WORLD

DMB

Digital Multimedia Broadcasting

Radio • Mobile TV • Multimedia • Traffic Data

World DMB Forum

Digital Radio Receiver Profiles

Issue Date: 12 September 2008

World DMB Digital Radio Receiver Profiles

Summary

The World DMB Digital Radio Receiver Profiles are designed to help create a vibrant digital radio market across Europe and the world by defining minimum functionality for different classes of digital radio receivers that use the Eureka 147 based DAB system. This provides broadcasters with confidence that the services they plan will be receivable, and manufacturers that their technology investments will be supported by services. The consumer gains from knowing that the product they have chosen contains the necessary features to provide them with a consistent quality of experience and assured levels of interoperability across Europe and beyond.

Products designed to meet the World DMB Receiver Profiles will decode all audio services, along with other features depending on the complexity of the receiver. The profiles were developed by World DMB, in collaboration with the EBU and EICTA, with the aid of member experts representing silicon manufacturers, consumer device manufacturers, radio broadcasters and other experts from across the industry. The composition of the profiles takes into account manufacturing issues, broadcaster requirements, consumer experience and other market aspects.

Broadcasters and regulators may select any of the audio and multimedia capabilities of the Eureka 147 family of standards to meet the specific needs of their market with confidence, whilst those already broadcasting are able to plan the introduction of more advanced features.

Scope

The World DMB Digital Radio Receiver Profiles define the minimum functionality requirements of products within each profile. Manufacturers may offer additional features in order to differentiate their product from others.

The Receiver Profiles are composed of **mandatory features** which must be implemented and **recommended features** which offer enhancements with wide appeal.

Manufacturers making products to receive Eureka 147 based services are encouraged to self-declare adherence of a product to one of the Receiver Profiles. Manufacturers intend to develop a logo to promote digital radio receivers offering this pan-European interoperability.

Broadcasters may use the Receiver Profiles to plan services for maximum take-up and to help listeners to make sensible purchasing decisions.

Regulators may use the Receiver Profiles to develop strategies and policies for digital radio broadcasting within national boundaries or with reference to trans-national and harmonised markets.

The Receiver Profiles describe minimum functionality; the implementation of each feature in conformance with the relevant ETSI standards is best determined by each manufacturer and is not proscribed.

In-car products are subject to the normal safety related conditions, for example limitations for scrolling, access to services while driving, image per second limitations, etc, according to regulators or OEM requests.

Products which do not meet the requirements of any profile may continue to be manufactured for established digital radio markets on a market-specific basis.

The World DMB Receiver Profiles reflect receiver design issues and broadcaster capabilities appropriate for the current period and for the foreseeable future. Future changes and additions to the ETSI standards defining the Eureka 147 family of standards, technology advances and market developments will be reviewed and may lead to revision of these Receiver Profiles.

World DMB will publicise the Receiver Profiles and actively encourage its members to adopt them.

World DMB Forum. Project Office. 30 Leicester Square, London, WC2H 7LA, United Kingdom. www.worlddab.org

Tel: +44(0) 20 7288 4645   Fax: +44(0)20 7288 4643   Email: rosemary.smith@worlddab.org

Receiver Profile 1 - Standard Radio Receiver

This is an audio receiver with a basic alphanumeric display.

Spectrum[1]	Band 3 reception (174 to 240 MHz) is mandatory in all territories. L-Band reception (1452 to 1492 MHz) is mandatory for all in-car products and for receivers sold in territories with L-Band services on-air or licensed[2].
Channel decoding	Decoding of a minimum of one sub-channel is mandatory. Decoding of a minimum of 280 Capacity Units (e.g. 256 kbps@UEP1) is mandatory for sub-channels containing DAB audio services[3]. Decoding of a minimum of 144 Capacity Units (e.g. 256 kbps@EEP3B, 192 kbps@EEP3A, 96kbps@EEP1A) is mandatory for sub-channels containing DAB+[4] or DMB services[5].
Audio	MPEG layer 2[6] decoding is mandatory. MPEG-4 HE AACv2[7] decoding is mandatory[8].
Text	Service label (station name) display is mandatory. Dynamic label display is mandatory on products with a 2-line display or better (except for in-car products).
EPG	EPG[9] presentation is recommended for products with a suitable display. When implemented it may be used to select services.
Analogue services	FM-RDS[10] and MW (AM) decoding is recommended for all products.
Traffic & Travel	For in-car products, TPEG[11] and TMC[12] decoding is recommended. For in car products, announcement signalling and switching is recommended.
Service Following	For in-car products which include FM-RDS decoding, service following between DAB, DAB+ and DMB services and their signalled simulcasts[13] carried on FM-RDS is mandatory. For in-car products, service following between DAB, DAB+ and DMB services and their signalled simulcasts[14] carried in adjacent DAB ensembles is recommended.

