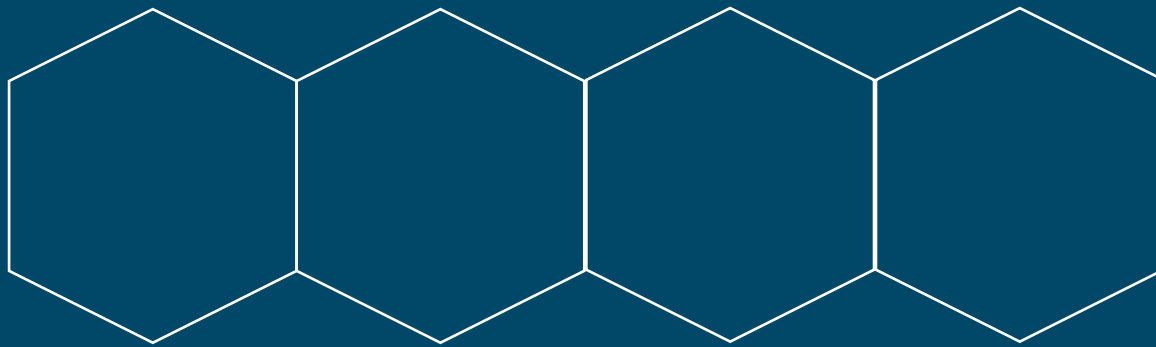


Elenos Group World Broadcast



ELENOS



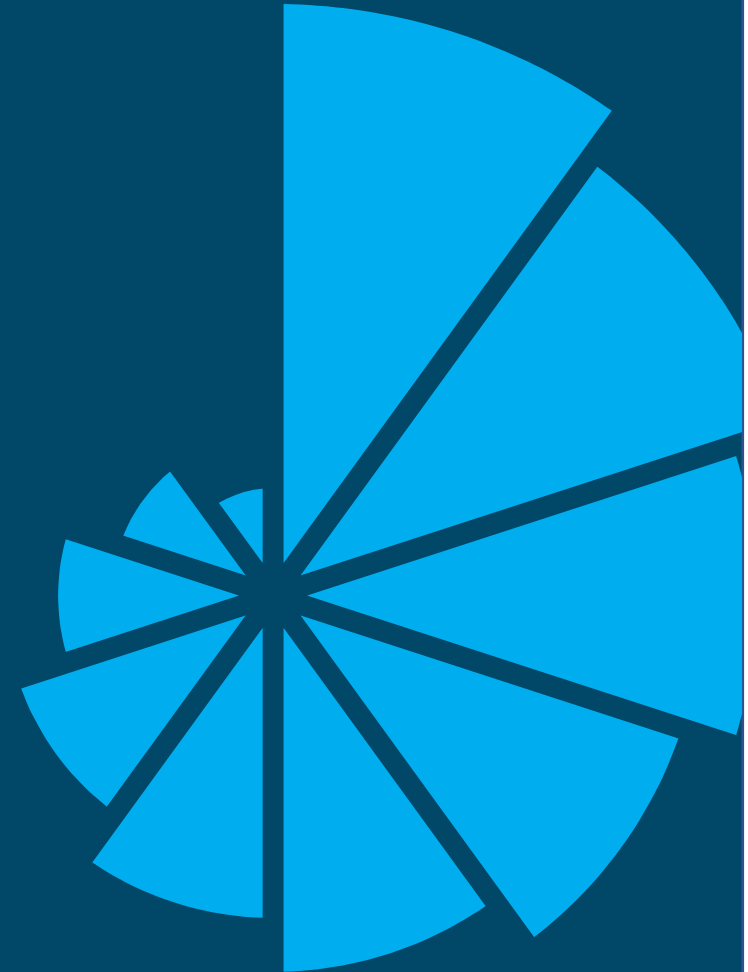
itelco

PRO



TELEVISION

Introducing Itelco Low and Medium power transmitters





elenos group
DEDICATED RELIABLE CREATIVE



Elenos Group - History

Elenos was founded in **1977** in Ferrara, Italy

- Focused on providing a wide range of FM Transmitters, featuring the most compact and efficient products on the market
(First in the world to provide a 10KW FM in 4U only)

Itelco Broadcast began in **1962** in Orvieto, Italy

- Specialized in digital modulation and high-power liquid-cooled systems
(Supplier of CERN for High-power amplifier involved on the Large Hadron Collider)

BE was established in Quincy, Illinois in **1959**,

- Broadcast Electronics has an illustrious history that has played an influential role in many radio milestones

BE offers a wide range of high quality radio broadcast products, including automation software, transmitters for AM, FM and HD Radio and Marti Electronics.

PROTELEVISION TECNOLOGIES established in Denmark, over 50 years of experience,

- Broadcast formerly Philips TV & Test Equipment, is a leading designer and manufacturer of advanced future-proof modulation solutions for Digital TV and Radio standards (DVB-T/T2, ISDB-T, DAB+, ATSC 1.0 and ATSC 3.0) represented worldwide in more than 50 countries with over 30,000 installed units in daily operation.



Today

The mission of the **Elenos group**, by utilizing its state-of-the-art production capabilities and international sales network, is to provide consumers with the best radio and TV broadcasting experience for all global modulation standards.

With over 90 years of experience in the field, the Elenos group has developed technologies for Network applications, Digital and Analog TV / FM Radio Systems, scientific RF applications and remote software control and management.

The Elenos group is an ideal partner in helping develop your networks for your next digital migration.



60.000 Installations

130 Countries

90 Years of Experience

More than 20 Centers of **EXCELLENCE**

- **Radiocomm**
- **LEGA Ltd**
- **Clyde Broadcast Products Ltd**
- **Broadcast Partners**
- **FPG SERVIS s.r.o.**
- **Nagyfrekvencia Kft**
- **RTV-TEC**
- **Roussillon FM**
- **SiteMaster LDA**
- **Matel Elettronica Snc**
- **RS Telekomunikasyon**
- **Athenas Comunicaciòn y Logistica SL**
- **Shanghai Yi Hui Nuo Broadcast**
- **PT. Solitech multi-media & broadcast sol.**
- **Vtek Engineering Ltd**
- **Headway High Tech**
- **BTSi**
- **Broadcast Solution International Ltd**
- **Cakrawala Gemilang**
- **Ponto de Apoio Tecnico**
- **Eletronico LTDA**
- **Vec Srl**

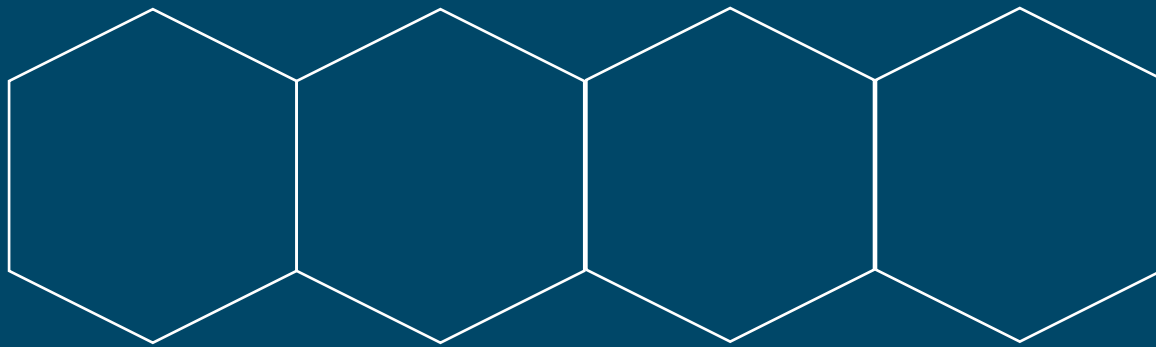


Some of our customers in ASIA

- Audio Visual communicators Inc.
- Allawan Enginneering
- Aliw Broadcasting
- Baganian Broadcastind Corp
- Brigada News FM
- Brigada Mass Media Corp
- Cristian Music Power
- Capitol Broadcasting Center
- DXKB 89,1
- DXJM FM
- DJIB 96,1 FM Municipality Pamploma
- Efren Tenizo
- First United Broadcasting
- UM Broadcasting Network
- Insular Broadcasting
- Radio Mindanao
- Southern Broadcasting Network
- Primax Broadcating
- Radio Corporation Philippines
- Ramil Uy
- RMC Broadcast Corporation
- RT Broadcast Specialists



Elenos Group
World Broadcast



ELENOS



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TELEVISION

Introducing Itelco Low and Medium power transmitters



MEX II - IEC 100 / IEC 200 – ALPAN 1/2/3

Multimode = Same hardware with different firmware for:

DVB-T

DVB-T2

ISDB-Tb

ATSC

ATSC3

DAB /

DMB

Low power:

Exciters / Stand-alone Transmitters

- **MEX II** – 1Wrms, 10Wrms, 25W rms
- **IEC 100** – 100W rms - **IEC 200** – 200W rms



