GATESAIR

Asia-Pacific Broadcasting Union

world dab

Connecting What's Next

MultiCarrier DAB Transmitter

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APAC Sales Manager, GatesAir

A LONG HISTORY OF INNOVATION

1922 — First Commercial Radio Station

1929 — First TV Broadcast

1957 — Harris Acquires Gates Radio

1996 — First Digital TV Broadcast

2008 — Mobile TV

2015 — Liquid-cooled FM Transmission

2019 — Industrial Pulsed

2022 — 100th Anniversary

What's Next — Next-Gen TV, LTE Broadcast, ISM HP RF

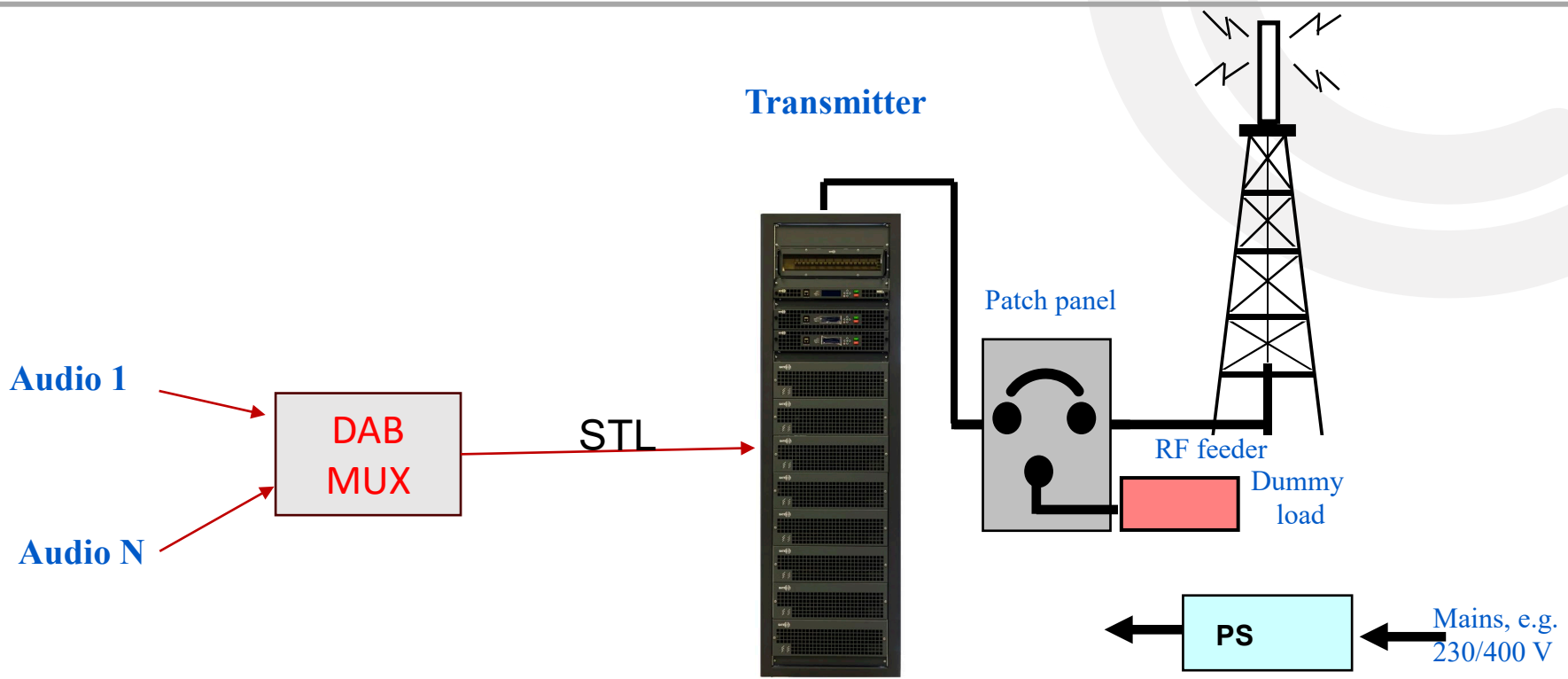
- GatesAir has been a pioneer in over-the-air broadcasting for 100 years
- We developed groundbreaking over-the-air radio and television transmitter designs that continue to this day
- GatesAir actively and proudly participates in projects that set new standards in broadcasting, content delivery, and more

