



Demonstration IBC'06, Amsterdam

Headend description & Terminal Requirements



Acknowledgement

Thanks to T-Systems (Media & Broadcast) to provide the core document used as a basis for the DVB-H trials during the World Cup.

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1 Management Summary

The DVB Project is going to operate a DVB-H platform during the IBC show'06 in Amsterdam. The aim of the demonstration platform is to show interoperability among the different DVB-H enabled devices that are going to be shown during the IBC.

In addition the DVB Project Office is organising a demo at the DVB Pavilion of several DVB-H terminals. For this reason there is a general request for those companies eager to collaborate by providing demonstration terminals.

The DVB forum has decided to set up a complete DVB-H platform and a 1KW transmitter to fully cover the IBC exhibition area. SIDSA is going to provide and operate the Headend on behalf the DVB forum. National Grid Wireless will provide a modulator, transmitter and antenna. Should they be required, MIER Comunicaciones has offered to provide gap fillers (on-channel repeaters) for those places where the coverage is not perfect.

All the deployed equipment is fully compliant to the DVB standards (DVB-H and DVB-IPDC, or CBMS phase 1). Although other standards for Mobile TV are possible, they are completely out of the scope of this trial, the same applies to proprietary solutions.

This paper describes the parameters for the transmission of IPDC over DVB-H services offered by SIDSA DVB-H Headend and the minimum receiver requirements which shall be supported by all handsets used for the IBC show in 2006. The overall requirements are:

- ✓ The solution is based on DVB-IPDC standards of Phase 1.
- ✓ There is no SPP or CA in the transmission.
- ✓ The ESG solution follows the DVB-IPDC specification.
- ✓ The receiver should be able to demodulate a DVB-H signal, carry out the PSI/SI parsing, ESG reception and parsing and H264-AVC decoding.

Expected Schedule

First week of August:

- ✓ The DVB forum & SIDSA make available a demo TS in the following address:

Host: <ftp://ftp.sidsa.com/> or <ftp://ftp.sidsa.es/>

User: dvbh

Password: 4dvbh.

Note. The full stop at the end of the password is required.

*For any troubles having accessed the TS please contact Mr. Carlos Pardo:
carlos.pardo@sidsa.com*

Second week of August

- ✓ A document with terminal requirements and platform description is released

Third week of August

- ✓ DVB-H enabled terminals that are going to be shown at the DVB stand are sent to SIDSA for full interoperability tests.

Att. Mr. Jesus Fernandez
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PTM. Torres Quevedo 1
E28760 Tres Cantos (Madrid)
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Last week of August

- ✓ Headend and terminals are sent to Amsterdam.

First week of September

- ✓ Final testing and overall preparation

2 Headend description

The general architecture of SIDSA's "IP Datacast over DVB-H" platform system is illustrated.

