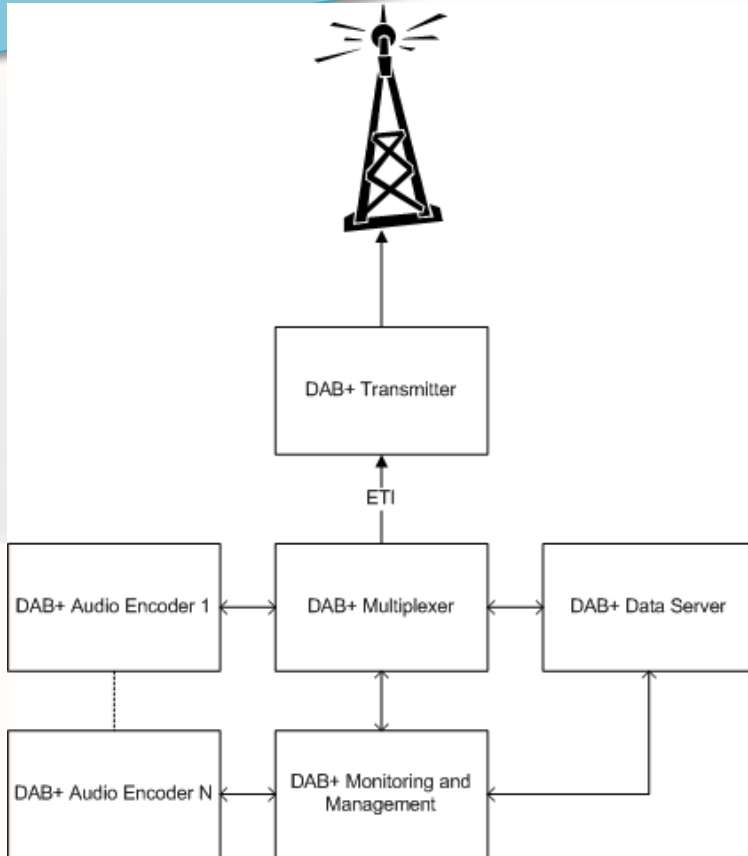
WorldDMB Workshop in Collaboration with NAB and SABC Johannesburg

DAB+ implementation – How to bring it all together

Tuesday 16 July 2013

Ms Kath Brown, Commercial Radio Australia

DAB+ System



DAB+ Multiplexer

DAB+ Audio Encoders

DAB+ Data Server

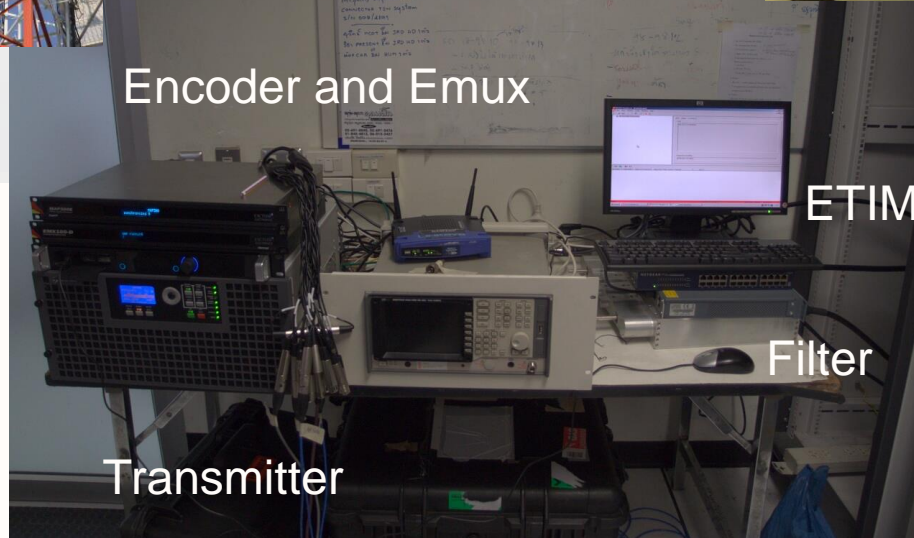
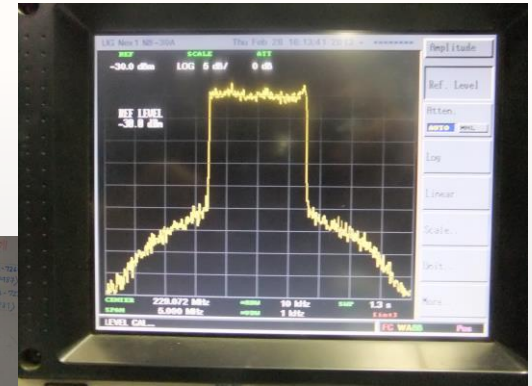
DAB+ Management/Monitoring