GATESAIR

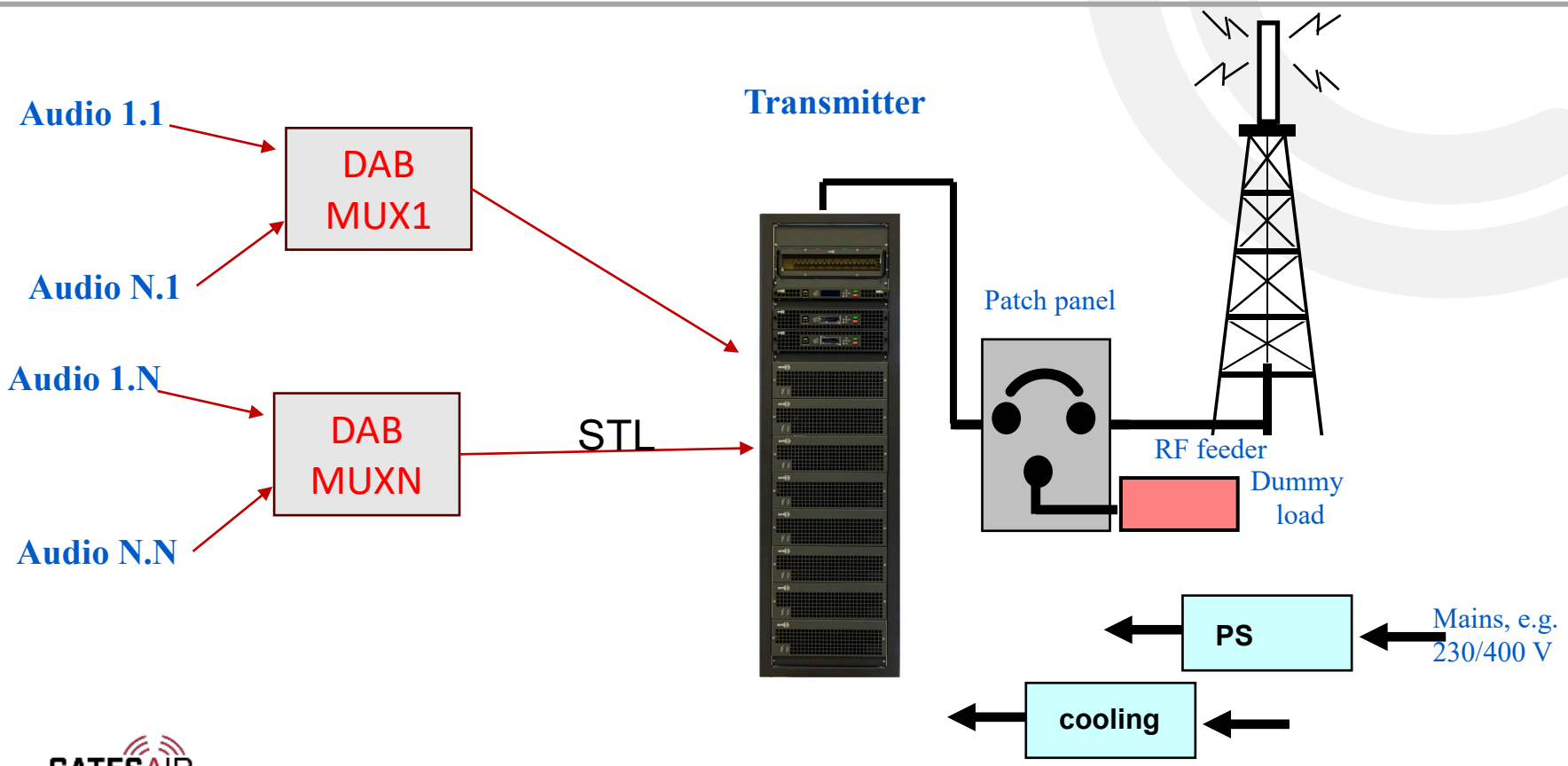
GENERAL TRANSMITTERS STATION SETUP

GATESAIR®

TRADITIONAL TRANSMITTER STATION SETUP



MULTI DAB TRANSMITTER STATION SETUP



SPECIAL PRODUCTS

DAB Multicarrier

Connecting for the Future

BRIEF DESCRIPTION

Multi-Carrier DAB Transmitter:

- **Technical and economic advantages**
- Allows to generate or re-transmit up to **4 DAB/+** carriers using a single special modulator and single RF amplifier.
- Technique of "common amplification" can be used thanks to a new algorithm that allows the precorrection of broadband linearity .
- NO channels DAB combiner NEEDED
  - Band pass filter needed
- LOW MAINTANANCE

MULTICARRIER DAB+ TECHNICAL SPECIFICATIONS (1)

- Output power up to 750W rms total in compact version
- Output power up to 1900W rms total in Exciter and Amplifier Version
- Input interface: 2xEDI+2xETI, DVB-S/S2, 4xETI, RF inputs.
- Common RF amplification
- Broadband VHF BIII Doherty Amplifier technology with high efficiency
- Supported Modulations: DAB / DAB + / T-DMB

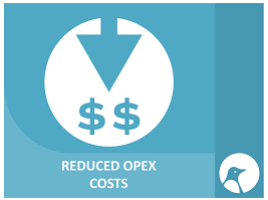
TPO

- UP to 1900W total:
  - 4 ensembles -> 475 W each
  - 3 ensembles -> 633 W each
  - 2 ensembles -> 850 W each

ERP

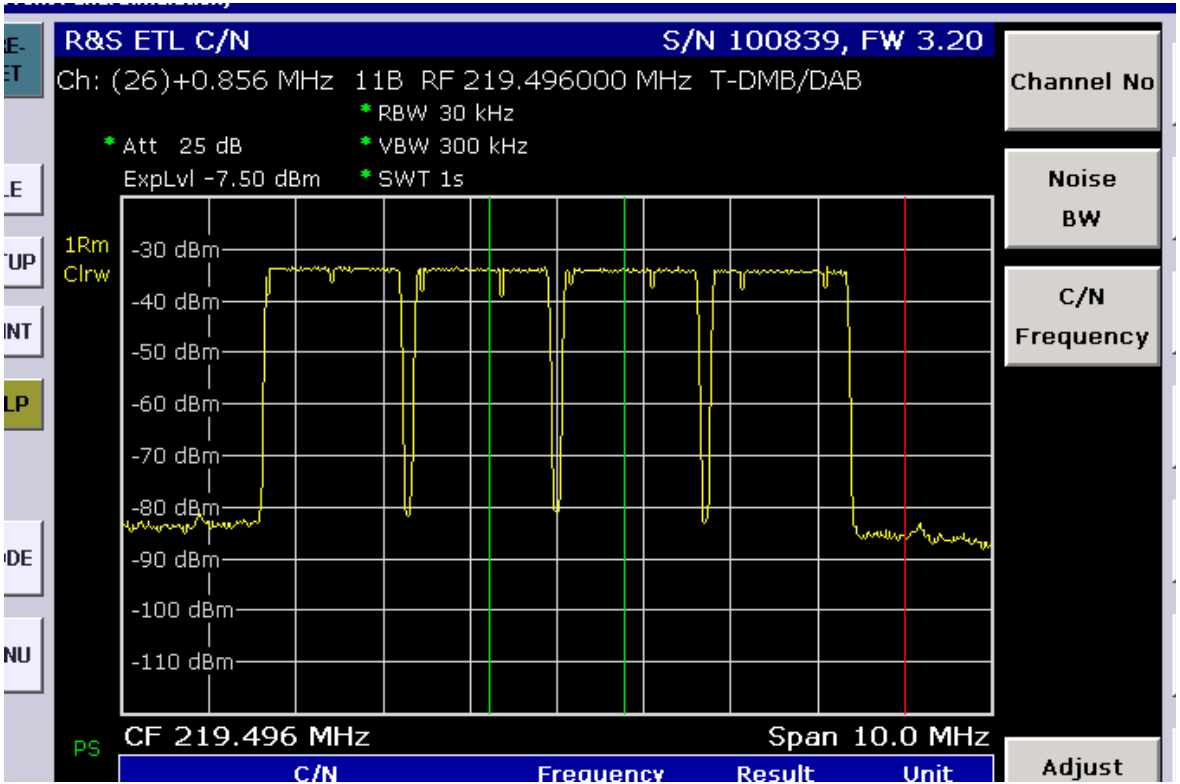
- With an antenna SYSTEM gain of 6 dB
  - 4 ensembles -> 1900 W ERP
  - 3 ensembles -> 2532 W ERP
  - 2 ensembles -> 3400 W ERP

MULTICARRIER DAB+ TECHNICAL SPECIFICATIONS (2)