Medium power: Stand-alone Transmitters

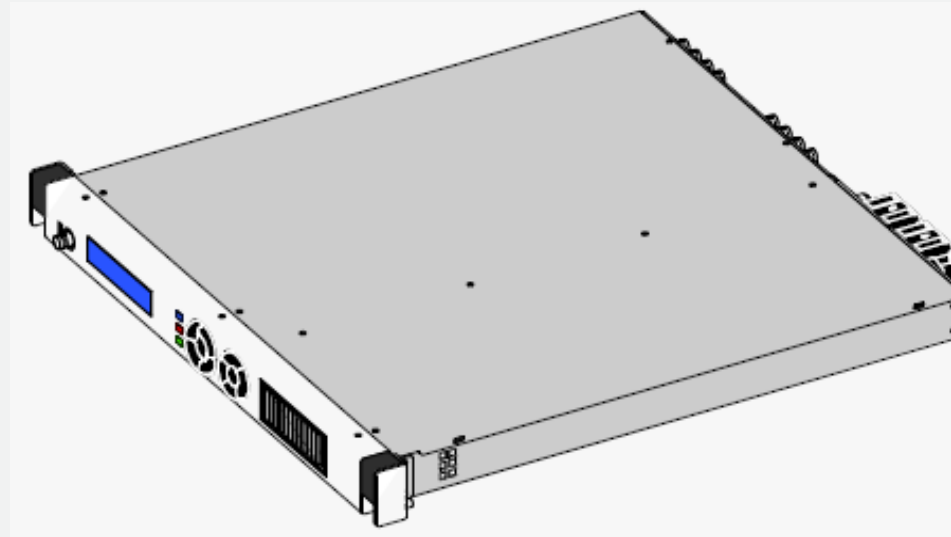
ALPAN 1 = 200W rms

ALPAN 2 = 400W rms

ALPAN 3 = 600W rms

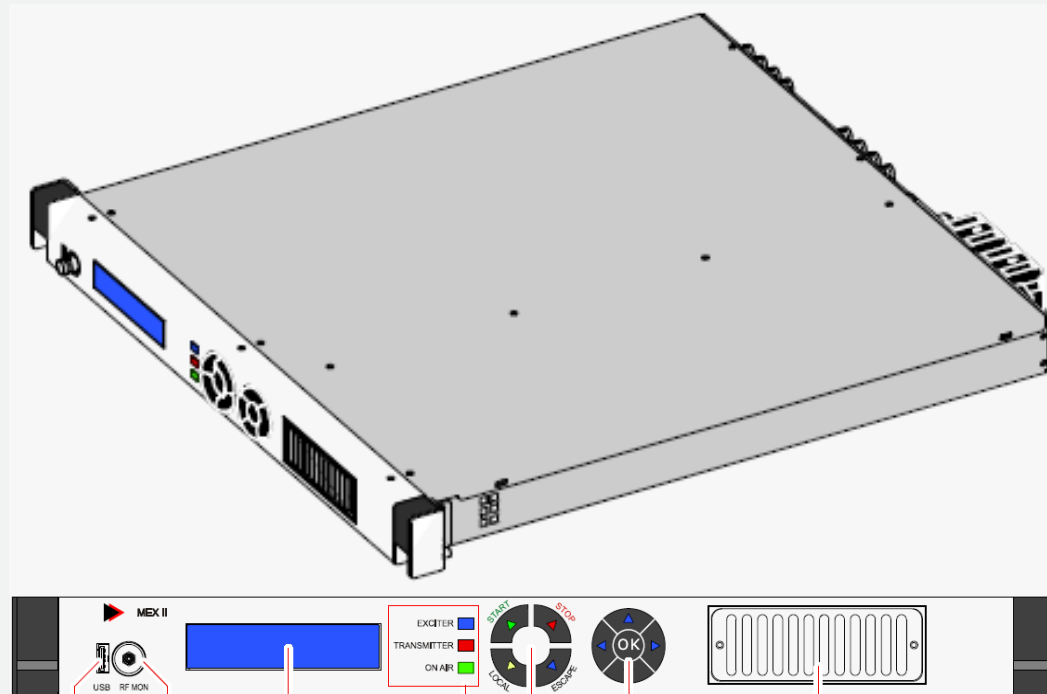


MEX II - 1Wrms, 10Wrms, 25W rms Low power multimode Exciter / Stand-alone Transmitter