DAB+ Transmitter

Antenna

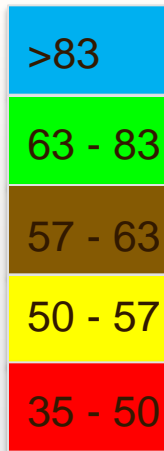
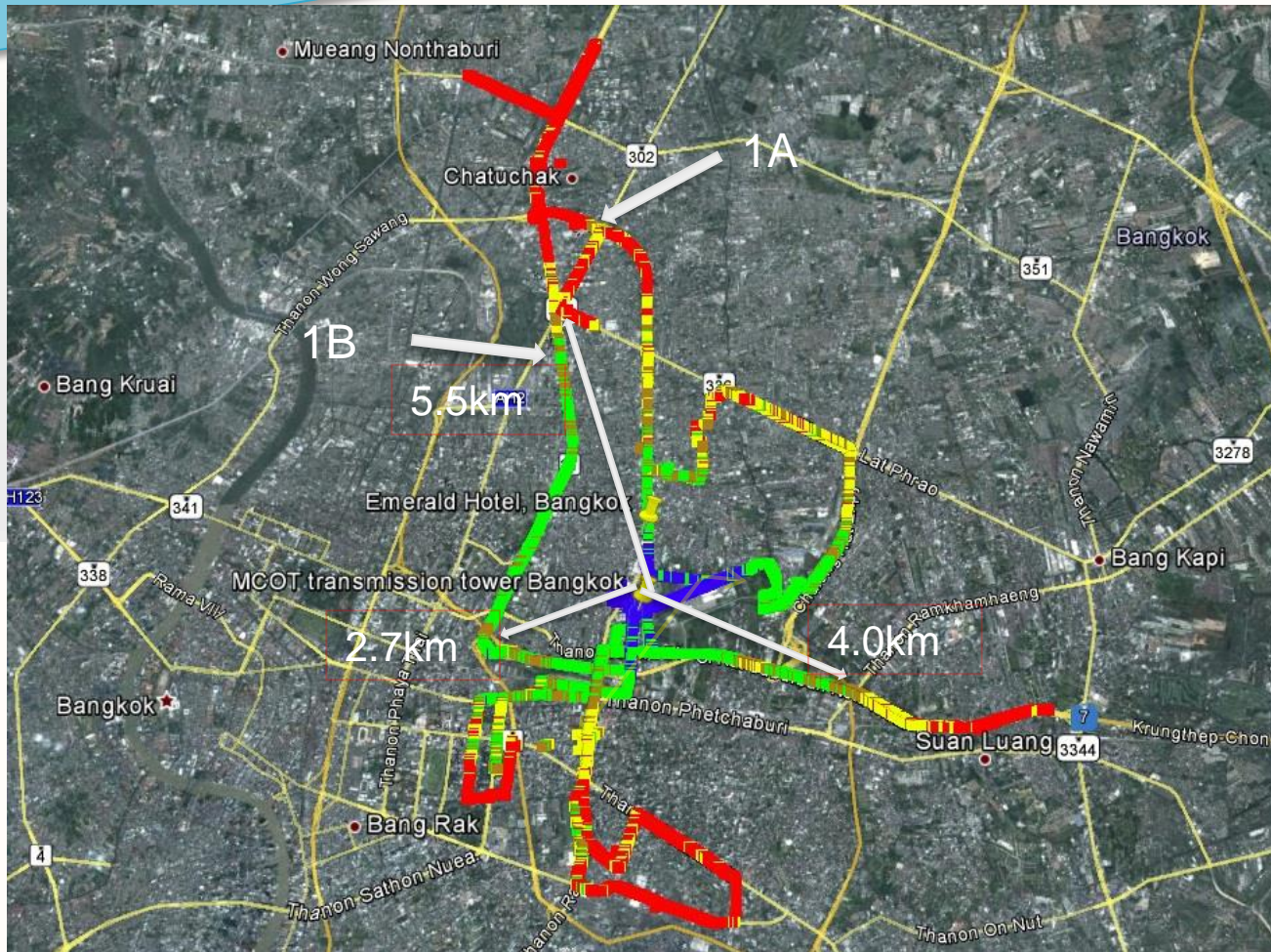
Transmission Equipment

