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Digitalna zvokovna radiodifuzija (DAB) - Vmesniki za razpošiljanje - Vmesnik za prenos storitev (STI)

Digital Audio Broadcasting (DAB); Distribution interfaces; Service Transport Interface (STI)

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Foreword

This European Standard (Telecommunications series) has been produced by the Joint Technical Committee (JTC) Broadcast of the European Broadcasting Union (EBU), Comité Européen de Normalisation ELECtrotechnique (CENELEC) and the European Telecommunications Standards Institute (ETSI).

NOTE 1: The EBU/ETSI JTC Broadcast was established in 1990 to co-ordinate the drafting of standards in the specific field of broadcasting and related fields. Since 1995 the JTC Broadcast became a tripartite body by including in the Memorandum of Understanding also CENELEC, which is responsible for the standardization of radio and television receivers. The EBU is a professional association of broadcasting organizations whose work includes the co-ordination of its members' activities in the technical, legal, programme-making and programme-exchange domains. The EBU has active members in about 60 countries in the European broadcasting area; its headquarters is in Geneva.

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EUREKA Project 147

EUREKA Project 147 was established in 1987, with funding from the EC, to develop a system for the broadcasting of audio and data to fixed, portable or mobile receivers. Their work resulted in the publication of a European Standard, ETS 300 401 [1], for DAB (note 2) which now has world-wide acceptance. The members of the Eureka 147 Project are drawn from broadcasting organizations and telecommunication providers together with companies from the professional and consumer electronics industry.

NOTE 2: DAB is a registered trademark owned by one of the EUREKA 147 partners.

National transposition dates	
Date of adoption of this EN:	5 February 1999
Date of latest announcement of this EN (doa):	31 May 1999
Date of latest publication of new National Standard or endorsement of this EN (dop/e):	30 November 1999
Date of withdrawal of any conflicting National Standard (dow):	30 November 1999

Introduction

The present document is one of a set associated with DAB. ETS 300 401 [1] describes the transmitted signal; the interface between the broadcaster's transmitters and the listener's receiver. The associated documents, EN 300 798 [2] and ETS 300 799 [3] describe additional interfaces which can be used by broadcasters or network providers to build DAB networks.

Figure 1 shows a DAB network in outline. For convenience, the Network is split into a number of different parts, each managed by a different entity. The different entities are; the Programme/Data provider, the Service Component provider, the Ensemble provider and the Transmission Network provider.

NOTE: A Service Component provider may be generating a full DAB service or a component of a DAB service.
For the purposes of the present document, the terms Service provider and Service Component provider are interchangeable.

Programme/Data provider

The Programme/Data provider is the originator of the audio programme or the data being carried within the DAB Service Component. The format for the output of the Programme/Data provider may take many different forms and should be agreed between the Programme/Data provider and the Service Component provider.

Service Component provider

The Service Component provider is producing one or more complete service components which may form the complete DAB Service, but may not. Data from the Service Component provider will comprise three different parts:

- Service Component data which is to be inserted into the DAB Main Service Channel (MSC);
- Service Information related to the Service Component data which is to be inserted into the Fast Information Channel (FIC);
- other data, not intended for transmission, including status monitoring or control.

The interface between the Service Component provider and the Ensemble provider is known as the Service Transport Interface (STI) and is the subject of the present document.

Ensemble provider

The Ensemble provider receives a set of service components from one or more Service Component providers. He then formats the FIC, and generates an unambiguous description of the full DAB ensemble.

The ensemble description is passed to the Transmission Network provider via an interface called the Ensemble Transport Interface (ETI) which is defined in ETS 300 799 [3].

Transmission Network provider

The Transmission Network provider generates the DAB Ensemble and transmits it to the receiver. The output of the Transmission Network provider is defined by ETS 300 401 [1]. The Transmission Network provider is usually the final recipient of the ETI and is responsible for turning it into the DAB transmission signal using an OFDM generator.

In some cases, as an intermediate step, the Transmission Network provider may find it convenient to generate a baseband representation of the signal to be transmitted. The baseband representation, known as the Digital baseband I/Q Interface (DIQ), is a set of digital samples defining the In-phase (I) and Quadrature (Q) components of the final carrier. This interface is defined in EN 300 798 [2], and provides a convenient interface between digital processing equipment and radio-frequency modulating equipment.