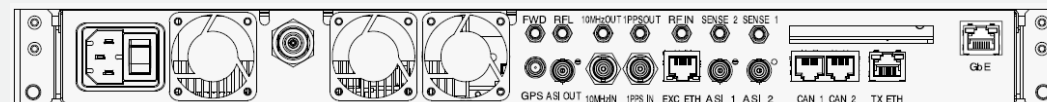


New 1 RU Design with Optional built-in Satellite Receiver

MEX II - 1Wrms, 10Wrms, 25W rms - Low power Exciter / Gap-filler



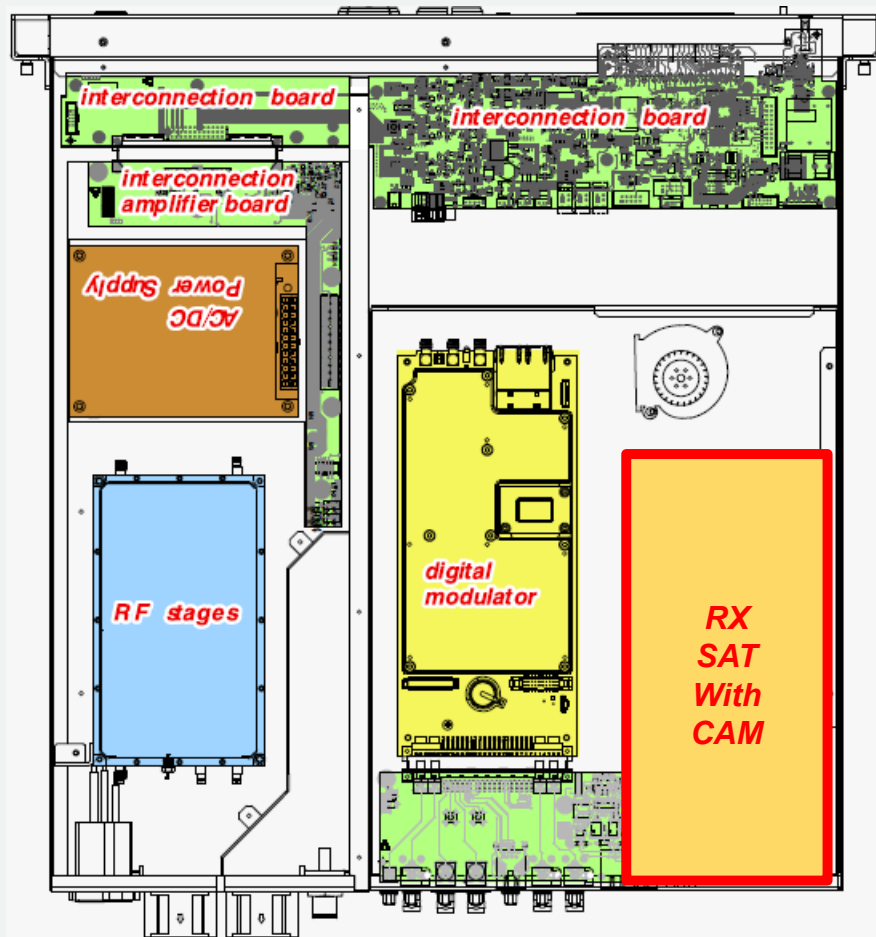
front view



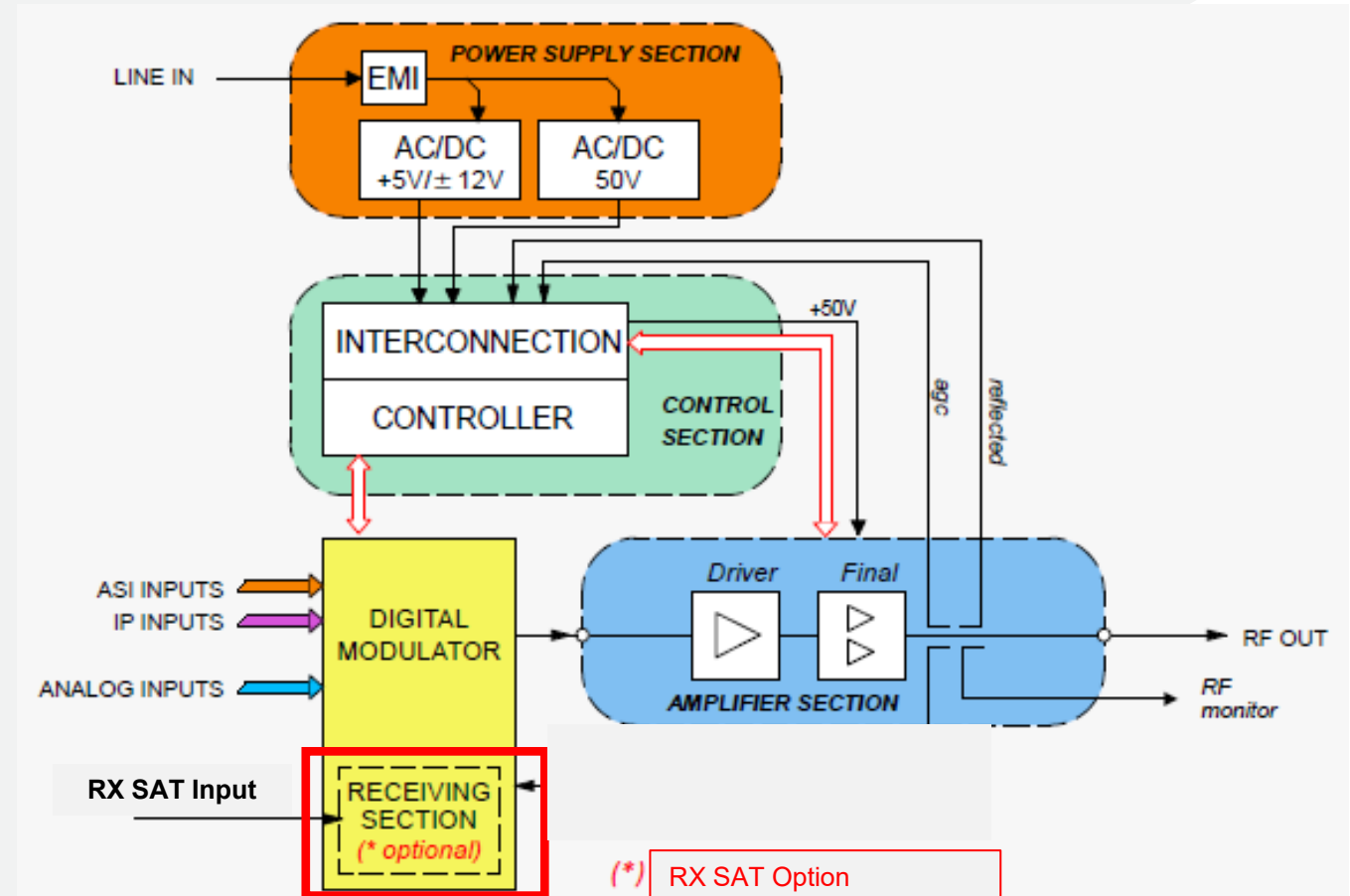
rear view



MEX II



top view



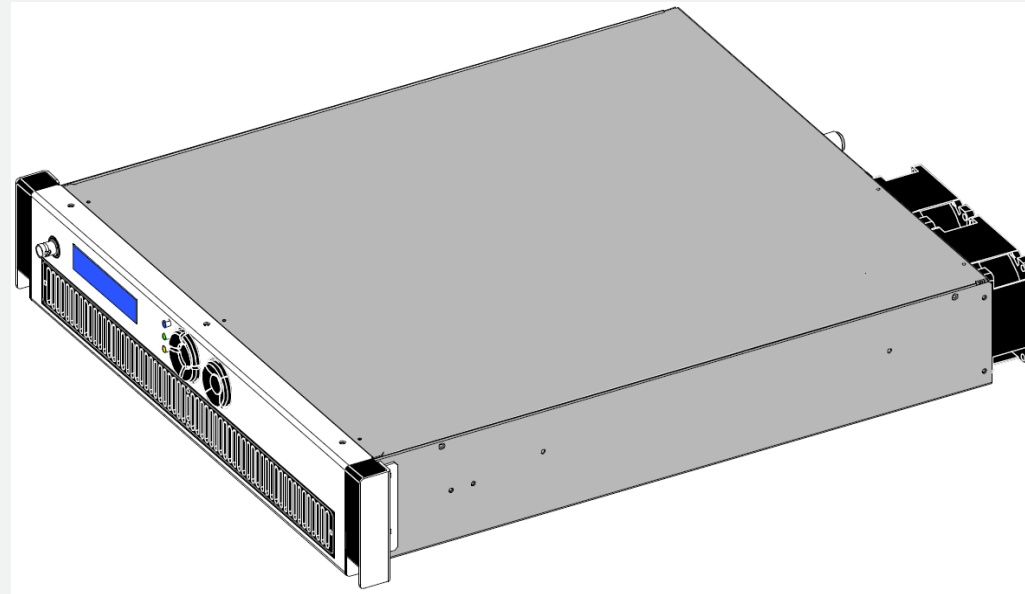
block diagram



IEC 100 - 100W rms

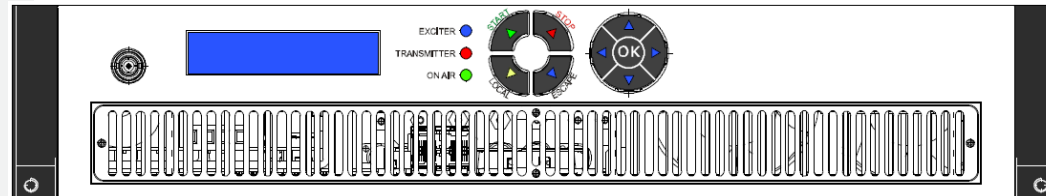
IEC 200 - 200W rms

Low power multimode Transmitter

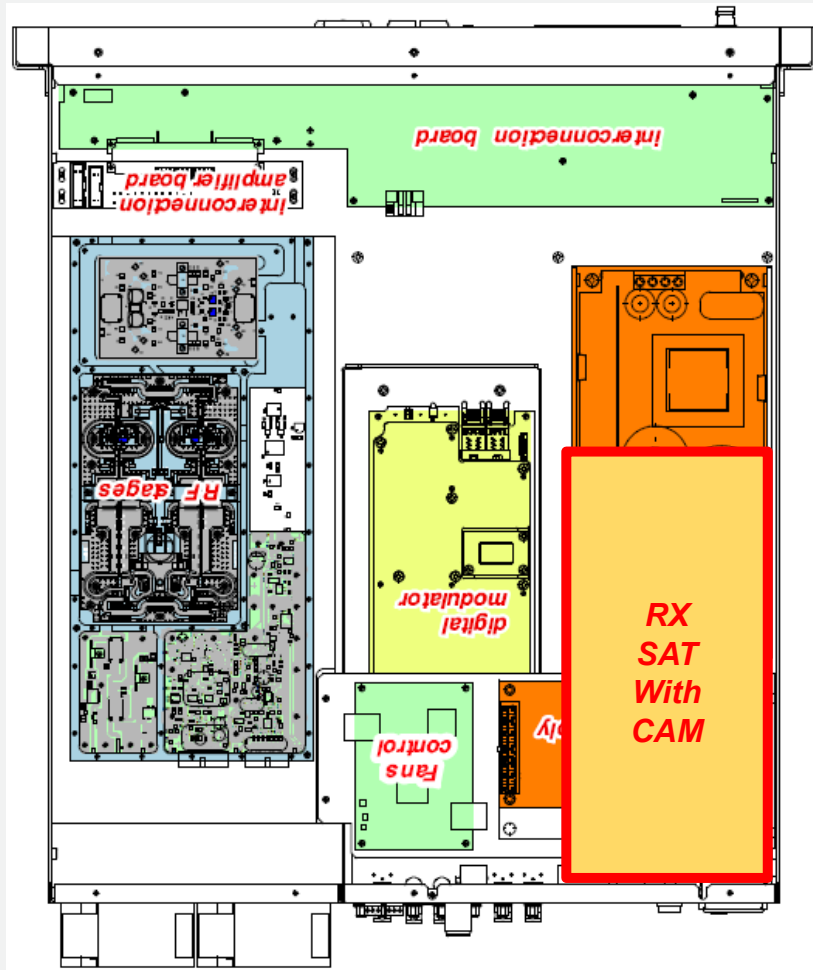


New 2 RU Design with Optional built-in Satellite Receiver

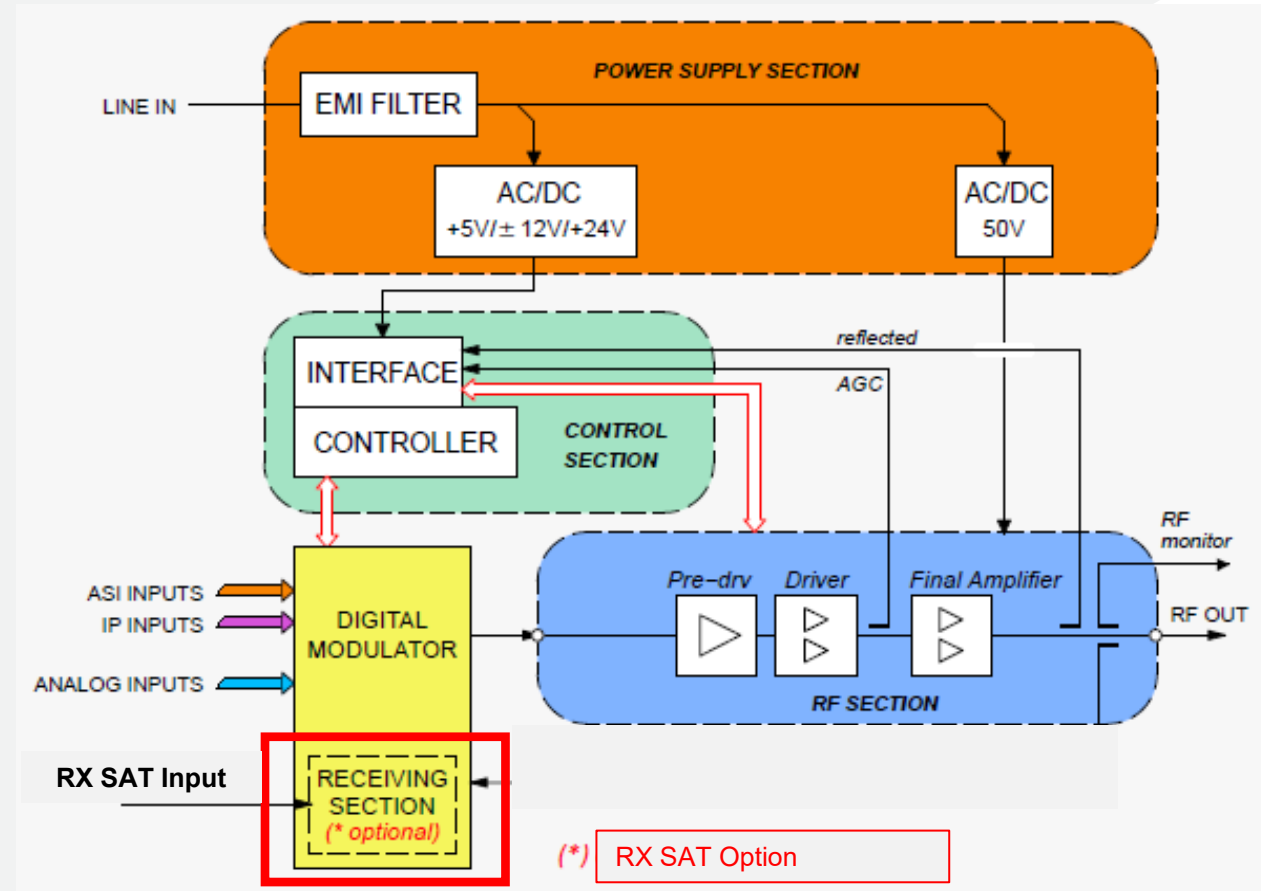
A 3D perspective view of a rack-mountable electronic device, likely a power supply or converter. The device has a silver front panel with a blue display screen, several control knobs, and a large ventilation grille. It is shown mounted on a black rack.