MCOT transmitter site



Reception quality

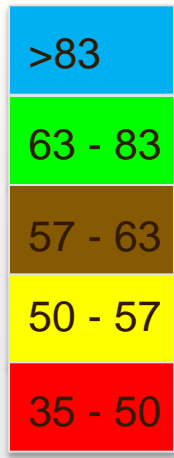
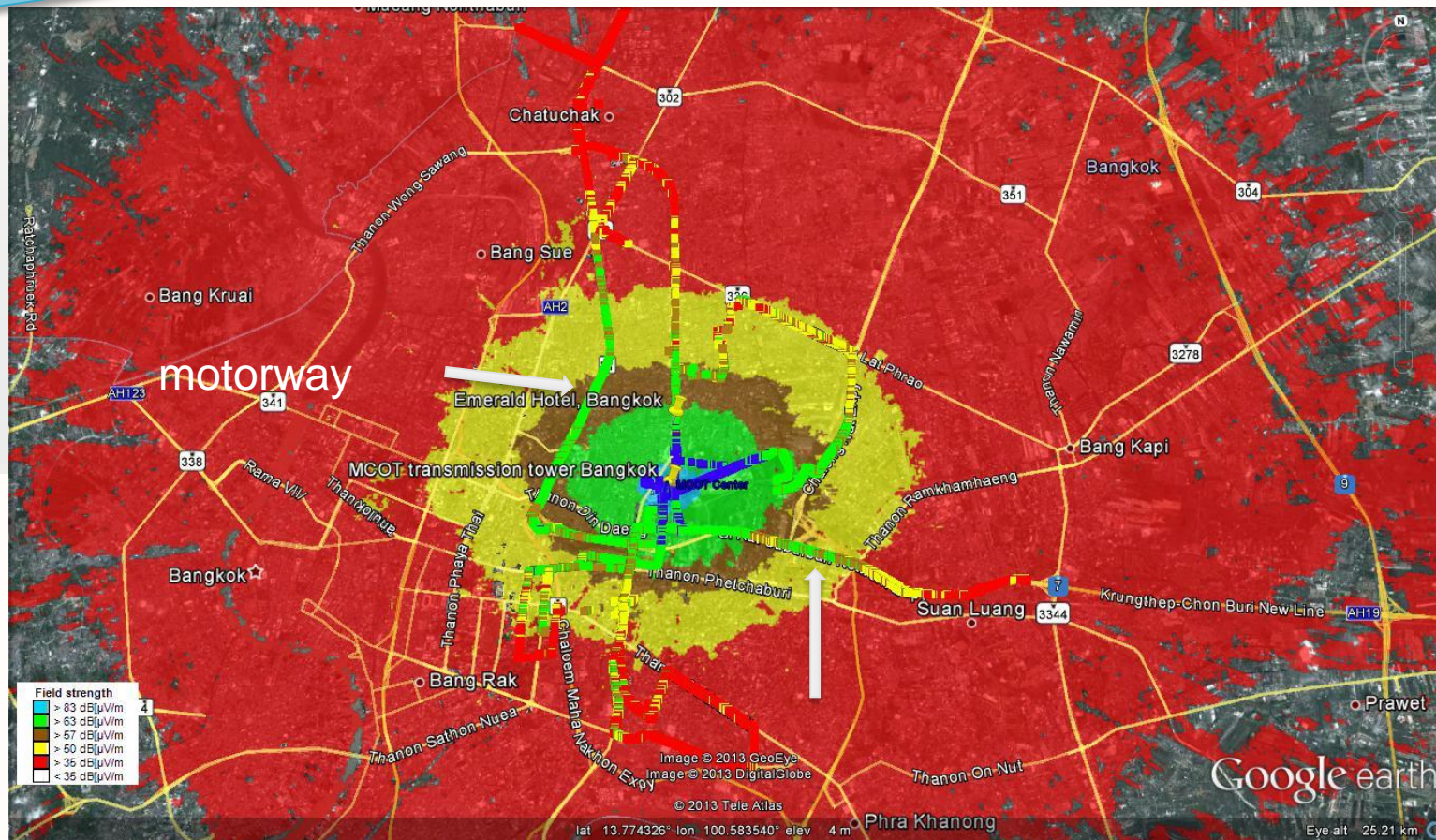
Bangkok urban coverage distances



