

DVB-T / DVB-H SOLUTIONS



■ SAGEM offer

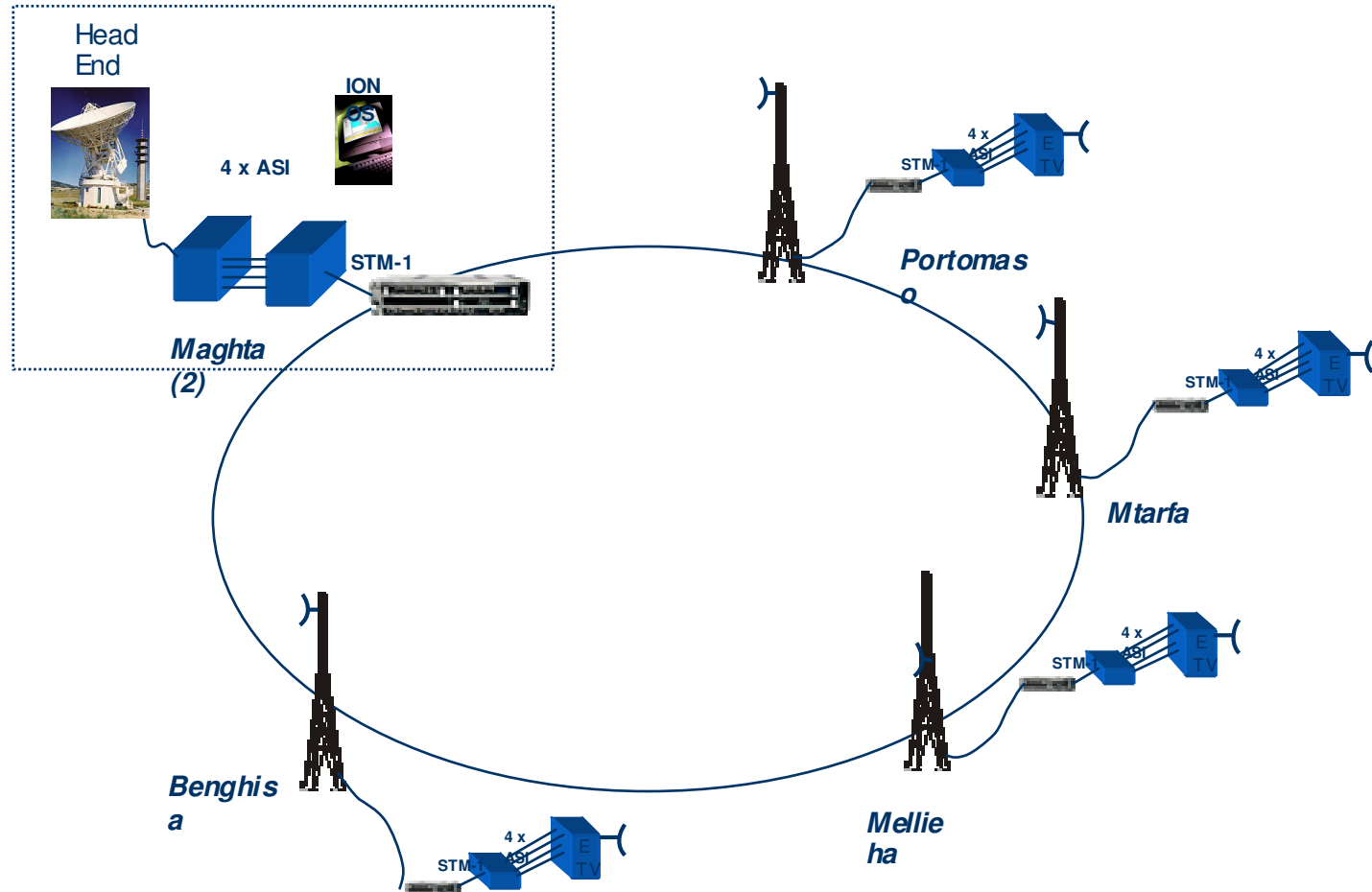
▶ A wide range of products including :