IEC 100 – IEC 200 Transmitter

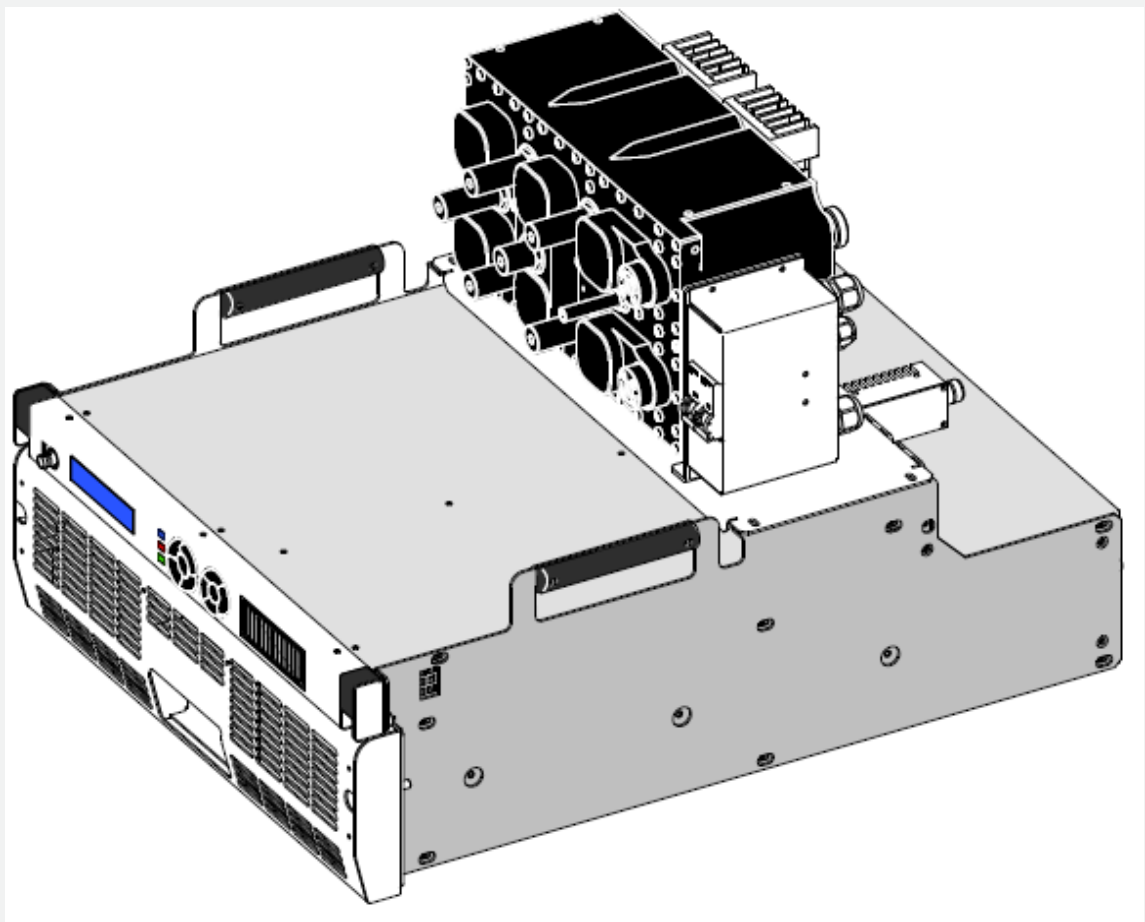


top view



block diagram

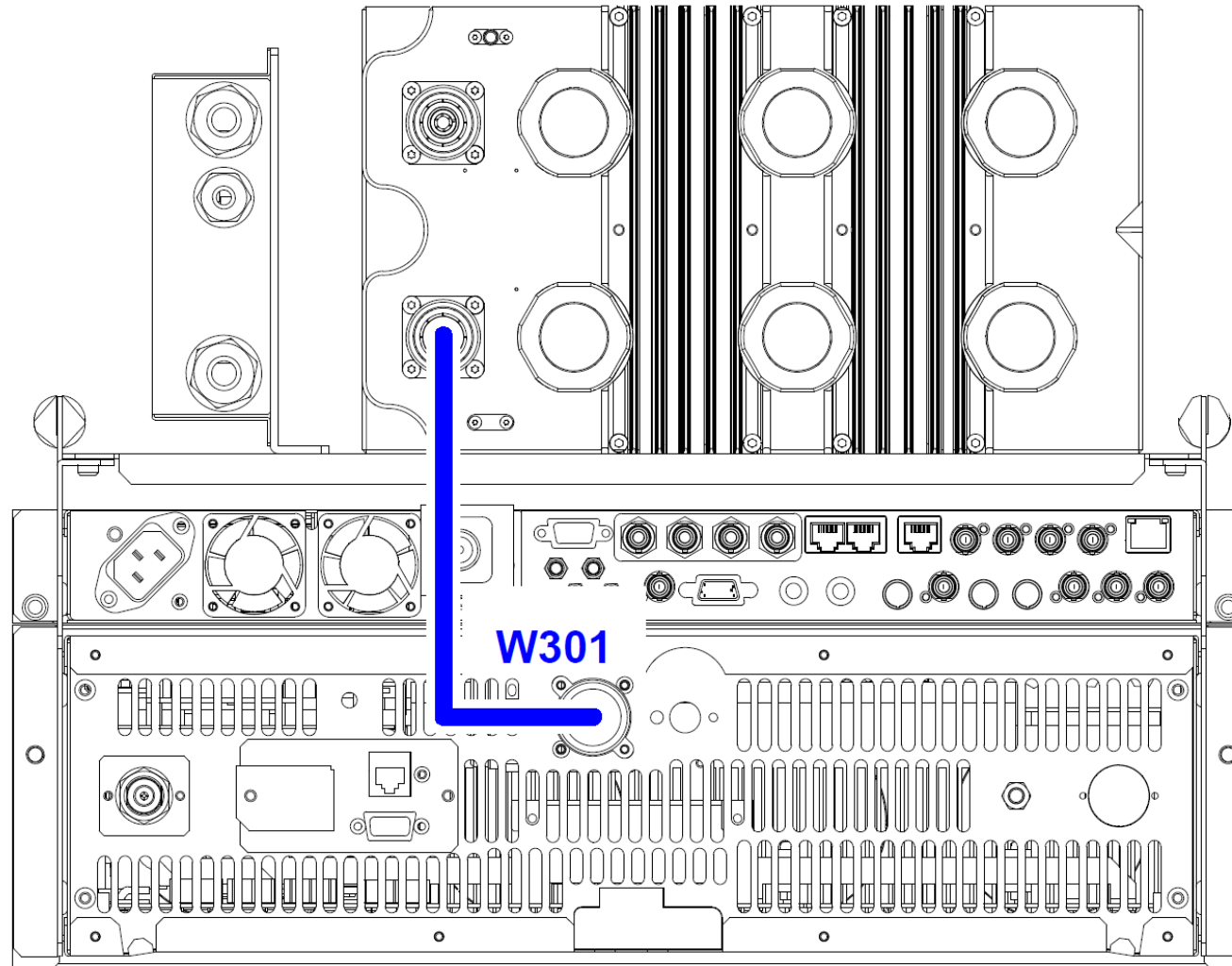
Alpan 1 / 2 / 3 - Medium power multimode Transmitters



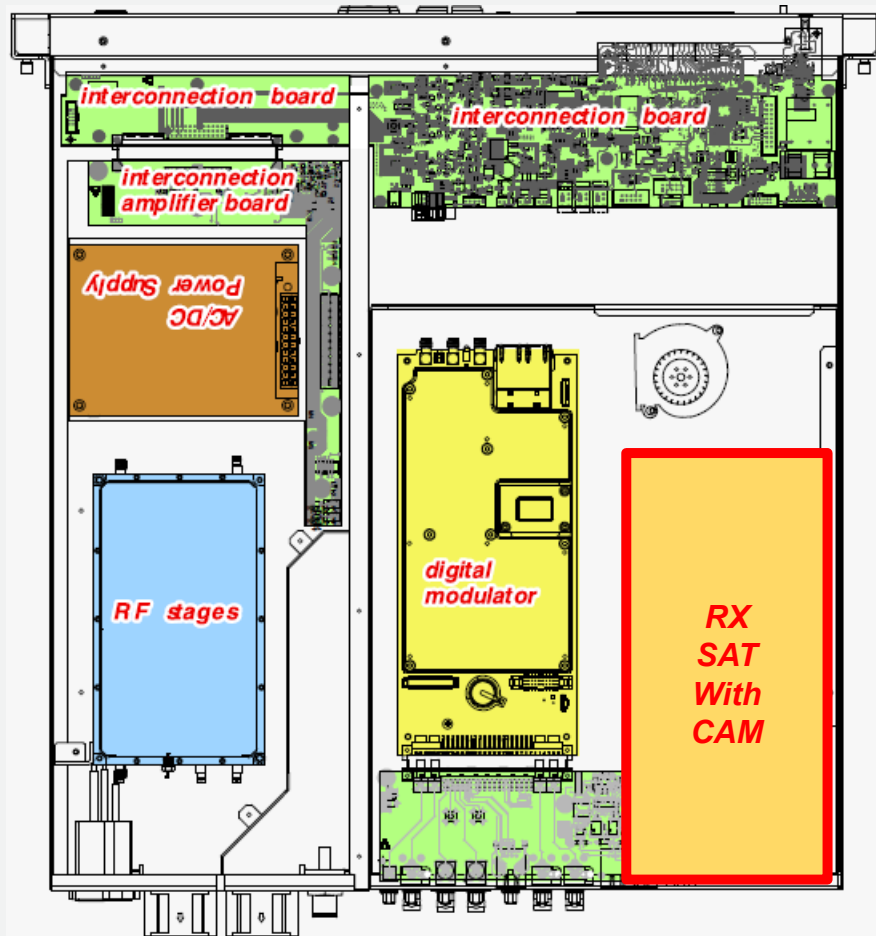
HPAs number	
ALPAN 200	DVB-T/H
	DVB-T2
	ISDB-T/T _b
	ATSC
	ANALOG
ALPAN 400	DVB-T/H
	DVB-T2
	ISDB-T/T _b
	ATSC
	ANALOG
ALPAN 600	DVB-T/H
	DVB-T2
	ISDB-T/T _b
	ATSC
	ANALOG