---

[1] Note that centre frequencies used in Europe are not used throughout the world; receivers designed for global use will need to tune to other centre frequencies
[2] See www.worlddab.org for details
[3] As defined in ISO EN 62104
[4] As defined in ETSI TS 102 563
[5] As defined in ETSI TS 102 428
[6] As defined in ETSI EN 300 401
[7] As defined in ETSI TS 102 563 and ETSI TS 102 428
[8] Note that BSAC audio is used in DMB profile 1 but is not required for European receivers
[9] As defined in ETSI TS 102 818 and TS 102 371; decoded from X-PAD (see EN 300 401 clause 7.4 (v1.4.1 onwards)) and packet mode including FEC (see EN 300 401 clause 5.3.5 (v1.4.1 onwards))
[10] As defined in ISO EN 62105
[11] As defined in ISO TS 18234
[12] As defined in ETSI TS 102 368
[13] Signalling of alternate sources of the same programme using FIG 0/6, FIG 0/21, etc, and on FM-RDS services using RDS ODA 147 (ETSI EN 301 700)
[14] Signalling of alternate sources of the same programme using FIG 0/6, FIG 0/21, etc

World DMB Forum. Project Office. 30 Leicester Square, London, WC2H 7LA, United Kingdom. www.worlddab.org

Tel: +44(0) 20 7288 4645   Fax: +44(0)20 7288 4643   Email: rosemary.smith@worlddab.org

Receiver Profile 2 - Rich Media Radio Receiver

This is an audio receiver with a colour screen display of at least 320 x 240 pixels.

All Receiver Profile 1 functionality, *plus:*

Channel decoding	Simultaneous decoding of a minimum of four sub-channels is mandatory. Decoding of a minimum of 288 Capacity Units (total) is mandatory.
Text	DL+[15] and Intellitext[16] presentation are mandatory. Journaline[17] presentation is recommended.
EPG	EPG[18] presentation is mandatory. Decoding of the advanced profile is recommended. The EPG can be used to select and record services.
SlideShow	SlideShow[19] presentation is mandatory.
BIFS	MPEG-4 BIFS[20] presentation is mandatory.
Broadcast Website	BWS[21] presentation is recommended when a suitable browser and navigation method exist.
Traffic & Travel	For in-car products, TPEG[22] and TMC[23] decoding is mandatory for products with integrated navigation systems.
Service Following	For personal products[24], service following between DAB, DAB+ and DMB services and their signalled simulcasts carried in adjacent DAB ensembles and on FM-RDS is recommended.

Receiver Profile 3 - Multimedia Receiver

This is a multipurpose receiver with a colour screen display capable of rendering video.

All Receiver Profile 2 functionality, *plus:*

Channel decoding	Decoding of a minimum of 432 Capacity Units (total) is mandatory.
Video	H.264 decoding is mandatory[25].

---

[15] As defined in ETSI TS 102 980
[16] As defined in ETSI TS 102 652
[17] As defined in ETSI TS 102 979
[18] As defined in ETSI TS 102 818 and TS 102 371; decoded from X-PAD (see EN 300 401 clause 7.4 (v1.4.1 onwards)) and packet mode including FEC (see EN 300 401 clause 5.3.5 (v1.4.1 onwards))
[19] As defined in ETSI TS 101 499; decoded from X-PAD (see EN 300 401 clause 7.4 (v1.4.1 onwards)) and packet mode including FEC (see EN 300 401 clause 5.3.5 (v1.4.1 onwards))
[20] As defined in ETSI TS 102 428
[21] As defined in ETSI TS 102 498; decoded from X-PAD (see EN 300 401 clause 7.4 (v1.4.1 onwards)) and packet mode including FEC (see EN 300 401 clause 5.3.5 (v1.4.1 onwards))
[22] As defined in ISO TS 18234
[23] As defined in ETSI TS 102 368
[24] For example mobile or handheld products
[25] As defined in ETSI TS 102 428

World DMB Forum. Project Office. 30 Leicester Square, London, WC2H 7LA, United Kingdom. www.worlddab.org

Tel: +44(0) 20 7288 4645   Fax: +44(0)20 7288 4643   Email: rosemary.smith@worlddab.org