



## OneBeam-Tb

Optimize satellite capacity for ISDB-T/Tb/SBTVD distribution

**ONEBEAM-Tb IS THE ENENSYS SOLUTION TO REDUCE SATELLITE OPEX COSTS BY DELIVERING ONE OR SEVERAL OPTIMIZED ISDB-TB/SBTVD MULTIPLEXES OVER ONE SATELLITE FEED WITH THE POSSIBILITY TO COMBINE WITH DIRECT TO HOME (DTH) TV SERVICES**

### APPLICATIONS

- Use existing DTH services to deploy DTT
- Backup feed to DTT transmission sites with DTH stream
- Simultaneous FTA DTT and Pay TV DTH services
- Covering DTT black spots with DTH services
- Optimize and centralise management of regional content

### FEATURES

- No duplication of content over satellite
- BTS generation from a regular MPTS
- Selection of DTH services to build the DTT multiplex
- Regionalization support
- Multi-Layer support
- Deterministic generation for SFN broadcasting
- PSI update to match with the new DTT multiplex
- Easy-to-use web based GUI and In-band configuration

### BENEFITS

- Bandwidth optimization to reduce annual OPEX
- Very fast Return On Investment (ROI)
- Full support of ISDB-T/Tb standards
- Standard MPEG-2 TS delivered over satellite
- Reuse existing network equipment
- ISDB-T/Tb transmitter agnostic
- Broadcast-grade products
- Straight forward integration into any NMS



## WHY USE MORE?



**Optimize** satellite capacity for **ISDB-T distribution** while enabling DTH services



[www.enensys.com](http://www.enensys.com)

# The multi-application solution to optimize the delivery of ISDB-T multiplexes

## 1 2 High grade BTS adapter

### TbGateway™ : Accurate BTS generator

- Proven robustness and interoperability
- Multi-layer support
- SFN management (TMCC and IIP data insertion)

### Tbguard™ : 1+1 BTSAdapter redundancy

- Patented 1+1 redundancy mechanism
- Seamless operation of BTS adapter :
  - Guaranteed TMCC and IIP synchronization
  - Hot swap of defective unit during operation

## 5 Seamless IP switch

### IPGuard E2™ : Seamless 1+1 IP Switch

- 1+1 redundancy mechanism between two MPEG-2 TS
- ETR290 and SFN based switching conditions
- Compatible with BTS stream
- Bypass mechanism over IP
- Unicast and multicast support
- FEC correction and generation (ProMPEG CoP#3)
- Transparent IP switch

## 3 4 BTS Gateway

### TbGateway™ : BTS Gateway

- Insert Tb markers into MPTS stream
- Multi-layer support
- In-band signalling to control remote TbEdge
- No modification of MPTS bitrate

### Tbguard™ : 1+1 TbGateway redundancy

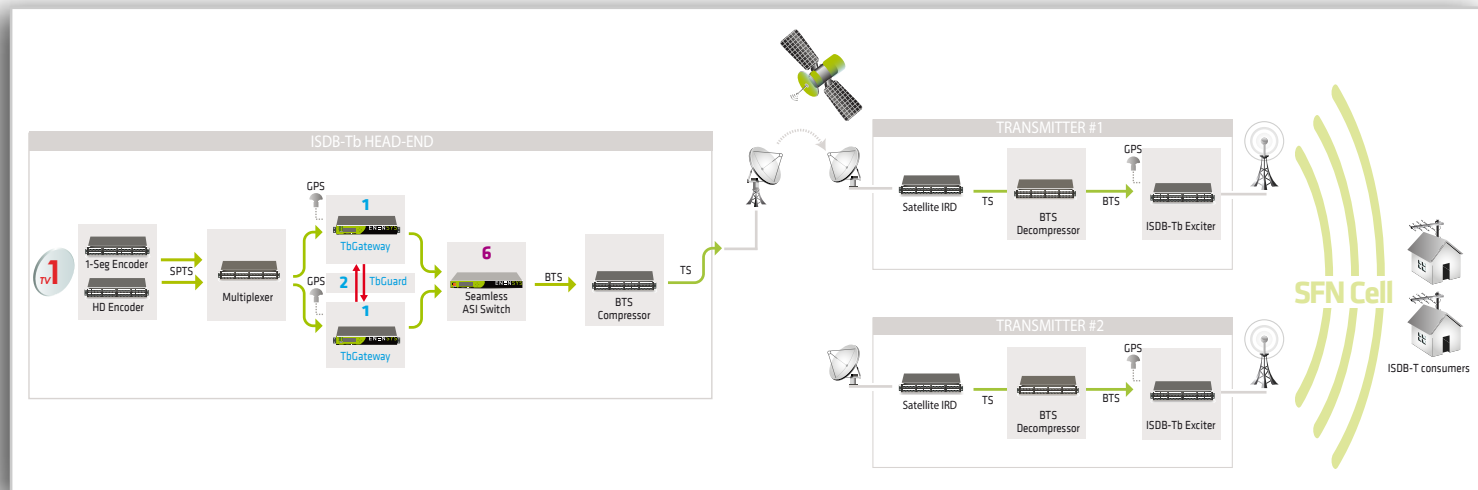
- Patented 1+1 redundancy mechanism
- Seamless operation of TbGateway :
  - Guaranteed timestamp synchronization
  - Hot swap of defective unit during operation

