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WorldDAB Position Paper on DAB functionality

As DAB is being successfully implemented world-wide, WorldDAB Members consider that it is vital for all the players in the DAB value chain (broadcasters, transmission operators and consumer electronics manufacturers) to fully understand and coherently implement DAB features suitable for end-users.

To this end, WorldDAB Module 1 has produced a consolidated list (Annex A) of features that DAB will include by the end of the year 2000.

It is now recognised that DAB - as originally implemented - omitted some attractive features. However, **this** *list now includes new features not previously implemented but these will be provided in transmissions and new generation receivers before the end of the year 2000.*

The practical implementation of these new features means, that broadcasters and transmission operators feel committed to put the listed features on air within the given time frame. Furthermore consumer electronics manufacturers are committed to prepare corresponding new generation receivers capable of decoding the new features.

It should be pointed out that the task of agreeing this present list has not been easy. Indeed, a significant amount of co-ordination and co-operation has been required to reach this agreement.

The consensus presented in this Position Paper is supported by all members of the WorldDAB Forum.

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It is the firm intention of all partners to further develop DAB and continue introducing multimedia features and new applications in a harmonised manner, in order to make DAB even more attractive for the consumer market.

Module 1
November 1999

Annex A

Consolidated List of expected DAB features[1] - to be implemented by the end of the year 2000

	FIG's
1. RF RELATED ATTRIBUTES (3), (4)	
• **Transmitter Identification Information**	
• **For Multi-Frequency Networks**	
- Signalling of frequencies for all SFN's being part of the MFN, with Region Identifiers	0/21 + 0/11
• **Fulfilling Continuity Requirements**	0/21
2. FEATURES SIGNALLED IN THE FIC (3), (4)	
• **Programme Types (8)**	
- Dynamic and Static, from the International Table, with Language signalled	0/17 + 0/9
• **Announcements (8)**	
- Within the Current Ensemble, with Region Identifier and New Flag	0/18 + 0/19 + 0/9 + 0/11
- Cross-referencing to Traffic Announcements on FM-RDS with Region Identifier and New Flag	0/27 + 0/28 + 0/11
- Region Labels	1/3 + 0/11
• **Frequency Information / Linking / Services on other carriers**	
- For same or hardlinked Services on Other DAB Ensembles and FM-RDS, with Region Identifiers	0/21 + 0/24 (+ 0/6) + 0/11
- For soft-linked Services on Other DAB Ensembles and FM-RDS, with Region Identifiers	0/21 + 0/24 + 0/6 + 0/11
- Provision of Ensemble and Service Labels for Other DAB Ensembles	1/0 + 1/1 + 1/5
- Fulfilling the Continuity Requirements for neighbourhood DAB Ensembles and FM-RDS	0/21
Services as far as identical content is concerned (enables service following like in RDS)	

[1] The list given in this Position Paper represents a consolidated view of all WorldDAB members including broadcasters, transmission operators and consumer electronics manufacturers. All features given in this list should be implemented by all players in the value chain. Optional features are shown in square brackets and may or may not be implemented. The list given in this position paper represents the most relevant sub-set of features prior to the end of 2000 and is not intended as a complete survey of all the possibilities.

• **Time & Date**	
- (UTC/MJD plus Local Time Offset)	0/10 + 0/9
• **Service Component Language (8)**	0/5
• **Secondary Service Components**	0/2
- Global Identification.....	0/8
- Service Component Labels.....	1/4 + 0/8

3. AUDIO RELATED ATTRIBUTES (3), (4)

- „Digital Audio“	
- Dynamic Range Control	F-PAD
- Low Sampling Frequency	DAB audio frame header
- Music/Speech distinction.....	F-PAD
- [Audio storage, x minutes]	

4. DATA APPLICATIONS

• **Dynamic Label (3), (4), (8)**	
- With Headlines.....	0/13 + 0/8 + CI
• **MOT Broadcast Web Site (1), (5), (6), (8)**	
- With MOT Directory.....	0/13 + 0/8 + {0/2 or CI}
• **MOT Slide Show (1), (5), (7), (8)**.....	0/13 + 0/8 + {0/2 or CI}
• **Data output on the receivers**	
- RDI (2) or others	

Acronyms used:

FIC	Fast Information Channel
MFN	Multi-Frequency Network
MJD	Modified Julian Day
MOT	Multimedia Object Transfer (Protocol)
RDI	Receiver Data Interface
RDS	Radio Data System
RF	Radio Frequency
SFN	Single Frequency Network
UTC	Universal Time Co-ordinated (equals Greenwich Mean Time)

- ends -

References:

(1) ETS EN 301 234: "DAB; Multimedia Object Transfer (MOT) protocol"

(2) CENELEC EN 50255: "RDI (Receiver Data Interface)"

(3) ETS (EN) 300 401: "Radio broadcasting systems; Digital Audio Broadcasting (DAB) to mobile, portable and fixed receivers".

(4) (ETSI TR 101 496) Digital Audio Broadcasting (DAB): Guidelines and Rules for Implementation and Operation

(5) (ETSI TR 101 497) Digital Audio Broadcasting (DAB): Rules of Operation for the Multimedia Object Transfer Protocol

(6) (ETSI TS 101 498) Digital Audio Broadcasting (DAB): Broadcast Web Site Application

(7) (ETSI TS 101 499) Digital Audio Broadcasting (DAB): Slide Show Application

(8) (ETSI TS 101 502) Digital Audio Broadcasting (DAB): Registered Tables

CENELEC: Comité Européen de Normalisation Electrotechnique, Central Secreatriat, rue de Stassart 35, B-1050, Brussels, Belgium

ETSI: European Telecommunications Standards Institute, F-06921, Sophia-Antipolis 650 Route des Lucioles, Valbonne, France

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