- Set top boxes for :
 - cables, satellites, ADLS, and DVB-T
- DVB-H handset (GSM)
- HD TV set
- Transmission equipment (microwave, optical, router,..)
- Transmitter / Re-transmitter / Gap filler : Digital & et analog

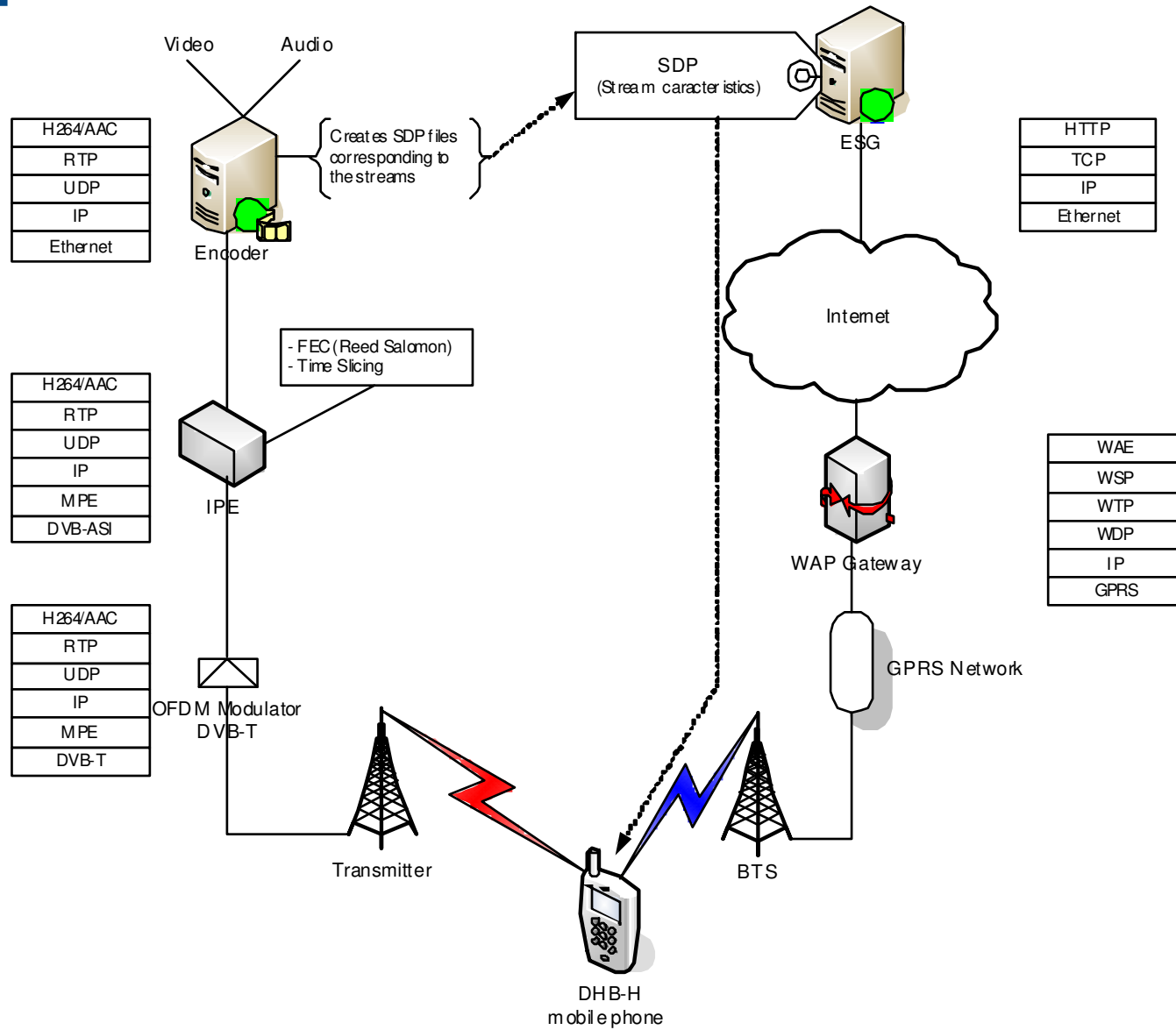


■ "Turn key" solution : Example of DVB-T/H network

Target : To propose full End To End integration services to operators



Example of DVB-H field test



DVB-T DVB-H Transmitters and Transposers



■■■■ DVB-T/H : Broadcast equipment

- ▶ **Transmitter** : It consists of a DVB-T/H modulator and a power amplifier,
 - Input signal = ASI
 - Compatible with MFN & SFN network
 - Transmission network is required (microwave link, optical ADM, or satellite)

- ▶ **Re-transmitter** : It consists of a DVB-T/H receiver and a transmitter,
 - DVB-T/H signal is regenerated on another frequency without additional noise (this solution allow to save money : no transmission network)
 - Local channels can be inserted (ASI input)