## 6 Seamless ASI switch

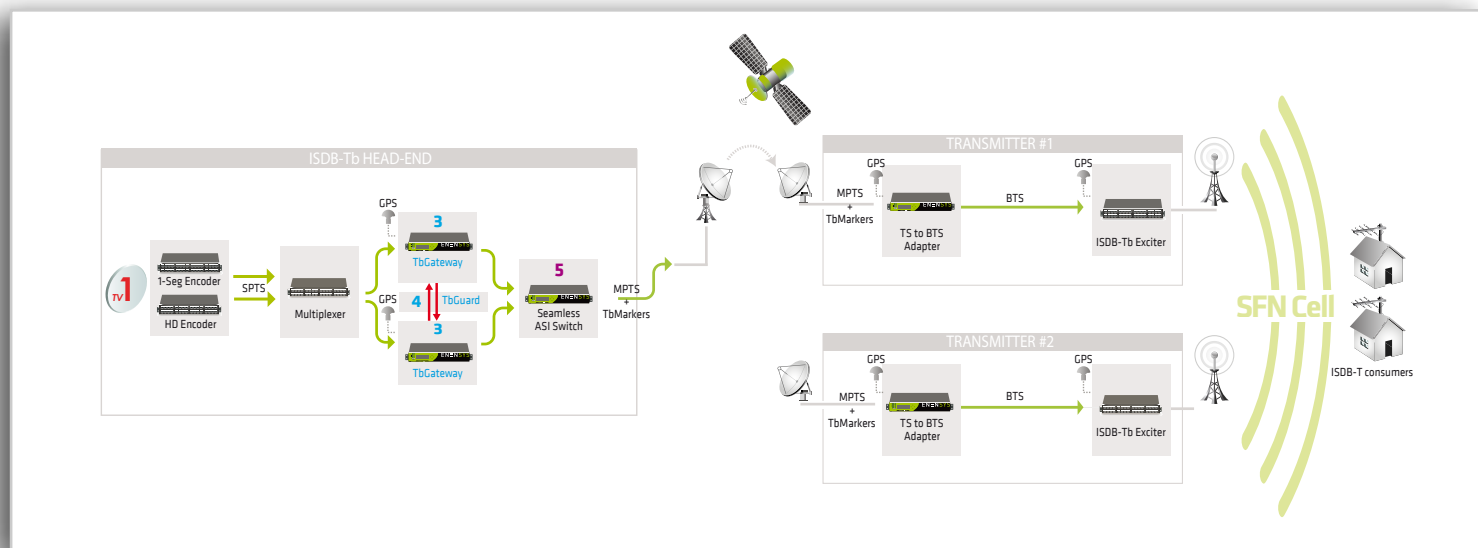
### ASIIPGuard™ : Seamless ASI Switch

- 1+1 redundancy mechanism between two MPEG-2 TS
- ETR290 and SFN based switching conditions
- Compatible with BTS stream
- Basic and advanced bypass mechanism over ASI
- Up to 6 ASI switch functions in the same unit
- Optional IP input and output
- Real-time monitoring of incoming streams