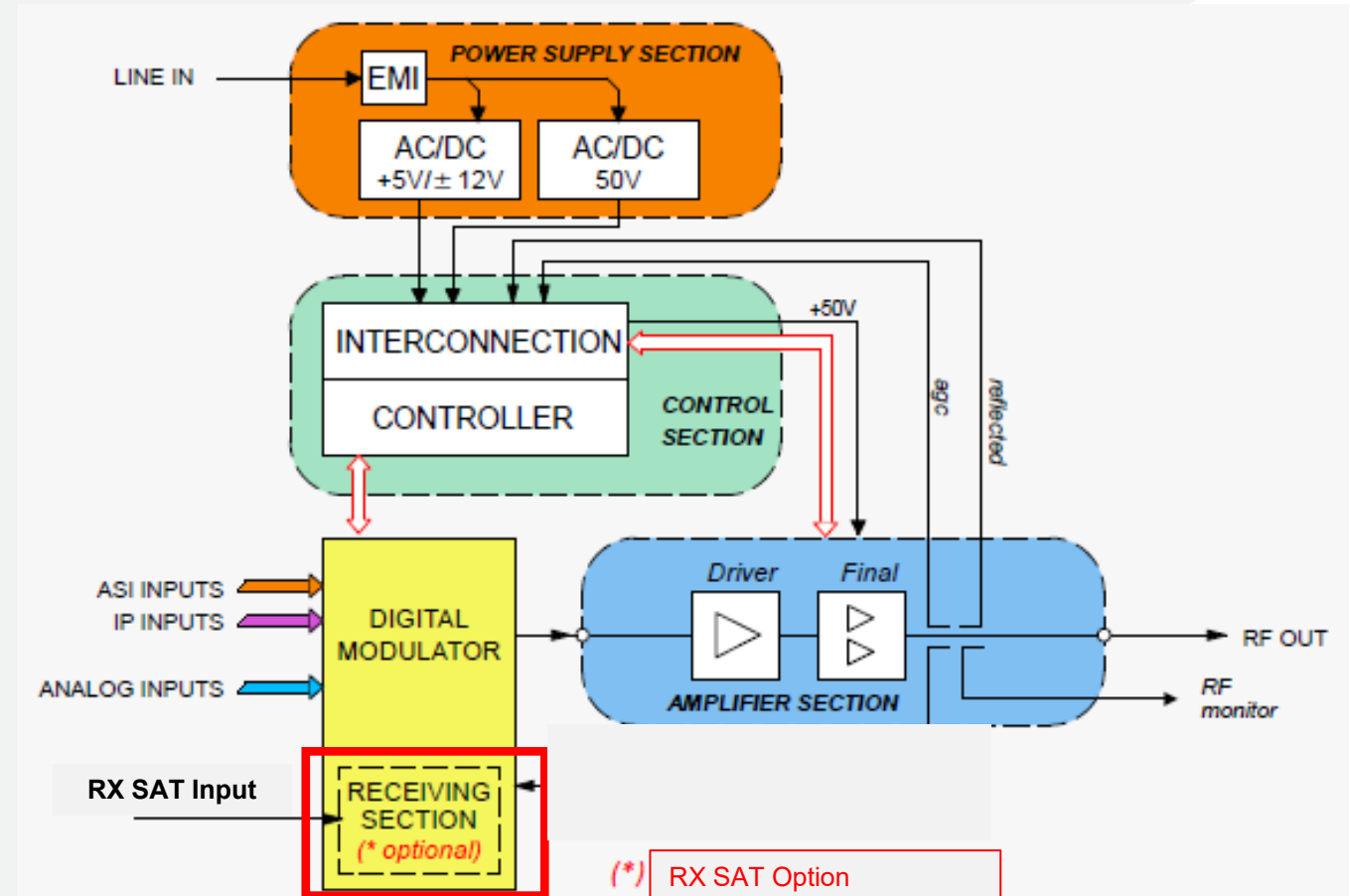
Alpan 1, Alpan 2, Alpan 3 – Rear view



MEX II



top view



block diagram

Alpan

Air Cooled Transmitters
Power Amplifiers

- MULTISTANDARD OPERATION
- Available for VHF and UHF
- Full Broadband Doherty
- HIGH EFFICIENCY RF UP TO 37%
- Modular Hot Plug modules
- FULL REDUNDANCY RF and PS STAGE
- Adaptive precorrection for maximum optimization of transmitter transmission performances and power efficiency



Alpan PA

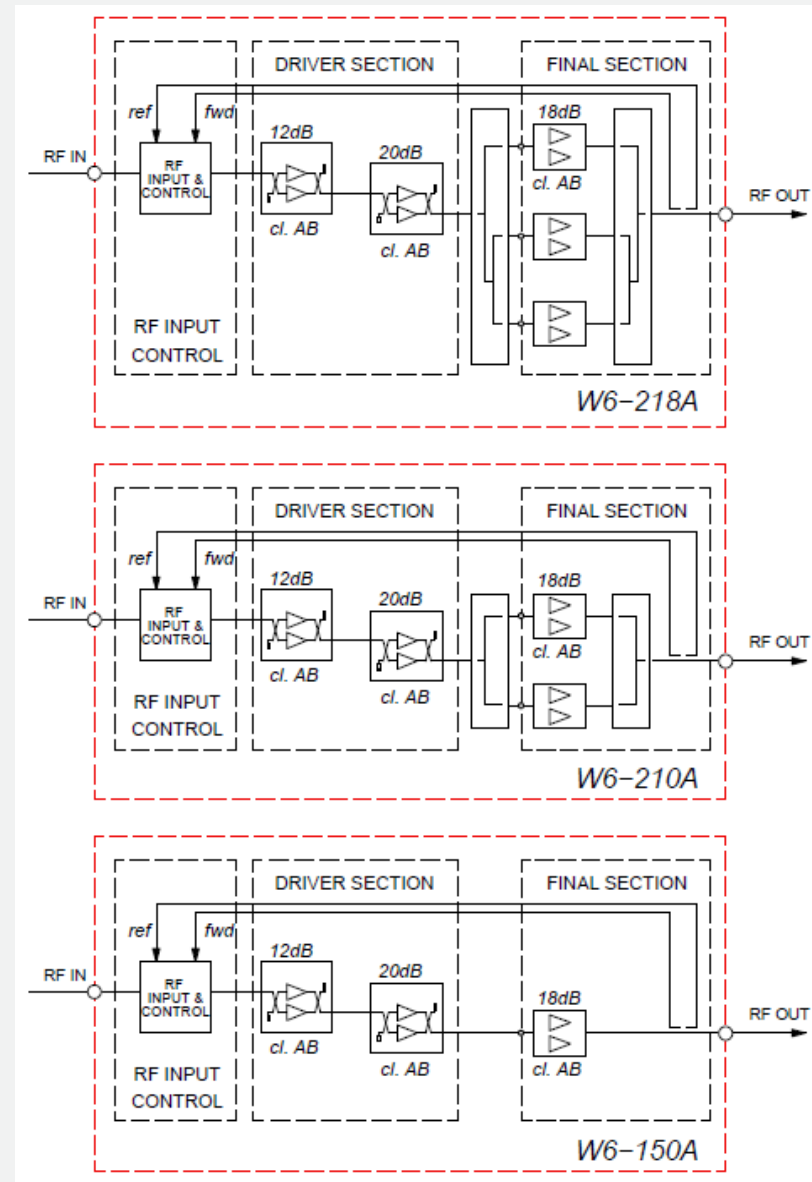
Air Cooled Transmitters
Power Amplifiers