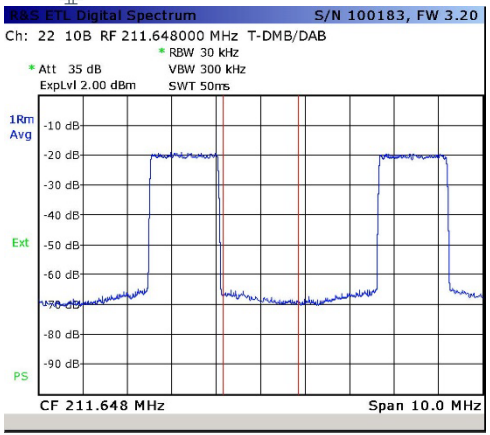


- More economic than standard solutions ($ ↓)
- More compact (space ↓)
- Less expensive to operate (OPEX ↓)
- Lower power consumption ↓
- Adaptive pre-correction circuits (performance ↑)
- Built-in high-stability GPS / GLONASS receiver (Optional)

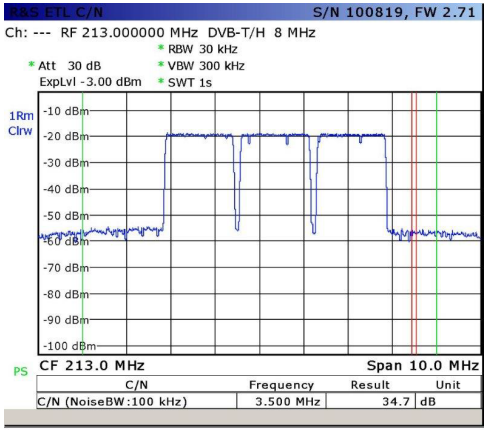
MULTICARRIER DAB
Spectrum – Up to 4 CH



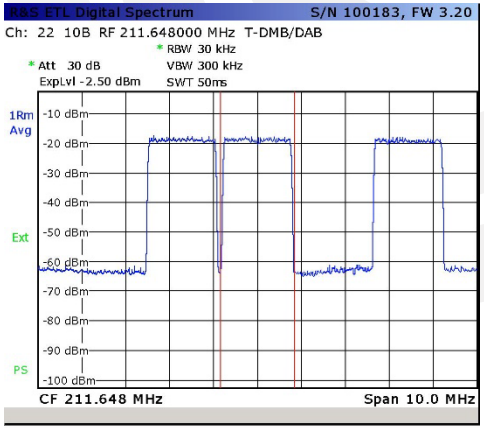
MULTI CARRIER DAB SOLUTIONS REDUCE COSTS, AND INCREASE ROI



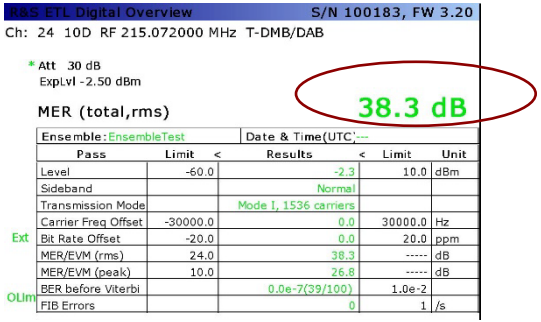
2 non adjacent channels



3 adjacent channels