 - Compatible with MFN network only

- ▶ **Gap filler or transposer** : Analog repeater
 - Economical solution to improve coverage (obstacle, building,..)
 - Compatible with MFN & SFN network

■■■■ DVB-T/H TRANSMITTERS & RE-TRANSMITTERS

- ▶ **DTH range : High output power**
 - up to 2 kW
 - Based on 250W LDMOS amplifier module
- ▶ **DTX range : Medium output power**
 - up to 1 kW
 - Based on 100W LDMOS amplifier module (same module for analog range)
- ▶ **DTC range : Low output power**
 - up to 120W
- ▶ **DPC range : Gapfiller & transposer**
 - 1 mW to 120 W

*Modular and flexible architecture
with common modulator, CRD,...*



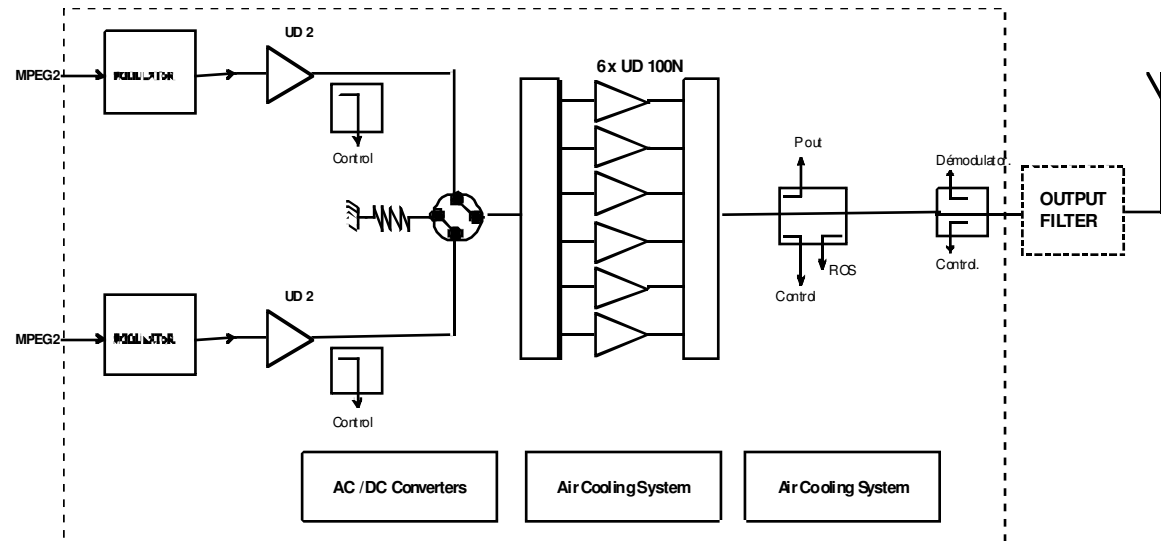
■■■■ DVB-T/H TRANSMITTERS & RE-TRANSMITTERS

- ▶ « **Dual Drive** » configuration
 - 2000, 1500, 1000, 600, 300 Watt
- ▶ « **1+1 PR** » configuration
 - 1000, 600, 300, 120, 60, 30, 15 Watt
- ▶ « **Single drive** » configuration
 - 1000, 600, 300, 120, 60, 30, 15 Watt