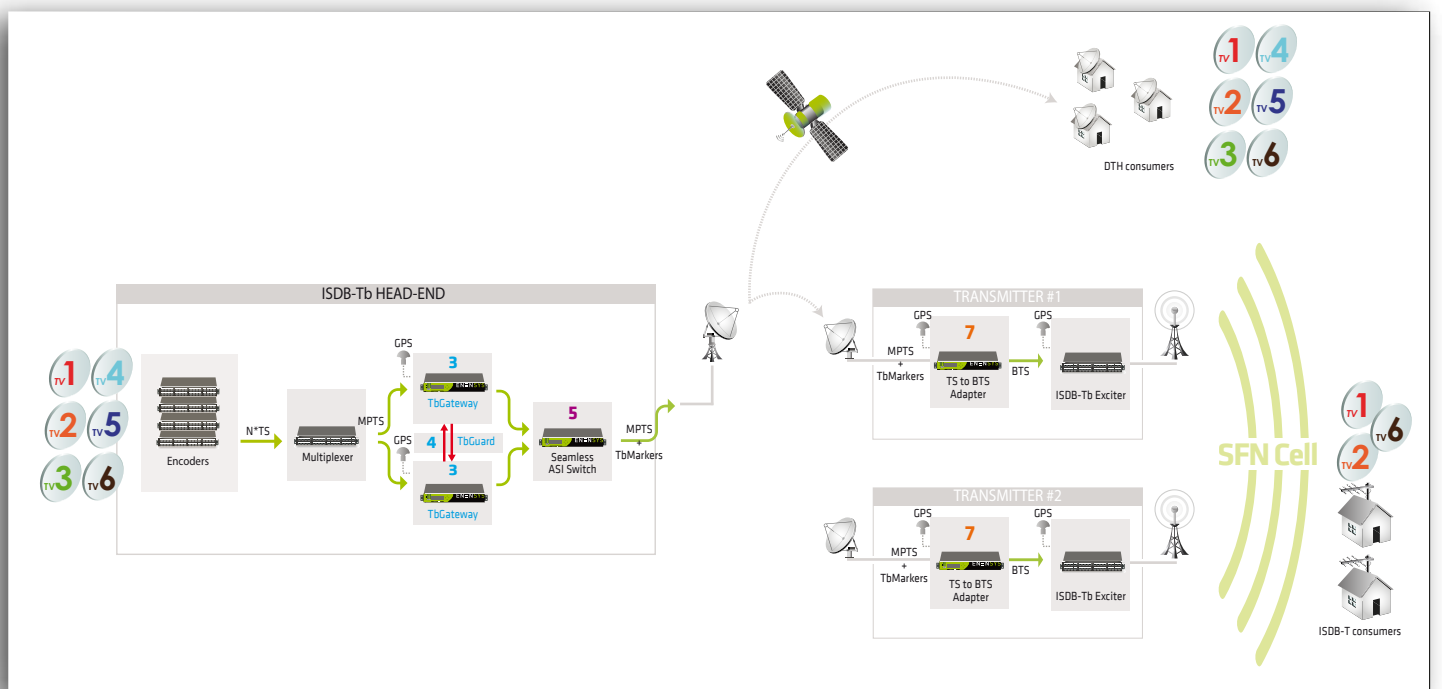
## BTS Generation



## Satellite bandwidth optimization



## Simultaneous DTH and DTT with regionalization



## 7 TS to BTS Adapter

### TbEdge™ : Enabling ISDB-T broadcasting

- ISDB-T multiplex generation over SFN networks
- TMCC and IIP data insertion
- BTS generation, Multi-layer support
- Services filtering and mapping
- PSI/SI update (PAT, PMT, SDT, EIT)
- Deterministic PCR restamping



# OneBeam Optimized and standard delivery of ISDB-T MUX



## BTS GENERATOR / BTS GATEWAY

1 2 3 4

### TbGateway™

Standards	ISDB-T, ISDB-Tb
SFN Adaptation (BTS Generator)	Standalone BTS generator IIP and TMCC insertion Multi-layer support 204 bytes BTS/MPEG-2 TS output
Prepare BTS generation (BTS Gateway)	Tb makers insertion to build BTS at transmission sites Standard 188 bytes TS output No modification of MPTS bitrate No compression/decompression mechanism needed
In-band configuration	Automatic configuration of remote TbEdges Support configuration of up to 20 ISDB-T multiplex
TbGuard	Synchronises 1+1 TbGateway to enable seamless switch at any time

## TS TO BTS ADAPTATION

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### TbEdge™

Standards	ISDB-T, ISDB-Tb, DVB-S/S2
Inputs	Versatile inputs (DVB-S/S2, ASI or IP) 1PPS input for accurate BTS output
TS to BTS Adaptation	Convert TS input stream into BTS Multi-layer capable PCR restamping 204 bytes BTS/MPEG-2 TS output
SFN broadcasting	Deterministic ISDB-T multiplex generation for SFN broadcasting IIP and TMCC insertion
Service update	Service filtering to enable building regional multiplex or combining with DTH services PSI/SI Update (PAT, PMT, CAT, SDT, EIT)
In-band management	Automatic configuration of transmission parameters and service setup to ease configuration and maintenance

## SEAMLESS IP SWITCH

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### IPGuard E2™

Standards	DVB-T/T2/S/S2/C, ATSC, ISDB-T
Transparent IP	UDP and RTP support Unicast & Multicast management FEC correction and generation
Switching conditions	IP stream presence and bitrate ETR290 Level 1, 2 and 3
Seamless switch	Alignment of both inputs to support seamless switch-over of delayed IP streams
Availability	Passive and advanced IP bypass

## SEAMLESS ASI SWITCH

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### ASIIPGuard™

Standards	DVB-T/T2/S/S2/C, ATSC, ISDB-T
Switching conditions	ETR290 Level 1, 2 and 3 Service, Video, Audio bitrate over ASI or IP
Seamless switch	Alignment of both inputs to seamless switch-over delayed ASI or IP streams
Availability	Passive and advanced bypass

