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

- Encoder
  - H264/AAC
  - RTP
  - UDP
  - IP
  - Ethernet

- OFDM Modulator DVB-T
  - H264/AAC
  - RTP
  - UDP
  - IP
  - MPE
  - DVB-ASI

- Transmitter
  - H264/AAC
  - RTP
  - UDP
  - IP
  - MPE
  - DVB-T

- BTS
  - HTTP
  - TCP
  - IP
  - Ethernet

- WAP Gateway
  - WAE
  - WSP
  - WTP
  - WDP
  - IP
  - GPRS

- GPRS Network

- Internet

- SDP
  - (Stream characteristics)
  - Creates SDP files corresponding to the streams

- Decoder
  - FEC (Reed Solomon)
  - Time Slicing

- Mobile Phone
  - Video
  - Audio

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SAGEM
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
"PASSIVE RESERVE" configuration

- Recommended from 10 W to 120 W
- CRD rack for switching
- Very compact solution
- Modulator & Amplifier fully protected
"SINGLE DRIVE" configuration

- Compact and low cost solution
- Recommended for low power transmitter when availability is not critical
- CRD is proposed as an option
"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
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
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
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, Marocoo, 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...