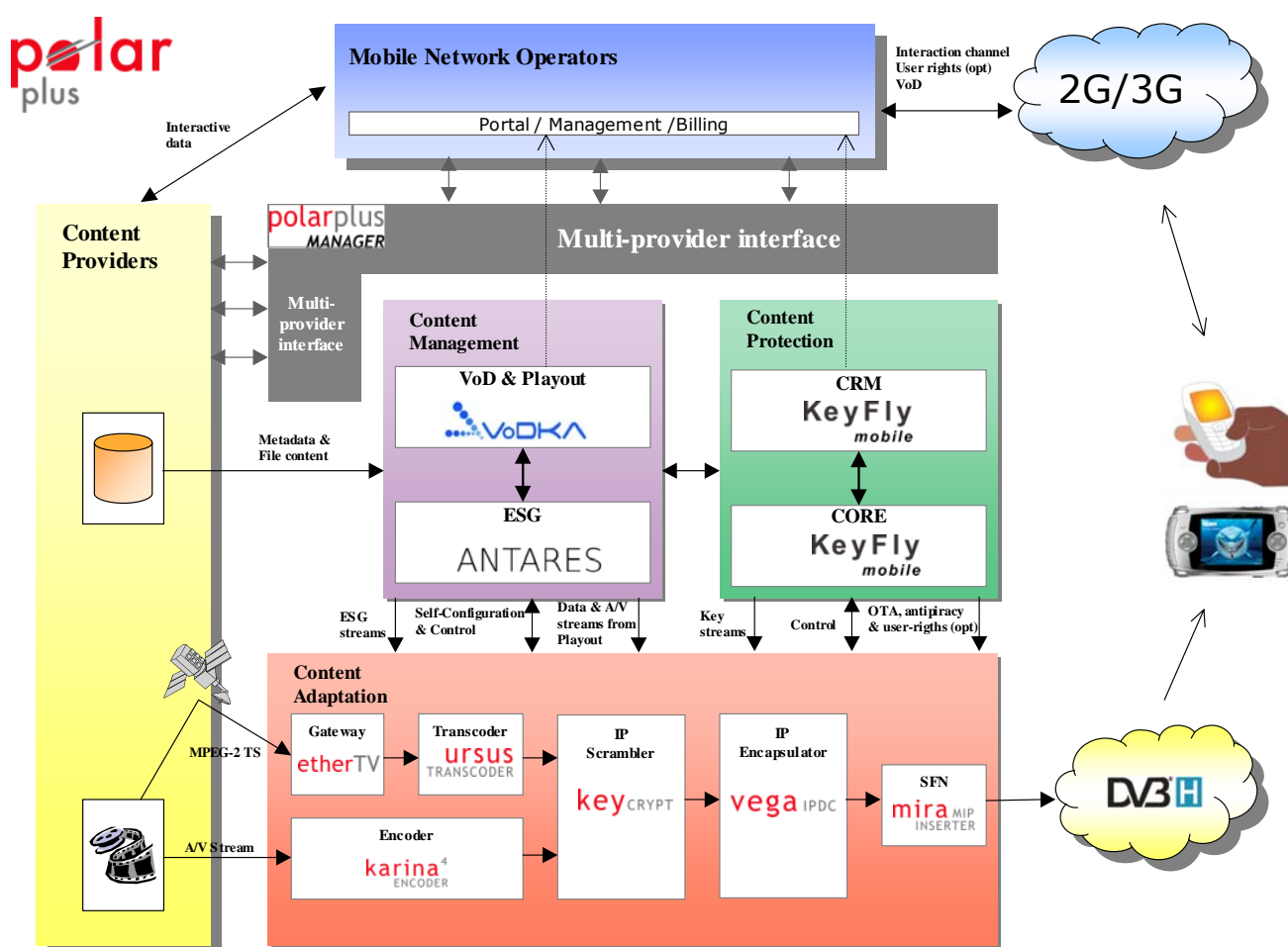


Figure 1: SIDSA's Polarplus platform¹

Platform's key features:

- ✓ DVB standards fully supported
- ✓ Highly scalable
- ✓ High flexibility thanks to the massive use of the IP protocol to federate all equipment

¹ SIDSA's partner for the Polarplus Headend is: Lambdastream (see: www.lambdastream.com)

- ✓ Unique multi-provider platform
 - Support for different profiles: platform operator, IPDC service providers
 - Virtual sharing of the IP encapsulator (bandwidth management)
 - Key equipment able to support multiprovider: ESG, VoD/Playout, IPE
 - Support for different SPP/CAS providers (use of *extended-simulcrypt*)

For the IBC 2006 show the platform will only consist on the Content Management and the Content Adaptation blocks, no encryption whatsoever will be used.