- ALPAN 3 = 600W rms

=

- ALPAN 2 = 400W rms

- ALPAN 1 = 200W rms



MEX II in 3+1 configuration

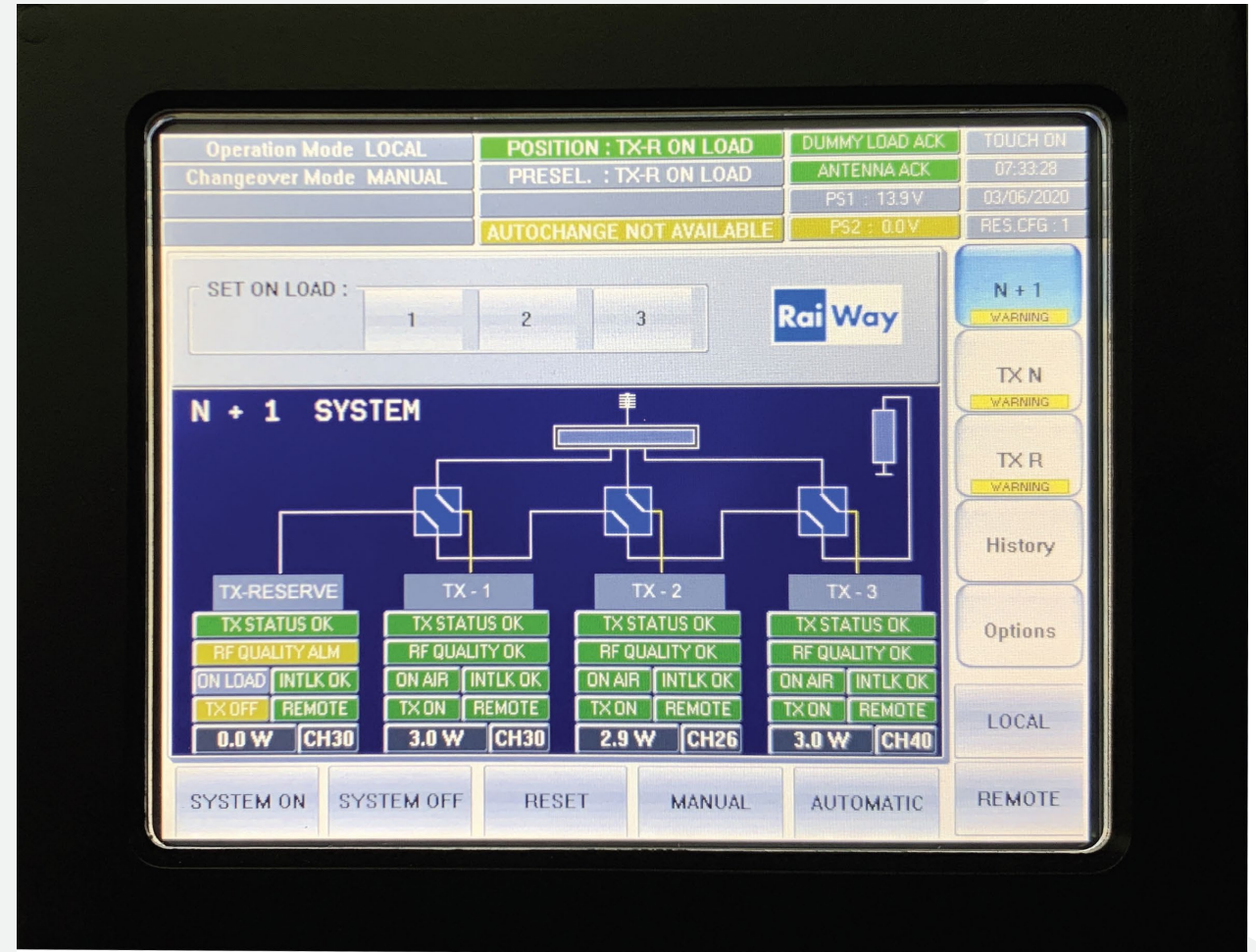


Front view

Radio & TV
Broadcast Equipment
and solutions Worldwide

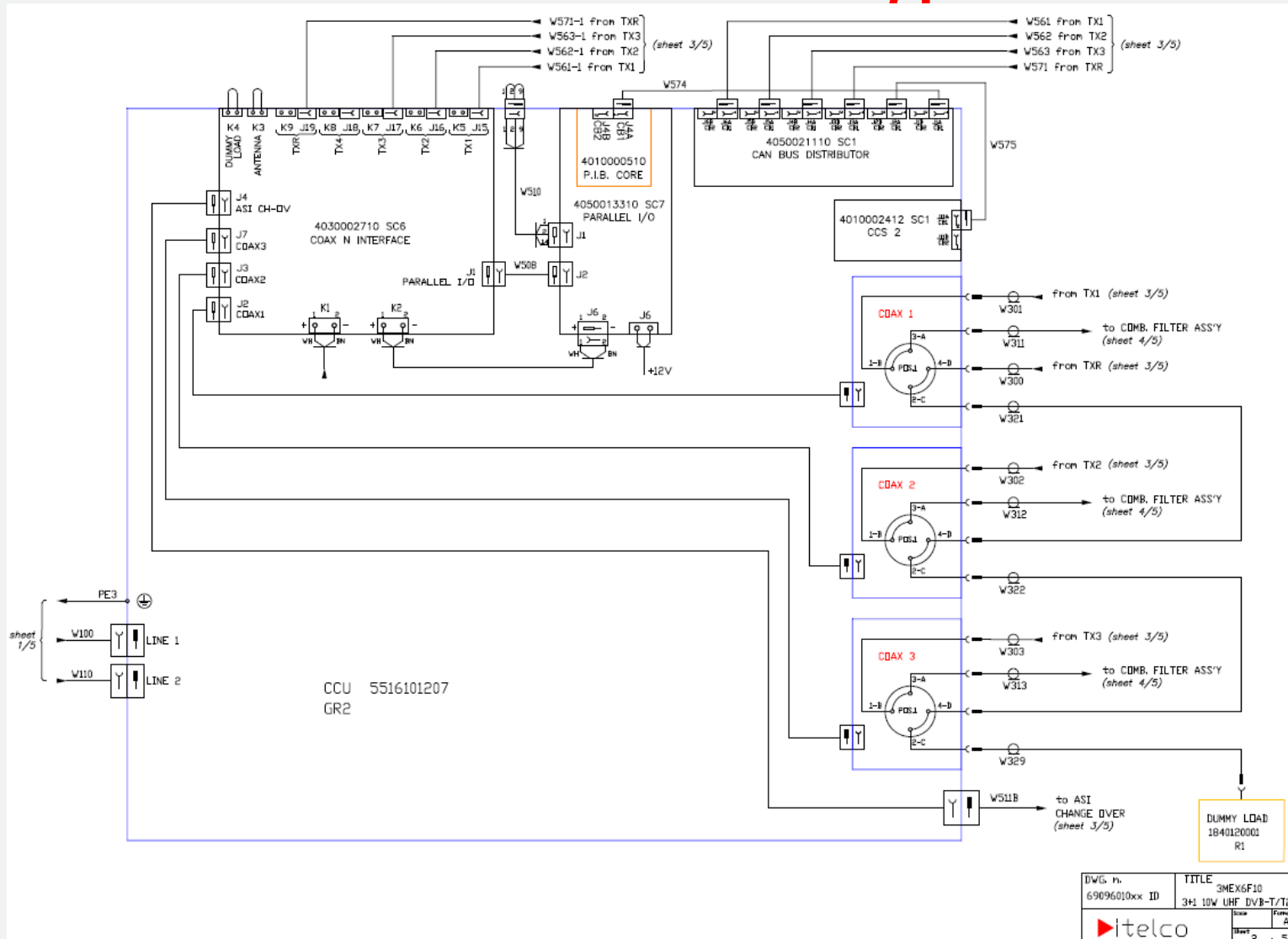


3+1 details



Synoptic with touch screen

MEX II in 3+1 configuration



MEX II

IEC

ALPAN

Available in:

1 + 1 Passive Reserve configuration

1 + 1 Active Reserve configuration

N + 1 configuration

Brief Company Introduction:

- Established in 1963 as Philips Test and Measurement
- 1964 First TV modulator introduced – more than 40 years of experience in the broadcasting market
- 1998 First generation DVB-T C-OFDM Modulator introduced (PT5775)
- Today more than 20.000 transmission site installations
- Per early 2003, PTT is owned by Managing Director Morten Simonsen

ProTelevision Today:

- Located in Copenhagen, Denmark
- High focus on R&D – 25 engineers working solely on C-OFDM technology (DSP, RF, SW, HW)
- All production outsourced to ISO Certified specialists
- Calibration, verification and test certificate of each piece of equipment done at PTT (100 hours burn in)
- DVB member (actively participated in the creation of several standards)



LEADING MANUFACTURER OF DTT MODULATORS

ATSC

ATSC 3.0

DVB-T

DVB-T2

ISDB-T

ISDB-Tb

DAB

Digital Audio Broadcasting

DAB+

Digital Audio Broadcasting

- ◆ ISDB-T and ISDB-Tb Homologated support
- ◆ REMUX SW option to support input TS 188 bytes
- ◆ 2x TSolP Inputs 1Gb
- ◆ Adaptive precorrections Linear and Non linear

ISDB-T

ISDB-Tb

 OPTI  POWER [®]

- Most Advanced Technology of Precorrection in the Broadcasting Market.
- Thanks to:
Optimized precorrection technologies and 2) Exclusive technics of crest factor reduction,

Optipower increases the efficiency of any amplifier from 2% to 5%

Intuitive and user friendly WEB Graphical User Interface





Modulator/Exciter

ATV (comming soon)

Pro Television Technologies

- Pro Television Technologies
- ATV Modulator
- Analog Video/Audio input
- SDI Input
- PAL and NTSC color
- G, D1, M, K, I1, K1, N, NC, I
- Exact same base module as the DTV products