Demonstration Results

Wide area results - Bangkok

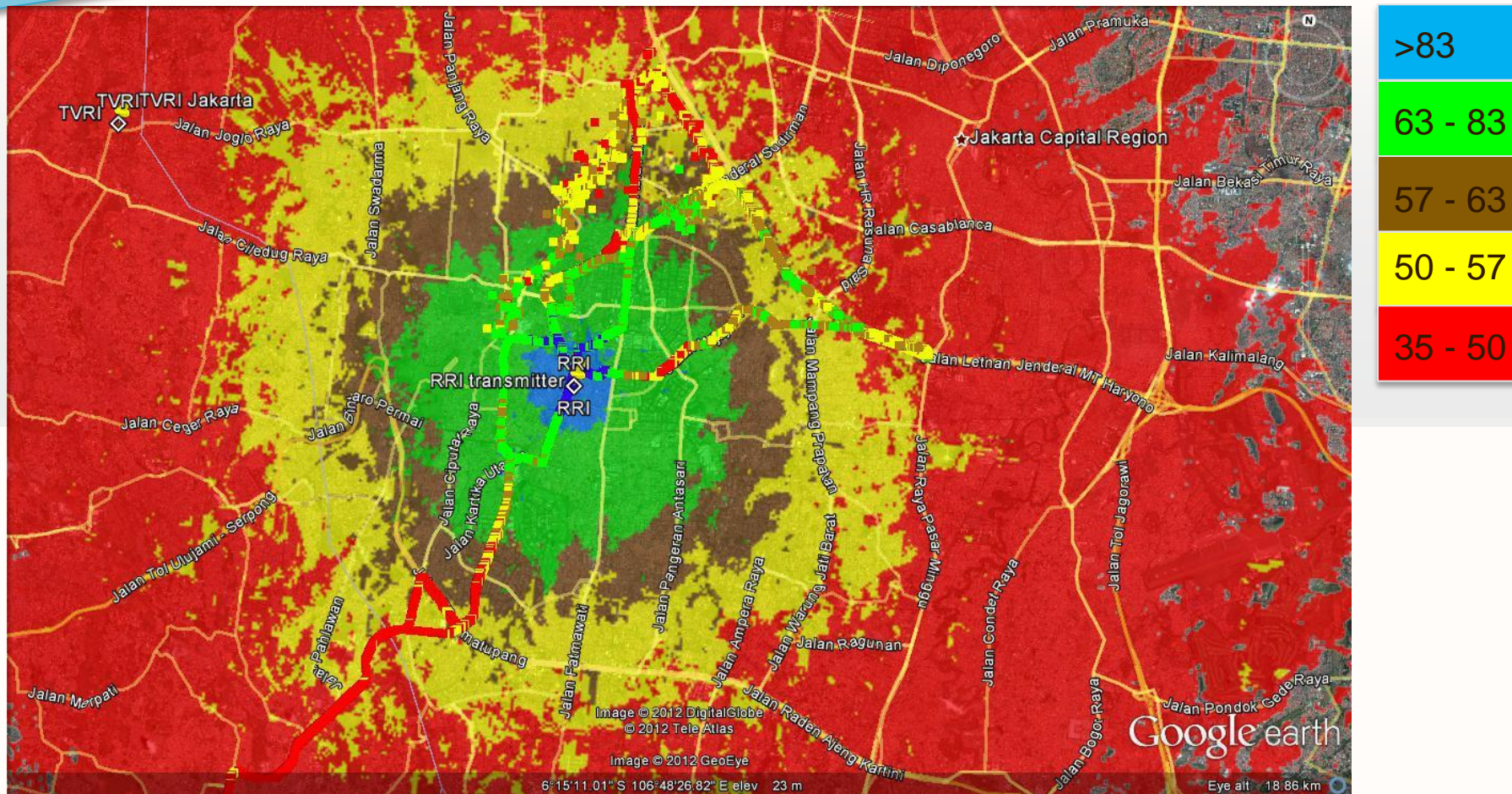
Comparison with prediction shows reasonable correspondence