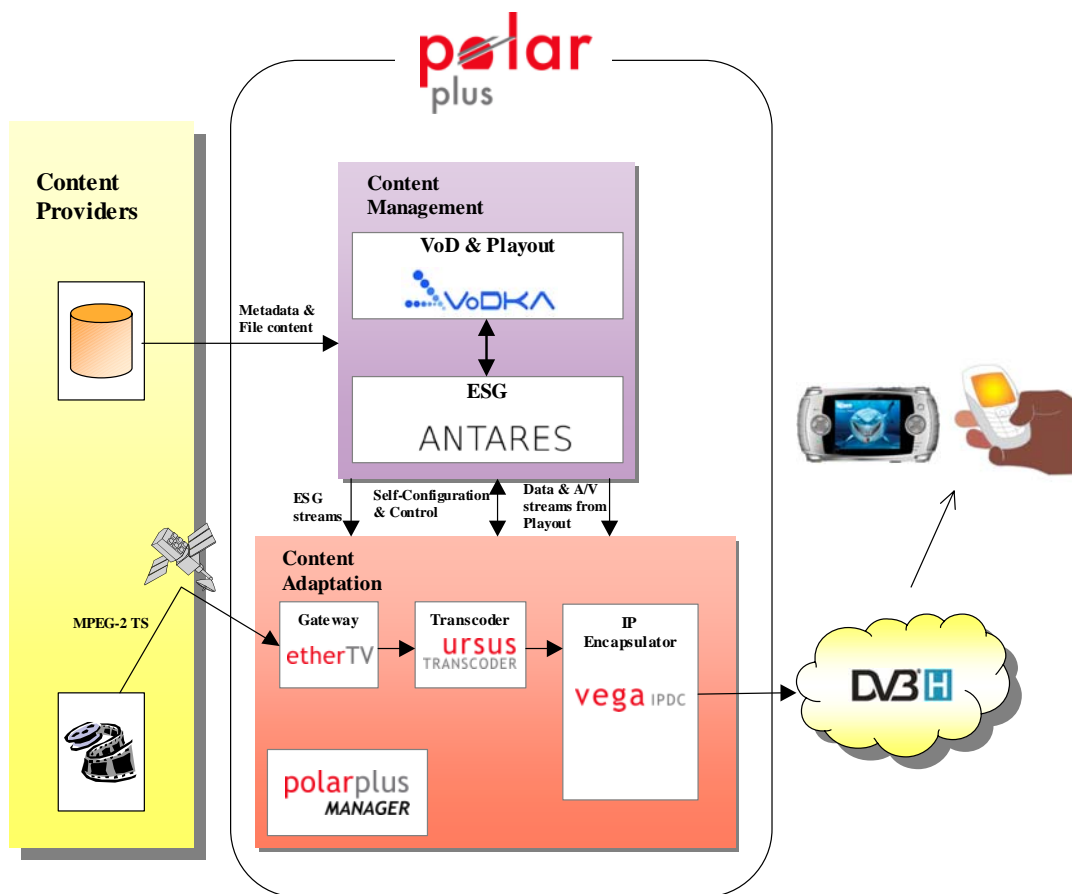


Figure 2: Polarplus platform in IBC'06

3 Broadcasted Contents

The broadcast will consist on the live output of:

- ✓ Nederland 2 high video rate
- ✓ CNN International high video rate
- ✓ BBC World high video rate
- ✓ Discovery Channel high video rate
- ✓ Nederland 2 low video rate
- ✓ CNN International low video rate
- ✓ BBC World low video rate
- ✓ Discovery Channel low video rate
- ✓ Offline content

All contents will be free-to-air, no encryption system will be used.

4 IBC 2006 Parameters

4.1 DVB-H Transmission Parameters

4.1.1 Network Parameters

Parameter	Value
Original Network ID	0x0FFAB
Network ID	0x0FFAB
Cell ID	0001
Platform ID	0xFFFFFA
Platform Name	IBC2006
Demo Platform Provider Name	DVB IPDC
Transport Stream ID	0001

4.1.2 Physical Layer

Parameter	Value
Frequency Band	UHF
Channel	24
Center Frequency	498 MHz
Network Structure	MFN
Transmitter Power (ERP)	TBD (Electrical power 1 KW)
Bandwidth	8 MHz
Mode	8K
Modulation	QPSK (non-hierarchical)
Code Rate	1/2 – 2/3
Guard Interval	1/16
TPS Signalling	Cell ID Signalling of DVB-H Time Slicing
Channel Search	Required

4.1.3 MPE-FEC parameters

Parameter	Value
MPE FEC code rate	3/4
Burst Duration	Around 180 ms
Burst Size	1 Mbit
Peak Bit Rate per Burst	4-6 Mbps
Time Slice Period	100 ms – 10 s
Number of MPE-FEC Rows	256, 512

4.2 PSI/Signalling

Following tables will be used: NIT, INT, PAT and PMT.

The repetition rates are:

Repetition Rate of	Value
NIT	≤10s
PAT	≤100 ms
PMT	≤ 100ms
INT	≤ 10s

4.3 IP Layer Requirements

All services will be broadcasted in IPv4 and some in IPv6, properly announced in the ESG and PSI/SI tables.

4.4 DVB-H Content Formats

4.4.1 TV Services

Parameter	Value
Video Codec	H.264 AVC
IRD Class	A, B
Profile	simple, 1.2
Picture Size	QVGA, 320x240
Frame Rate	12,5 fps, 25 fps
Max Bit Rate	384 kbps
Preferred Bit Rate	256 kbps
Video Encapsulation	RTP, RFC 3984
Audio Codec	HE AACv1
Audio Format	mono stereo
Audio Bit Rate	24 - 64 Kbps
Audio Sampling Frequency	32 - 48 KHz
Audio Encapsulation	RTP, RFC 3640
A/V Packetization Mode	non-interleaved

4.5 ESG

The broadcast ESG that will be used is based on DVB-CBMS phase 1. The receivers shall support:

- ESG bootstrapping
- Multiprovider ESG
- ESG Single Stream Transport
- ESG Multiple Stream Transport
- SDP transmission via ESG

Parameter	Value
Data Model	DVB-CBMS [DVB bluebook A099]
Transport	ALC/FLUTE incl. CBMS extensions
Bootstrap IP Address	224.0.23.14
Bootstrap Port Number	9214

Note: ESG data rate will be in a range of 50 to 300 Kbps.

Content types in the Flute FDT will be the following, following the DVB A099 bluebook.

Content Type	Remarks
text/xml	Provider discovery descriptor
application/vnd.dvb.ipdcesgaccess	ESG Access Descriptor
application/vnd.dvb.esgcontainer	ESG Container

ESG Containers may hold ESG Data Repositories. Logos will be carried inside the ESG Data Repositories.

SDP files will be inlined in the Access fragments.

Text encoding will be UTF-8 wherever applicable.

5 Receiver performance

The overall performance of the receiver shall be in accordance with the current version of ETSI TR 102 377: "Digital Video Broadcasting (DVB); DVB-H Implementation Guidelines".