Modulator/Exciter

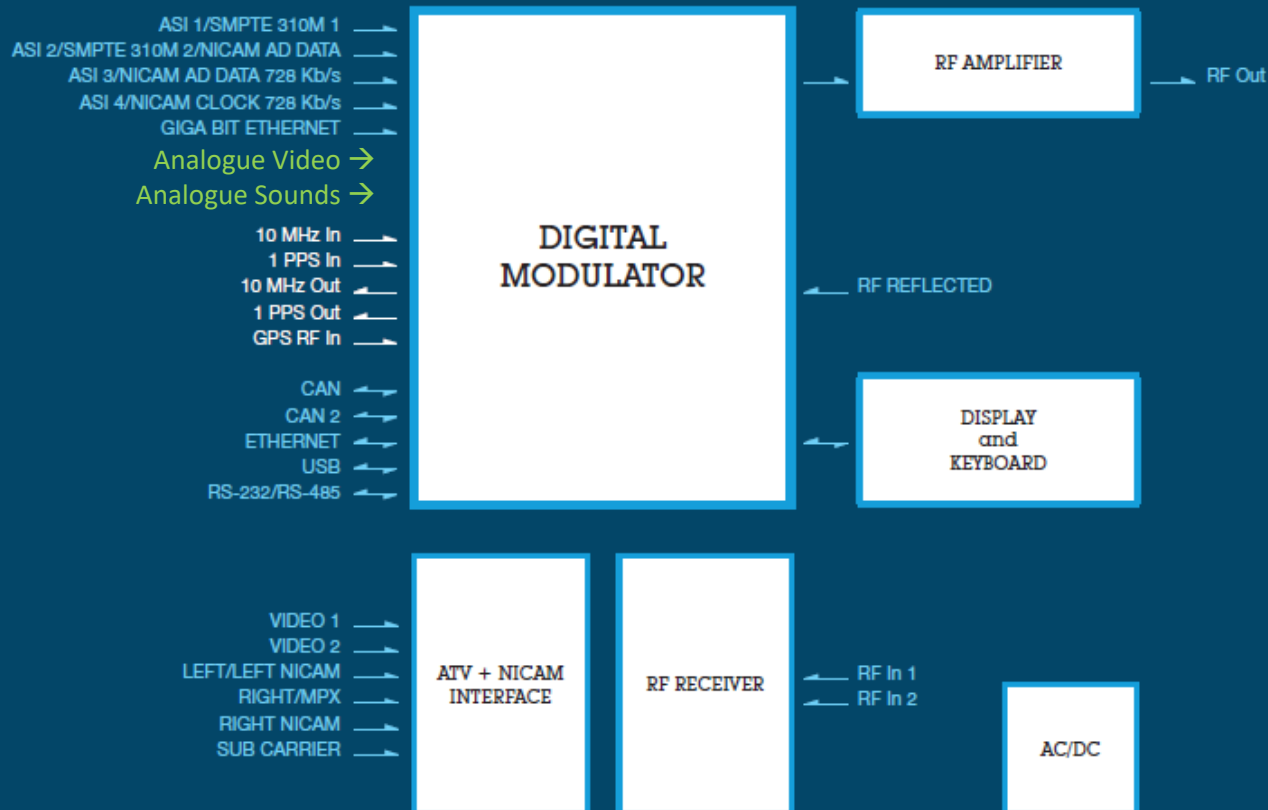
ISDB-T ISDB-Tb

Pro Television Technologies

- SFN and MFN
- ISDB-T and ISDB-Tb Homologated support
- REMUX SW option to support 188 bytes TS
- 2x TSolP Inputs 1Gb
- Digital Adaptive precorrections Linear and Non linear
- Optional OCXO and GNSS add-on modules