Demonstration Results

Wide area results - Jakarta

Comparison with prediction shows reasonable correspondence



Technical considerations



- The impact of different aspects of DAB+ radio operation
- Impact of terrain on RF performance
- Impact of FEC code rates
- The audio quality of different bit rates and modes
- Coverage planning can save money on capex and opex
- Field testing is essential to prove and tune the predicted coverage

Radio in South Africa going digital



SABC is planning for digital radio

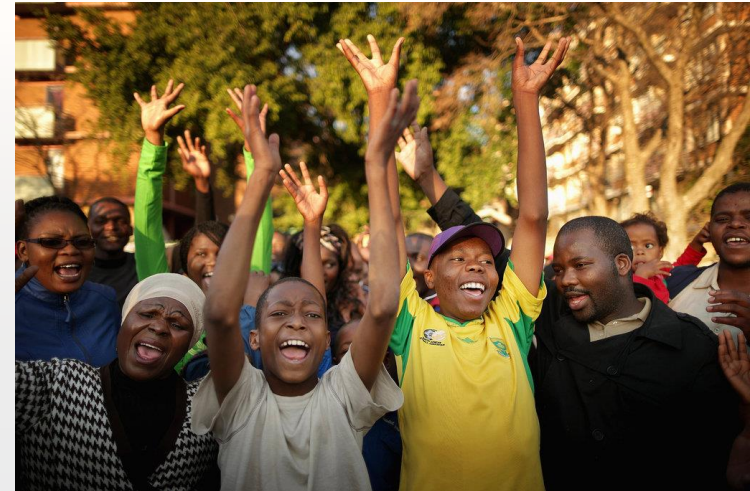
- Regulator and broadcasters working together
- Government Regulation & Policy framework in development
- Spectrum planning for digital frequencies
- Aiming to get high powered indoor & outdoor Coverage

Why go digital?

53m South African people will agree

New Opportunities

- Radio broadcasting will go green
- Costs will be saved over analogue
- New content - New revenue opportunities
- Retail activity and receiver sales stimulate economy
- Listeners will enjoy a better radio free to air
- Radio has a bright future



Benefits : Content

New revenue, new listeners, new opportunities



Simulcast



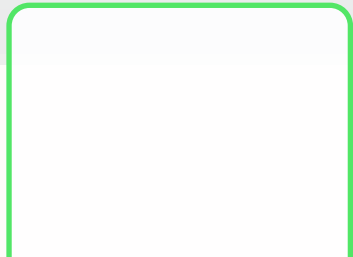
Simulcast



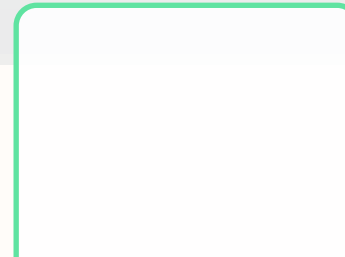
Simulcast



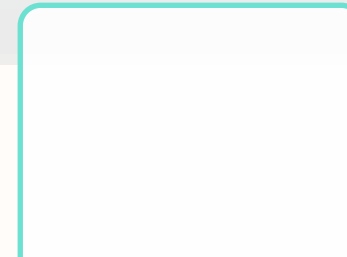
Simulcast



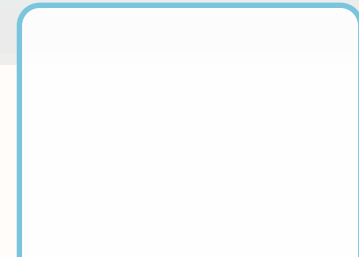
New
Digital only



New
Digital only



New
Digital only



New
Digital only

Its more than just the technology!