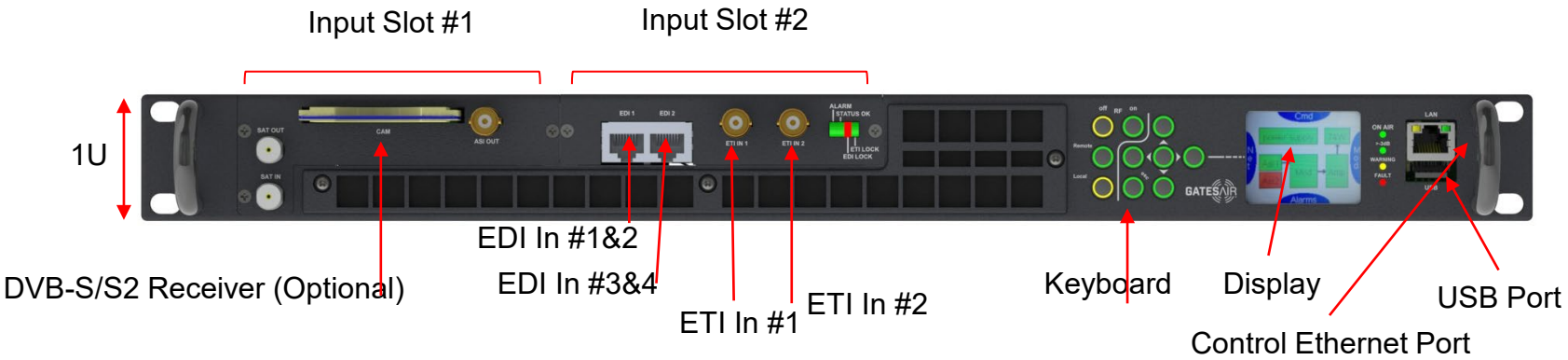


3 non adjacent channels

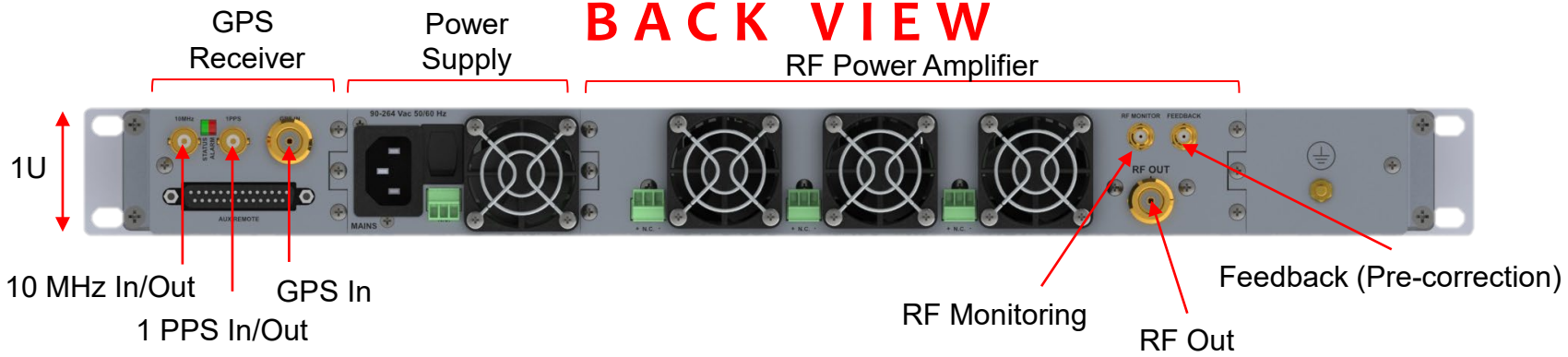


MULTICARRIER DAB
1RU Up to 150 Wrms Total

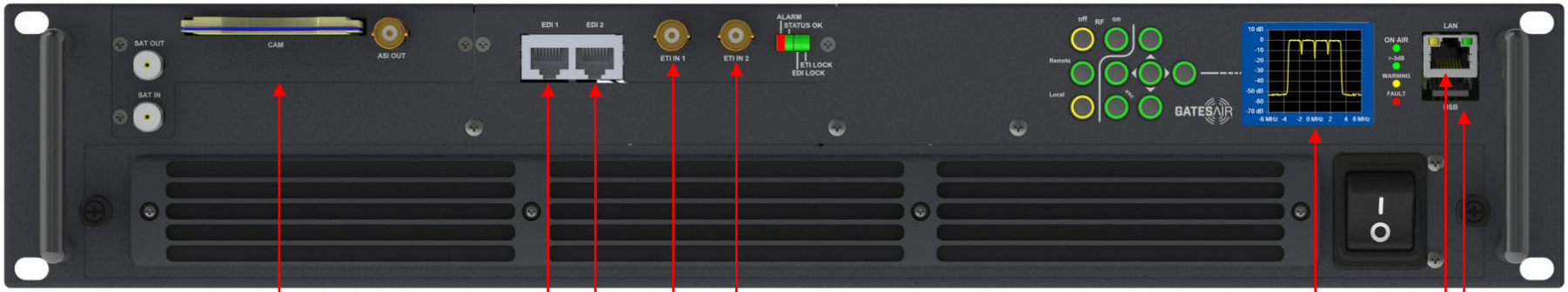
FRONT VIEW



BACK VIEW



MULTICARRIER DAB (2RU) – 240 Wrms Total



DVB-S/S2 Input

EDI In #1&2

EDI In #3&4

ETI In #1

ETI In #2

Touch screen LCD

Control Ethernet Port

USB Port

10 MHz In/Out

1 PPS In/Out

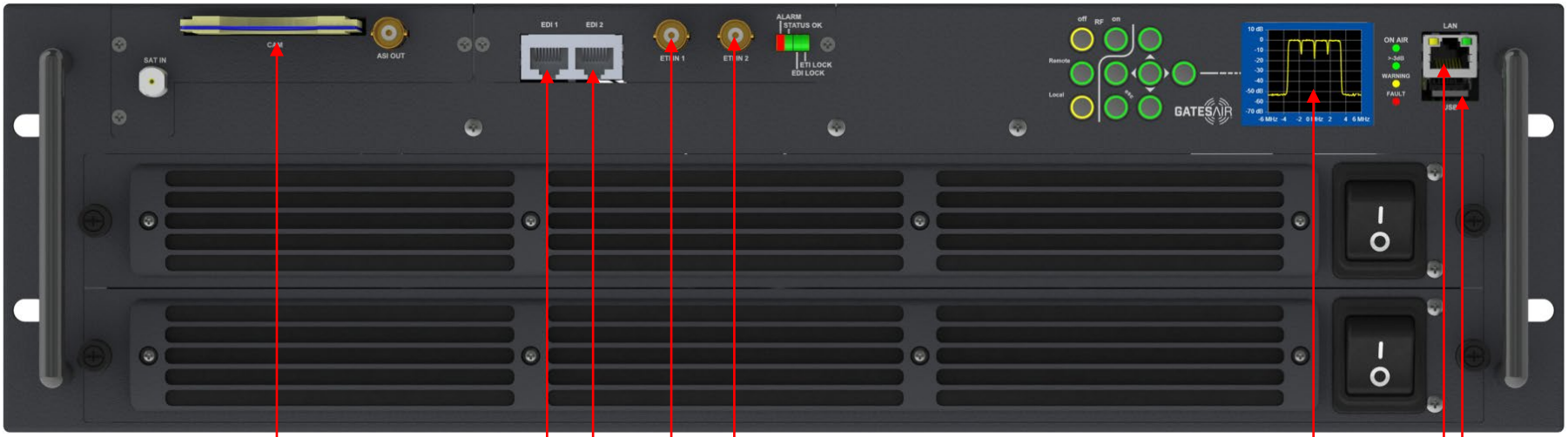
GPS In (Opzionale)

RF Out

Feedbac

RF Monitoring

MULTICARRIER DAB – 3 RU Up to 750 Wrms Total



DVB-S/S2 Input