■ "DUAL DRIVE" configuration

- ▶ Recommended from 300W to 2kW
- ▶ CRD rack for switching
- ▶ Pre-amplifier & modulator fully protected
- ▶ Power Amplifier : High level of redundancy



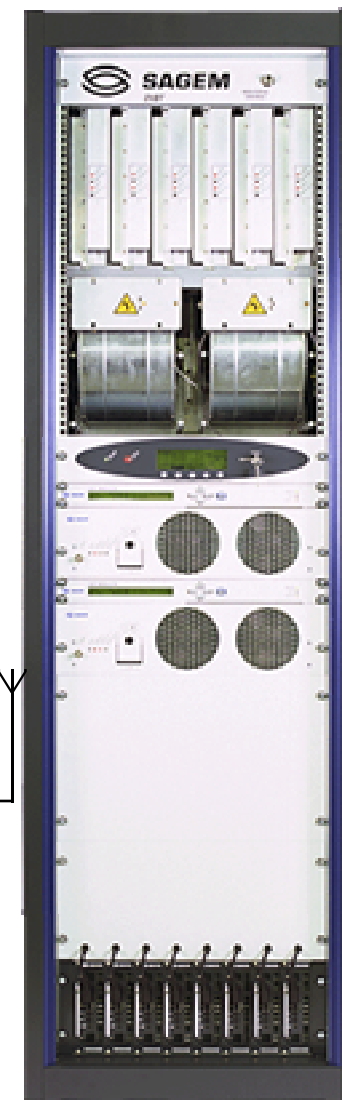
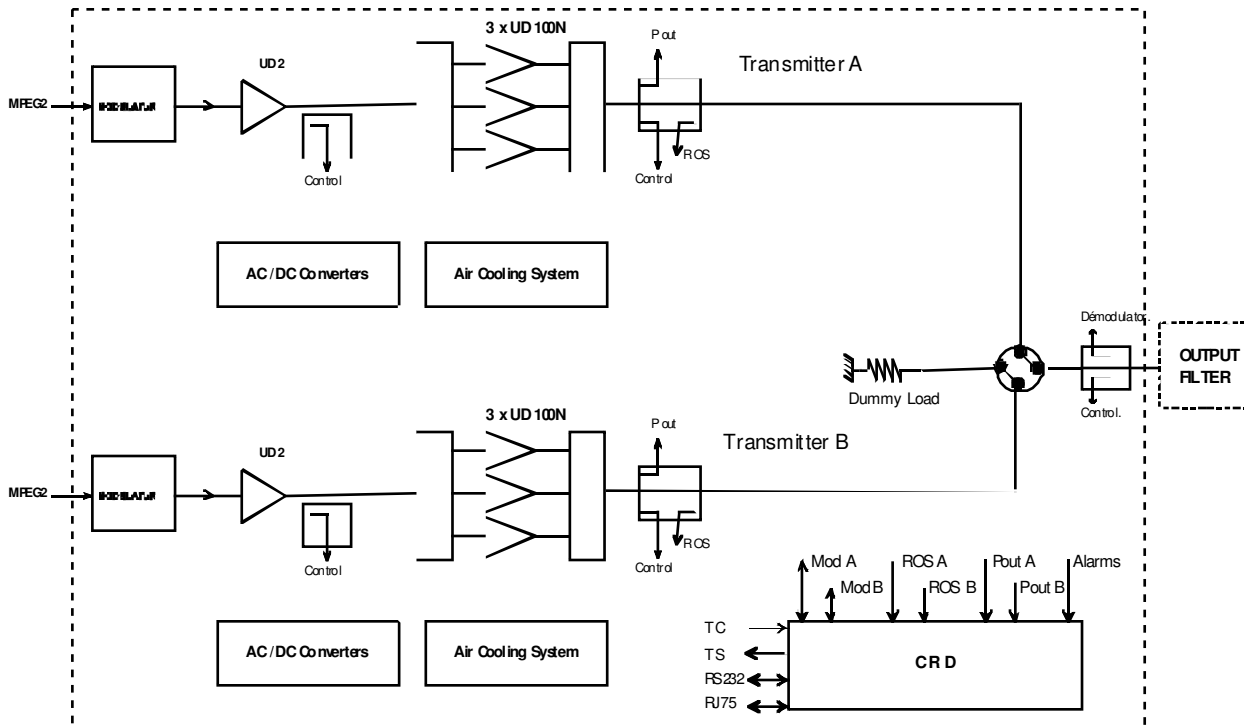
DTH 1000D