Planning of DAB networks

- Process
- RF planning
- SFN operation
- Coverage planning tools and methods

The bigger rollout picture

- Bringing the broadcast stakeholders together
- Engaging the chip, module, radio manufacturers, retail, automotive sectors

Recommendation:

Let's Make African Radio GREEN



- Start in South Africa



- Reduce costs
- Share infrastructure

How DAB+ Makes SA Radio Green

CAPEX

- 6 x lower investment costs with DAB+ Transmitter for the example 18 Radio Programs

\$ ENERGY

- Drastic lower energy consumption with DAB+
- 25x in the example for 15-18 programs compared to 10kW FM
- \$Millions over 10years

FLOORSPACE

- 1 transmitter for 15-18 services, not 18!

ANTENNAS

- 1 shared antenna for 15 -18 services

SPARES

- Fewer spares needed, easier to store and ship

Implementation Recommendations

1. Consider DAB+
Rollout a
National Project

2. Establish
Timetable for
Rollout

3. Provide
incentives for
Broadcasters



How to do it? Recommendation 1:

DAB+ Rollout is a National Project

Establish a National Steering Committee comprised of public service and private broadcasters and the regulator. It should set the timetable for implementation of digital radio rollout.

The National Steering Committee should set up national subcommittees to report back to the Steering Committee on a number of issues



Planning and Licensing

Form a Planning and Licensing Subcommittee to plan rollout and licensing regime made up of broadcasters and regulator.

Multiplex spectrum licenses should be issued to operating broadcasters only.

Broadcasters could form a consortium to own and operate the multiplex in each market



Marketing and PR

Shout out to listeners & retailers!!

- Form a Consumer Launch Sub Committee comprised of broadcasters, retailers and manufacturers
- Form a Marketing Sub Committee to develop a Marketing & PR Plan
- Tell them often about digital radio
- Make sure the retailers have an affordable range of receivers



Benefits : Stimulate retail & radio sales



Buy a **Digital Radio** at these participating retailers and get...

10% off!* It's radio as you know it, plus...

Just collect a flyer from our staff and present the coupon in-store!

clicksmith **Harvey Norman**
it with

THE GOOD GUYS **MYER**
ismystore

Target.

* Offer valid on DAB digital radio purchases on selected dates and specified stores only - please refer to coupon for full terms and conditions.

1 million people agree...

It's a **million times better**

Digital Radio is free. Listen to your favourite AM and FM commercial stations plus ABC, SBS and so much more! DAB+ Digital Radio is available in Sydney, Melbourne, Brisbane, Adelaide and Perth.

Ask your local retailer

digitalradioplus.com.au



Recommendation 2:

Establish Timetable for Rollout

Cities

- Begin in high population density cities and towns

Towns

- Major towns
- Towns with 10000 plus



Once you know how many ensembles start spectrum planning

Ensembles

- **Need a frequency each**

Channel planning

- **How many DAB+ channels**
- **Re-use more than 300k away**



Recommendation 3:

Incentives for Broadcasters to Invest

- **Free digital licences**
- **Switch off time table for analogue**
- **Current broadcasters only for a period**
- **No new entrants - non compete period**
- **Opportunity for extra stations**
- **No restriction of formats**
- **Own Multiplex Licences**



Conclusion



Successful elements from DAB+ rollouts worldwide...

- Choose most powerful spectrum efficient technology – DAB+
- Broadcasters keep analogue spectrum
- National Coordination - all of industry working together
- Planning for high power and indoor coverage
- New content and affordable receivers
- Marketing Strategy to inform listeners