EDI In #1&2

EDI In #3&4

ETI In #1

ETI In #2

Touch screen LCD

Control Ethernet Port

USB Port

MULTICARRIER DAB UP TO 1900W RMS TOTAL

KEY FEATURES

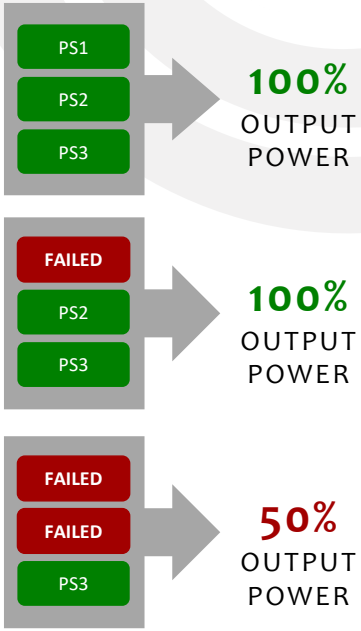
- Available output power: 300W to 1900W, Single or Dual redundant Exciters
- High-efficiency
- No Control unit Needed for the redundancy

VHF TV and DAB models available

PA POWER SUPPLY REDUNDANCY

3.5 RU Air-cooled PA with front panel removed

Full Power 2 of 3
P.A. P.S. Redundancy



Accessories: Automatic changeover

2+1 or 1+1 Configuration (N Connectors)

