

Recent Developments in DAB+

Lindsay Cornell, Chair, World DAB Technical Committee
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Topics

- Digital radio switchover
- Market conditions
- UK
- Europe
- Other regions

- Promotes the uptake of digital radio around the world
- A member organisation
- Not-for-profit
- Maintains and develops the DAB standards through its Technical Committee
- Works with a wide range of stakeholders
- Sponsors this event

Digital Radio Switchover

- Norway completed digital switchover to DAB+ end 2017
- Switzerland next, starting 2020



- Norway's plans were triggered by the announcements from the UK about switchover
- In 2011, UK announced a possible 5-year timeline for DSO
- For TV switchover, the UK had had a "Tick Mark"
 - A graphic which showed the public which TVs and set-top boxes met the requirements
- For radio switchover, the UK created the Radio "Tick Mark"



- The "Tick Mark" could only be used on products that met a minimum set of feature and performance standards

Beyond the UK

- Other countries in Europe saw the benefits of the UK's "Tick Mark" scheme
- But their DAB plans were not exactly the same...
 - Different frequencies used
 - Other languages needed more characters to be properly displayed
- World DAB took on the task of creating the technical basis of Europe-wide minimum requirements for DAB receivers
- The result is ETSI standard TS 103 461



- Sets out the minimum requirements for all the core DAB features and performance
 - R.F. performance, scanning, tuning
 - Audio decoding
 - Display of labels
 - Automotive features
 - Service following, announcements
- Applicable to most of Europe
 - Only specifies Latin characters for display

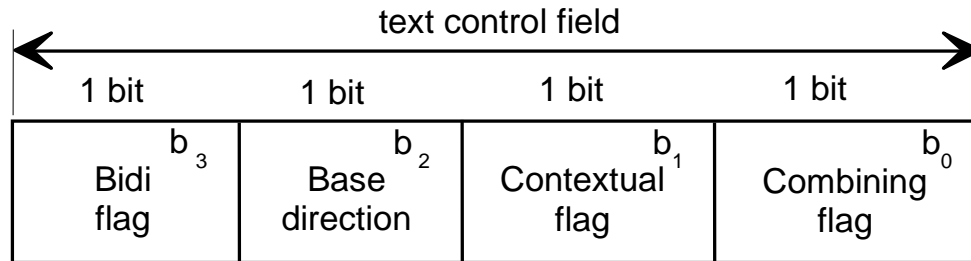
Other regions

- World DAB TC has been working on how to improve display capabilities for other regions
- Non-Latin text has been a big topic
- New ETSI specification defines the framework for using non-Latin text
 - Additional signalling field to provide key complexity indicators
 - Regional profiles concept to define scope and limits for particular markets



Additional signalling for each label

- Text control field



- Provides key information
 - base direction: tells the receiver to display the text LTR or RTL
 - “complexity” flags to indicate the rendering capabilities needed for each label
 - Bidirectional text (i.e. both LTR and RTL in the same label)
 - Contextual characters (i.e. glyph changes with position)
 - Combining characters (i.e. glyph is composed of different parts)

- Define what will be transmitted – complexity, character ranges
- Define what capabilities receivers require
 - Renderers, glyph sets
 - May be used for market requirements regulations
- Three profiles so far defined
 - Latin abcdef...
 - Full Europe (Latin, Greek, Cyrillic) abcdef... αβγδεζ... ЖЩЙЯЮ...
 - ASBU (Arabic, Latin) جسدضغڱ abcdef...
- Further profiles for additional markets are easy to add once agreed

Minimum requirements for ASBU

- In the Arab States Broadcasting Union region, the idea of a minimum receiver requirements specification has been considered
 - The frequencies available for DAB are the same as in Europe
 - The performance and feature requirements are almost the same as Europe
 - Only the need for the display of Arabic text is different
 - And the desire for performance standards for analogue AM and FM
- The solution is based on ETSI TS 103 461 – the “Tick Mark” standard
 - extended to include the ASBU profile specified in ETSI TS 103 176
 - with ITU recommendations for AM and FM requirements

Other regions

- World DAB is happy to work with others to find solutions for their regions
- The core DAB technology requirements are specified by ETSI TS 103 461
- Additional regional profiles can be defined in ETSI TS 103 176 to ensure display requirements are met

Thank you

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