DTX 0600D

■■■■ "PASSIVE RESERVE" configuration

- ▶ Recommended from 10 W to 120 W
- ▶ CRD rack for switching
- ▶ Very compact solution
- ▶ Modulator & Amplifier fully protected



DTX 0300P



Jusqu'à 3 DTC PR

■■■■ "SINGLE DRIVE" configuration

- ▶ **Compact and low cost solution**
- ▶ **Recommended for low power transmitter when availability is not critical**
- ▶ **CRD is proposed as an option**



DTC 100S

■ GAP FILLER DVB-T/H

▶ "Single drive" configuration

- compact solution up to 100 mW



▶ "Single drive" configuration

- up to 120 W with additional amplifier



▶ "Passive reserve" configuration with CRD

OFDM MODULATOR

- ▶ **DVB-T and DVB-H standard**
- ▶ **SFN and MFN support**
- ▶ **Superior MER performance**
- ▶ **Full hierarchical mode support**
- ▶ **Outstanding linear and non-linear pre-correction**
- ▶ **Digital precorrector for focus separately on upper and lower sideband**



■ ■ ■ ■ GAP FILLER

- ▶ **Compact 1U module : 100 mW output power**
- ▶ **SFN and MFN support**
- ▶ **Gain configurable by software**
 - **AGC or Fixed**
- ▶ **“Squelch” function**
- ▶ **“Gain limiter” in case of high level of RSL**
- ▶ **Options :**
 - **Pre correction of linear and non-linear distortion**
 - **SNMP**
 - **Power amplifier**





MANAGEMENT IONOS NMS

BBG / ARX / January 2006

Common platform for transmission and broadcast equipment

▶ Management interface :

- Standardised SNMP protocol
- Availability of the SNMP MIB for integration into any platform

▶ Single management system : IONOS NMS

- A common platform for radio, optical and copper SAGEM equipment
- Configuration, monitoring, performance



▶ Control Rack

- for automatic switching
- for local or remote management (via SNMP or Dry Loops) :
 - Transmission parameters
 - Power , Vswr and alarm monitoring



REFERENCES

World wide Customers Analog and Digital transmitter

- ▶ Sagem designs, manufactures and installs transmitters since more than 40 years
- ▶ Installation of first DVB-T transmitter in 1999
 - ▶ Europe
 - TDF, Canal + , Antalis
 - Axion
 - Digita

 - Portugal, Norway, Tchequie,Poland,...
 - ▶ Middle East and Africa
 - Syria, Lebanon, Iran, Libya, Marocco, Tunisia, Oman
 - Benin, Burkina Faso, Burundi, Rwanda, Gabon, Guinea, Mali,...
 - ▶ Oceania
 - Australia, New Zealand
 - ▶ North America
 - Canada

■■■■ DVB transmitters

- ▶ **More than 200 DVB-T transmitters deployed in 2005**
- ▶ **First DVB-H field test in France, Finland in 2005**
 - ▶ **France**
 - TDF
 - ANTALIS
 - ▶ **Spain**
 - AXION
 - SECUENZIA
 - ▶ **Finland**
 - DIGITA
 - ▶ **Test field (DVB-T/H)**
 - POLAND (TP EMITEL)
 - LITUANIA (LRTC)
 - SPAIN (TCLM)
 - FRANCE (BOUYGUES TELECOM)
 - etc..

DVB-T/H SOLUTIONS

Thank you for your attention...