Front View

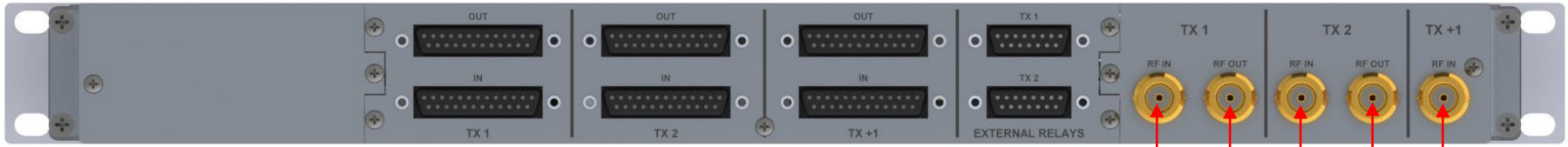
Switch Ethernet

Control Ethernet Port

USB Port

Touch screen LCD

Rear View



RF IN TX #1

RF Out

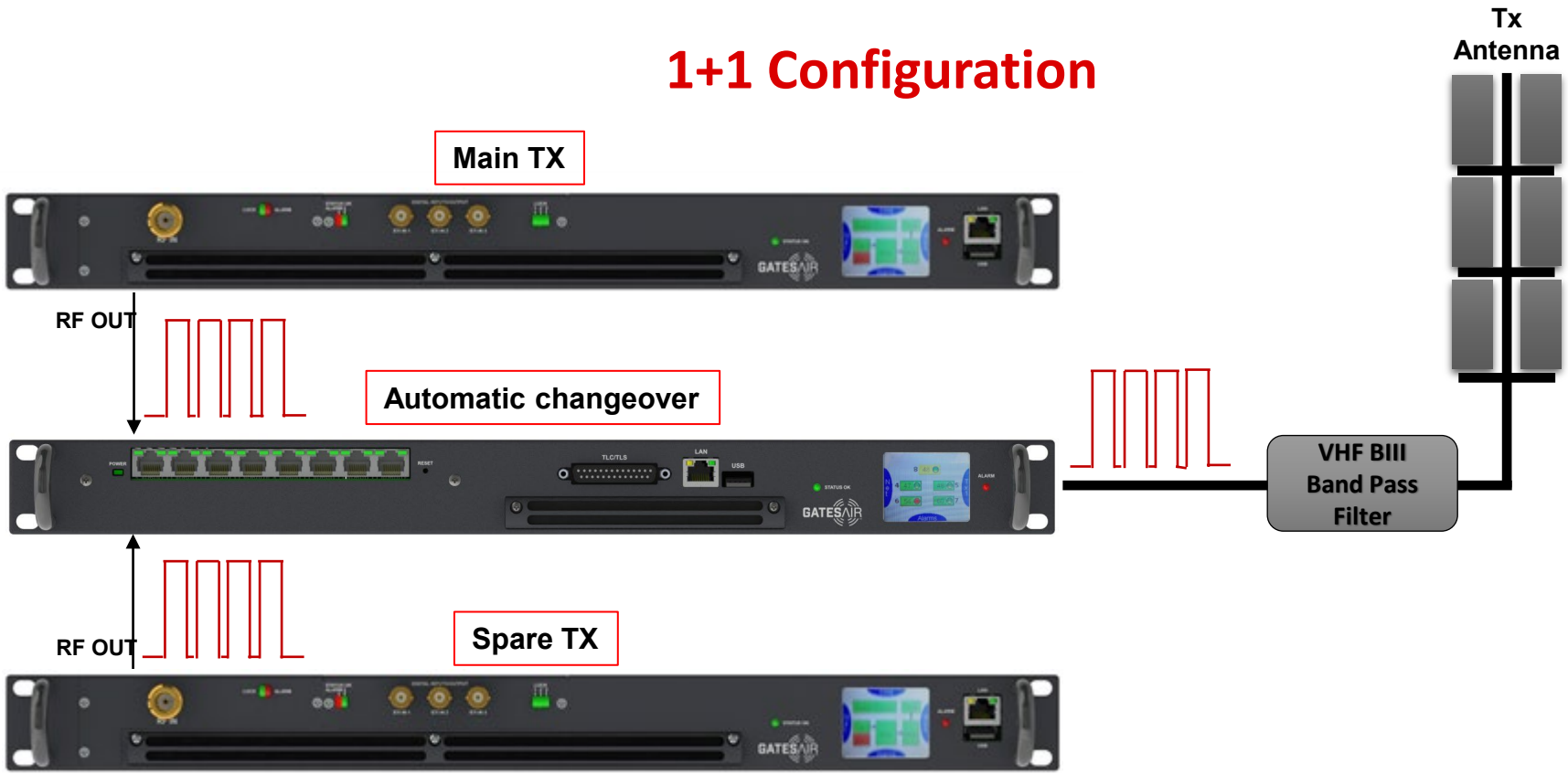
RF IN TX #1

RF Out

RF IN TX +1

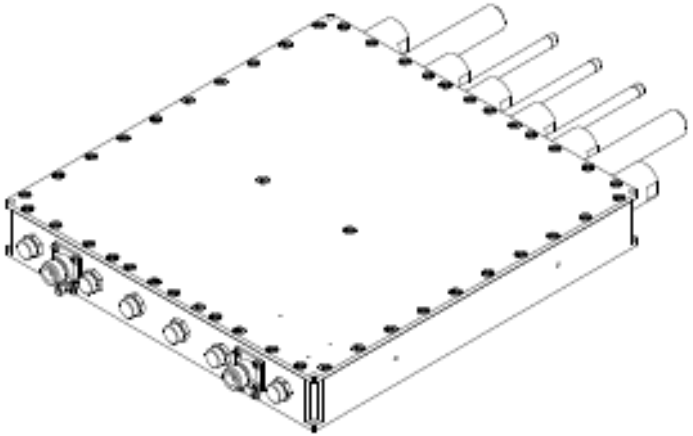
EXAMPLE: 1+1 (4+4ch) Configuration

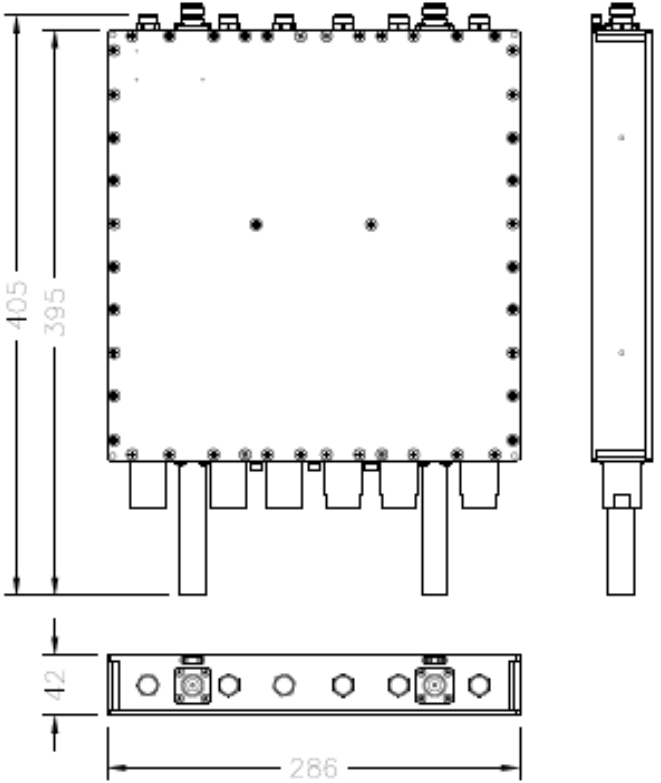
1+1 Configuration



EXAMPLE: 1+1 (4+4ch) Configuration

Special output Band pass filter VHF





Systems comparison

Main Features

	Multicarrier DAB		Standard solution
Number of Transmitters	1		4
Dimensions TX	1U		4 X 1U/2U/3U or bigger
Independent management of single mux	YES		YES
RF DAB Combiner	NO		YES
Special Filter Combiner: DAB + Services (for special applications only - ex: tunnel coverage)	YES		YES
Power output W/CH *	175W rms		175W rms
Efficiency	Always better than standard solution		Always worst than Multicarrier

***higher powers available**

Summary Multi DAB+

Advantage

- One Transmitter for up to 4 Ensemble
- High MER for DAB application >38dB
- The ensemble can be in not adjacent channel
  - Span up to 8 DAB Channels
- No Need RF Power Combiner
  - Still need special band pass filter
- Ensemble Power Out = Max Power/Number of Ensemble
- Less HW space occupation
- Save OPEX Cost
- Save CAPEX Cost
- Less maintenance

Summary Multi DAB+

Limitation

- MAX Total Power 1900W
- All the Ensemble has same power
- Not cover full DAB Band
- Less Redundancy
  - We propose use 1+1 or N+1 solution

Summary Multi DAB+

Future Development

- Total Power > 1900W
- Ensemble can set different power
- Increase bandwidth range from first to last ensemble

GATESAIRCONNECT VIRTUAL events

THANK YOU

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