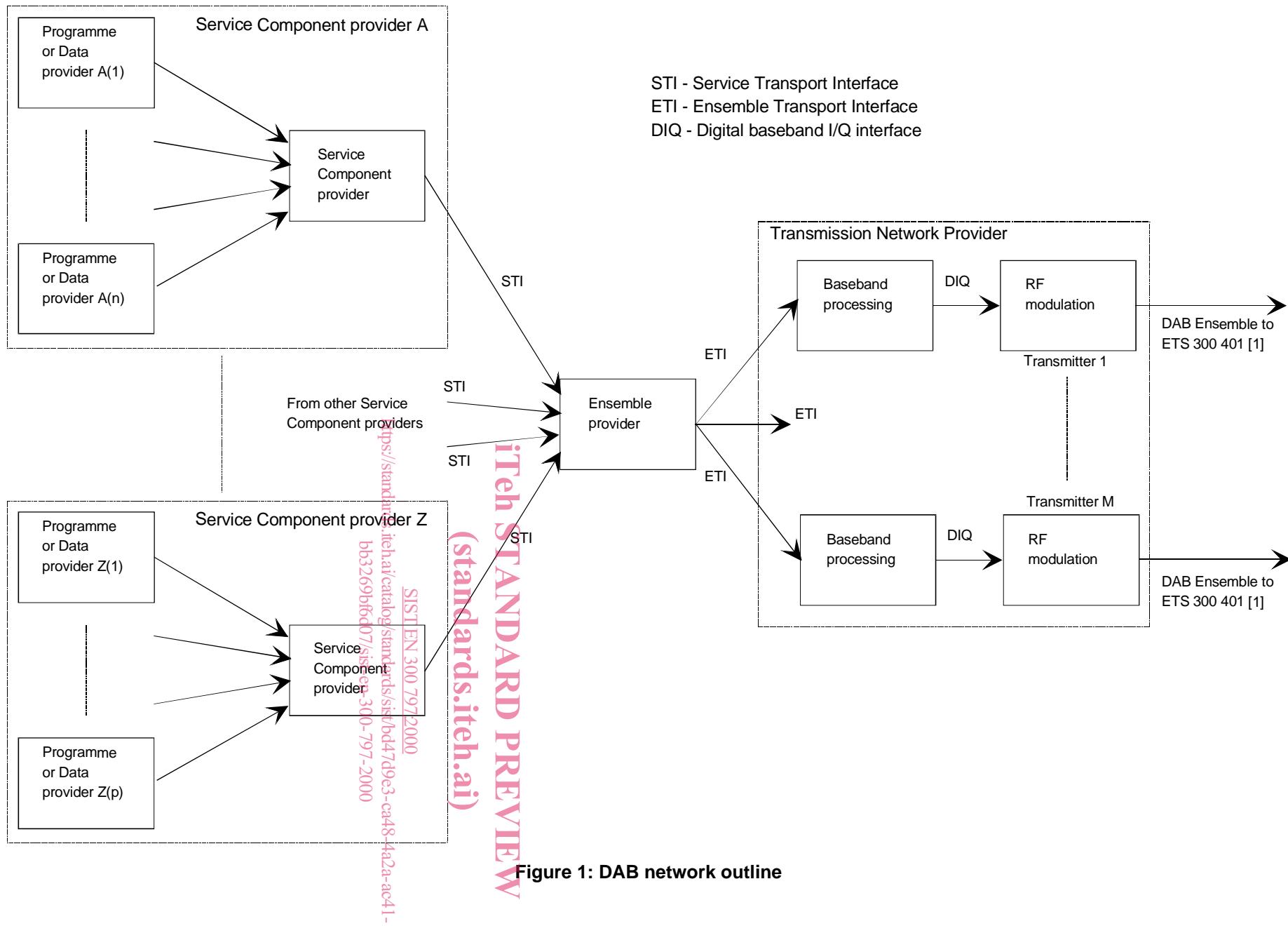


Figure 1: DAB network outline

1 Scope

The present document establishes a standard method for transporting Service components (audio and data) produced by Service providers at their own studios to the DAB multiplexing equipment located at the Ensemble provider's centre.

ETS 300 401 [1] established a broadcasting standard for a DAB system. Broadcasters who implement DAB networks require methods for transporting DAB signals, or the component parts of a DAB signal, between studios, where the programme or data service originates, and the transmitter sites from which the signal will be radiated. The network of circuits connecting the studios to the Ensemble provider's ensemble multiplexer is generally known as the Collection Network. The network of circuits connecting the ensemble multiplexer to the transmitters is generally known as the Distribution Network.

The present document is applicable to Collection Networks used in a DAB System. It describes the characteristics of a signal suitable for transporting Service Components, Service Information and control data between a Service provider and an Ensemble provider. The interface is suitable for use on a number of different physical media and telecommunication networks. Provision is made for the inclusion of appropriate error detection and correction and for the management of network transit delay.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, subsequent revisions do apply.
SIST EN 300 797:2000
https://standards.iteh.ai/catalog/standards/sist/bd47d9e3-ca48-4a2a-ac41-13269b8f407/it_en_300_797_2000
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

- [1] ETS 300 401: "Radio broadcast systems; Digital Audio Broadcasting (DAB) to mobile, portable and fixed receivers".
- [2] EN 300 798: "Digital Audio Broadcasting (DAB); Distribution interfaces; Digital baseband In-phase and Quadrature (DIQ) Interface".
- [3] ETS 300 799: "Digital Audio Broadcasting (DAB); Distribution interfaces; Ensemble Transport Interface (ETI)".
- [4] ITU-T Recommendation G.703 (1972): "Physical/electrical characteristics of hierarchical digital interfaces: Section 6 Interface at 2 048 kbit/s".
- [5] ITU-T Recommendation X.24 (1988): "List of definitions for interchange circuits between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) on public data networks".
- [6] ITU-T Recommendation V.11 (1988): "Electrical characteristics for balanced double-current interchange circuits for general use with integrated circuit equipment in the field of data communications".
- [7] ITU-T Recommendation G.704 (1988): "Synchronous frame structures used at primary and secondary hierarchical levels: Section 2.3 Basic frame structure at 2 048 kbit/s".
- [8] ITU-T Recommendation G.706 (1988): "Frame alignment and cyclic redundancy check (CRC) procedures relating to basic frame structures defined in Recommendation G.704".