ELENOS   **itelco** PRO  **TELEVISION**

Functional Block Diagram



TV Transmitters MEX II block diagram

Itelco Broadcast

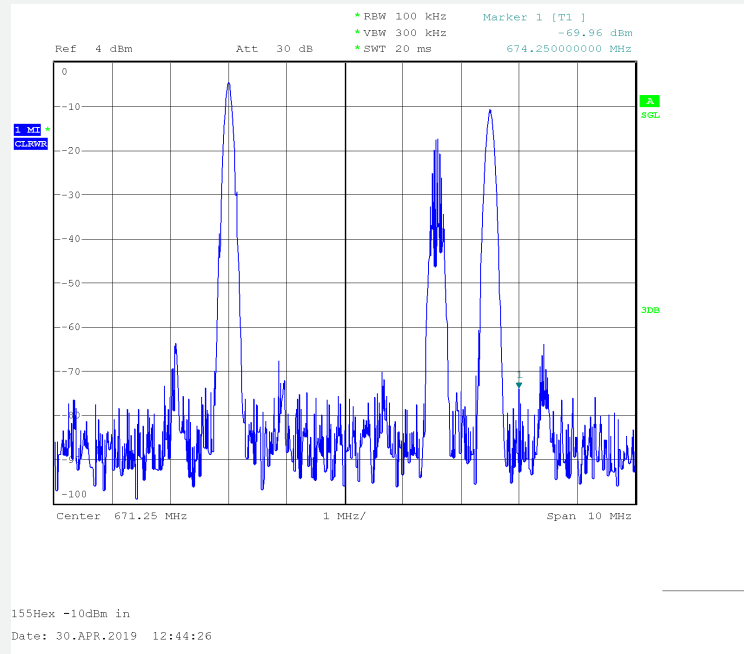
- MEX

DUAL CAST EXCITER

ANALOGUE INPUT MODULATION FOR
ANALOGUE SPECTRUM TRANSMISSION

BTS DIGITAL INPUT MODULATION FOR
ISDB-Tb SPECTRUM TRANSMISSION





Analogue Spectrum mask

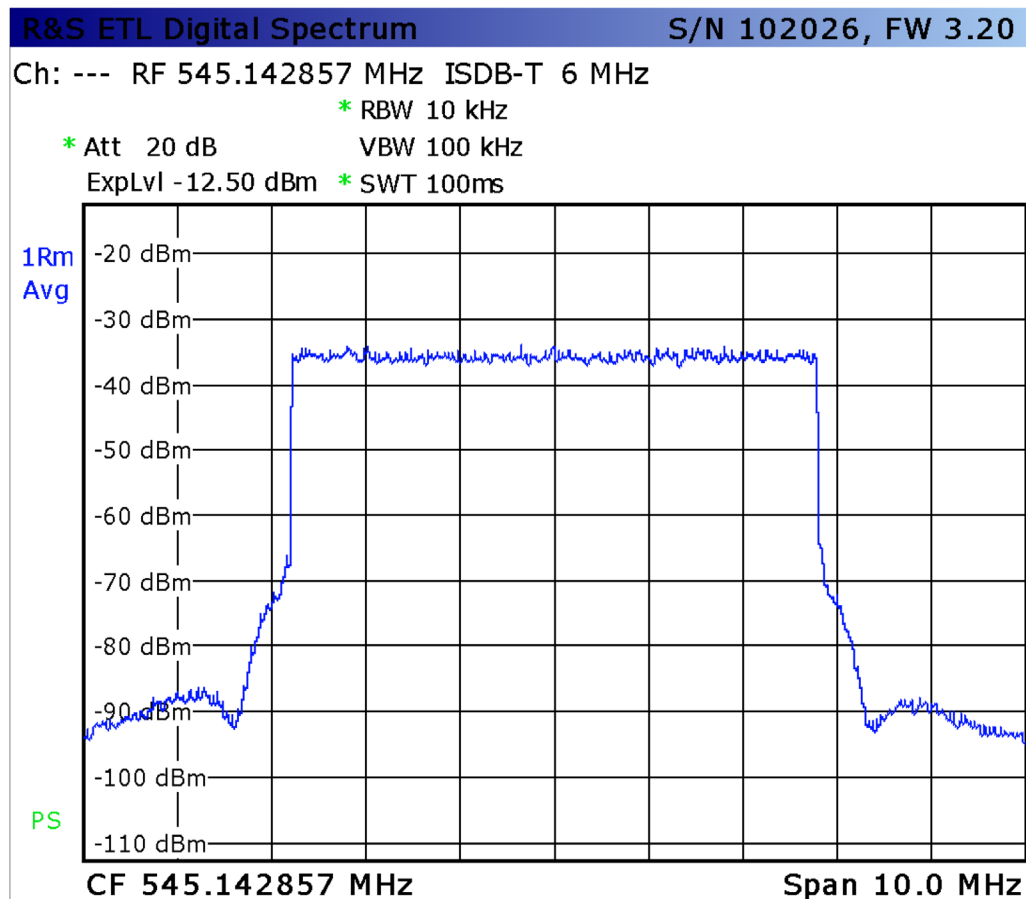
- Only one program in 6MHz channel



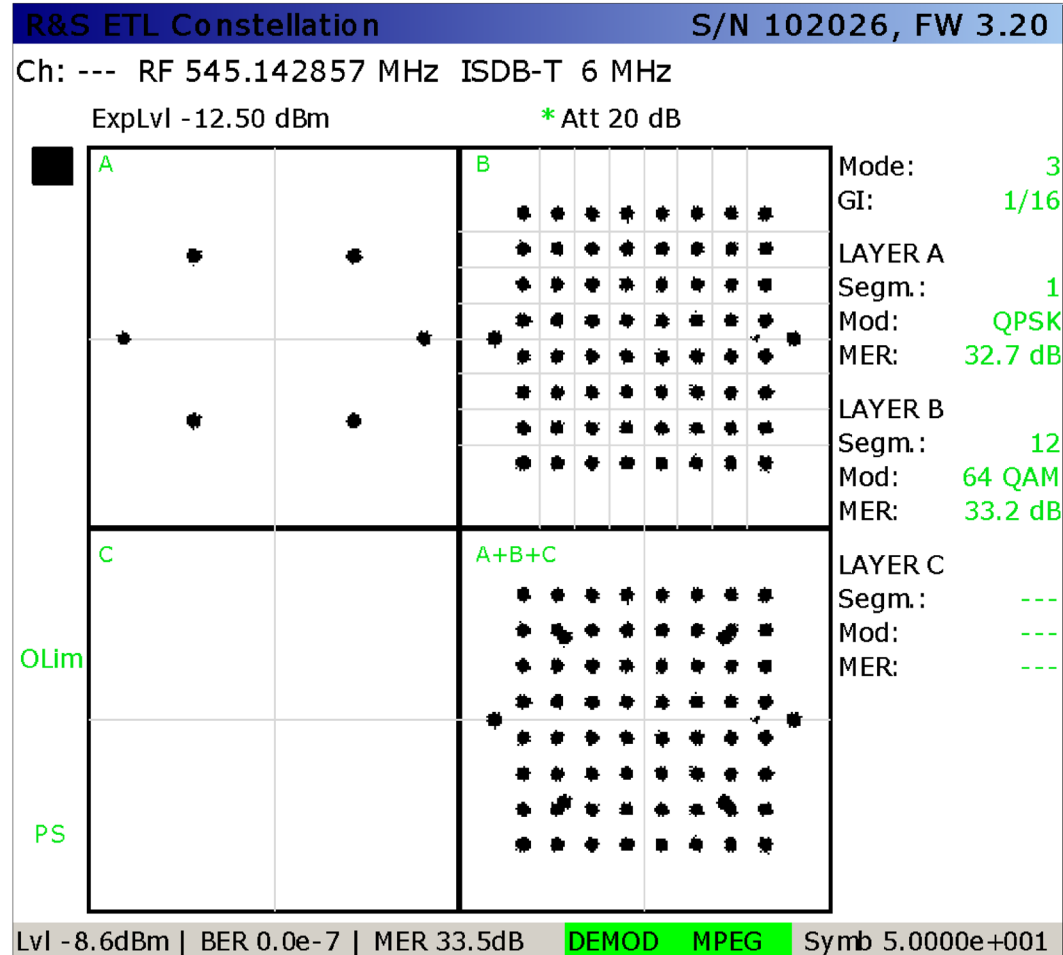
ISDB-Tb

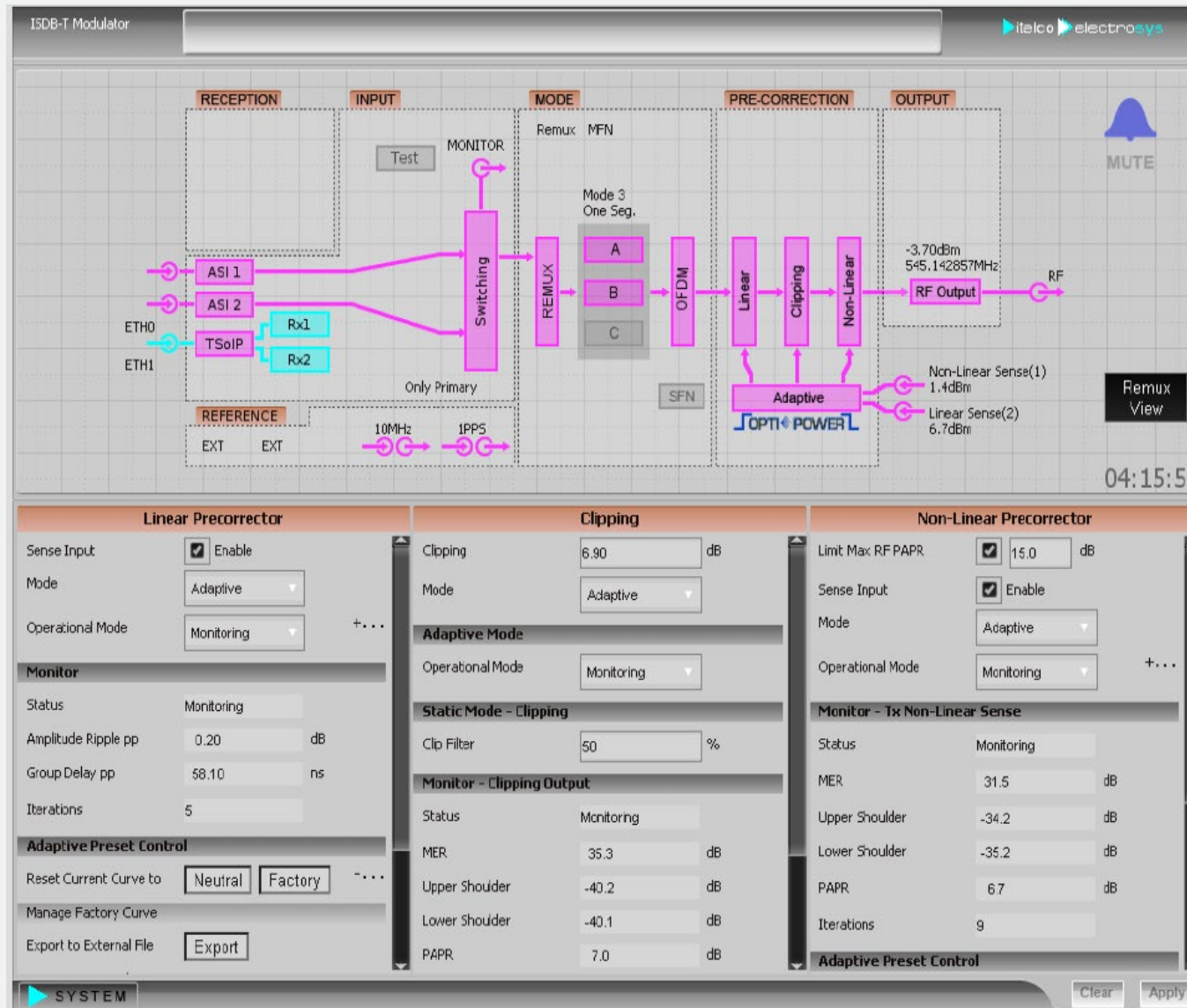
- Several programs in 6MHz channel
- Possibility of adjacent channel and coadjacent channels
- MFN or SFN network operation
- Energy saving (transmitting site and power reduction)
- Head-end mobile

X Spectrum



X Constellation







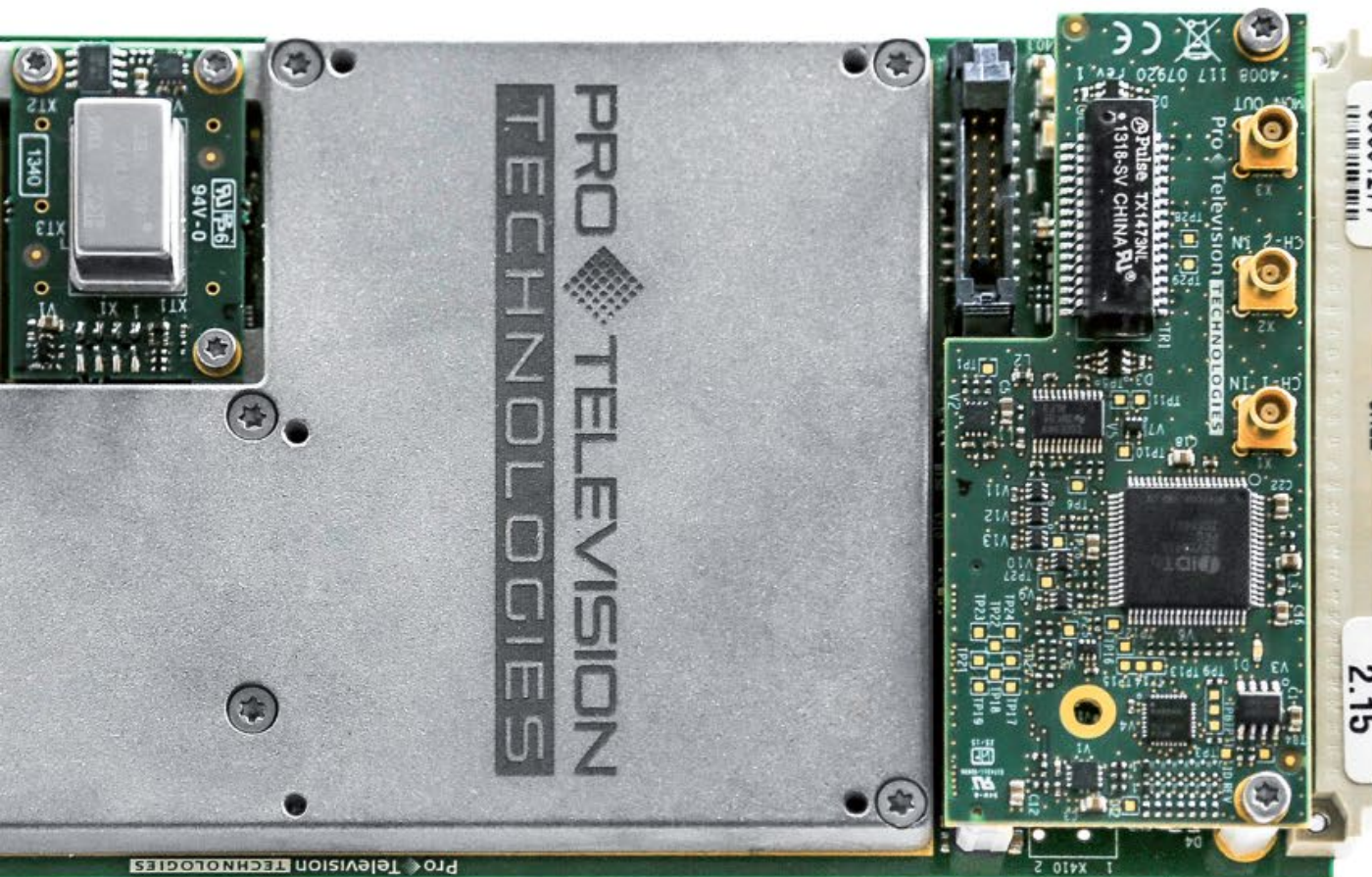
Itelco transmitters and ISDB-Tb Advantages

Transmitters Advantages

- Ownership Cost reduction
- Power Consumption reduction thanks to the high efficiency technology
- Hot plug systems and full redundancy on RF and PS stage
- Extremely high MTBF thanks to the Itelco quality and experience

ISDB-Tb Advantages

- Several programs in 6 MHz channel
- Adjacent and coadiacent channels use
- MFN or SFN operation mode
- Head-end mobile mode available
- Service cost reduction
- Owner consumption reduction due to several
- programs in the same channel
- Multimedia Service transmission
- Transmitting site power reduction



Modulator

DAB

Digital Audio Broadcasting

DAB+

Digital Audio Broadcasting

Pro Television Technologies

- DAB / DAB+ / T-DMB
- Digital Adaptive Precorrection Linear and Non-linear
- Seamless input stream switching ETI-ETI, ETI-EDI, EDI-EDI
- 2x Gigabit IP inputs with EDI protocol
- Optional OCXO and GNSS add-on modules



Our network of dealers are supported by
our field engineering team World - Wide.



Thank You and mail us for info



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Broadcast Equipment
and solutions Worldwide

Elenos Confidential

|

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ELENOS

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