



Rack-Mount FM Product Launch

Agenda

- Building on the VS Series
- Technological Opportunities
- Meet the New Family
- Technology Tour
- Additional details:
 - VX, VS, NV^{LT}, GV
 - Availability
- Q & A



Jeff Welton

Sales Manager -
Central USA



Etienne Guimont

VHF Design Lead



Matt Herdon

Product Manager



Justin Jamieson

Engineering
Technologist



Scott Melvin

Embedded Systems
Lead

Building on the VS Series Legacy

VS Series



- Introduced in 2010
- A departure from typical basic low power transmitters of the day
 - Big transmitter features in an affordable unit
 - Advanced control and monitoring
 - Direct-to-digital exciter in 300 W, 1 kW, & 2.5 kW models
 - Integrated functionality such as Orban Audio Processing
- Broadcaster confidence shown with over **7000** deployed worldwide

Thank you for your confidence in our products from all of us Nautel

A Decade Later...

Nautel has been able to:

- Leverage new technology into engineering opportunity
- Employ the latest modeling and design tools
- Address customer requests/refinements
- Create a new family of *even more* capable analog-focused, low power, FM transmitters

Improved Packaging

Updated Control & UI

New RF FETs

Higher Efficiency

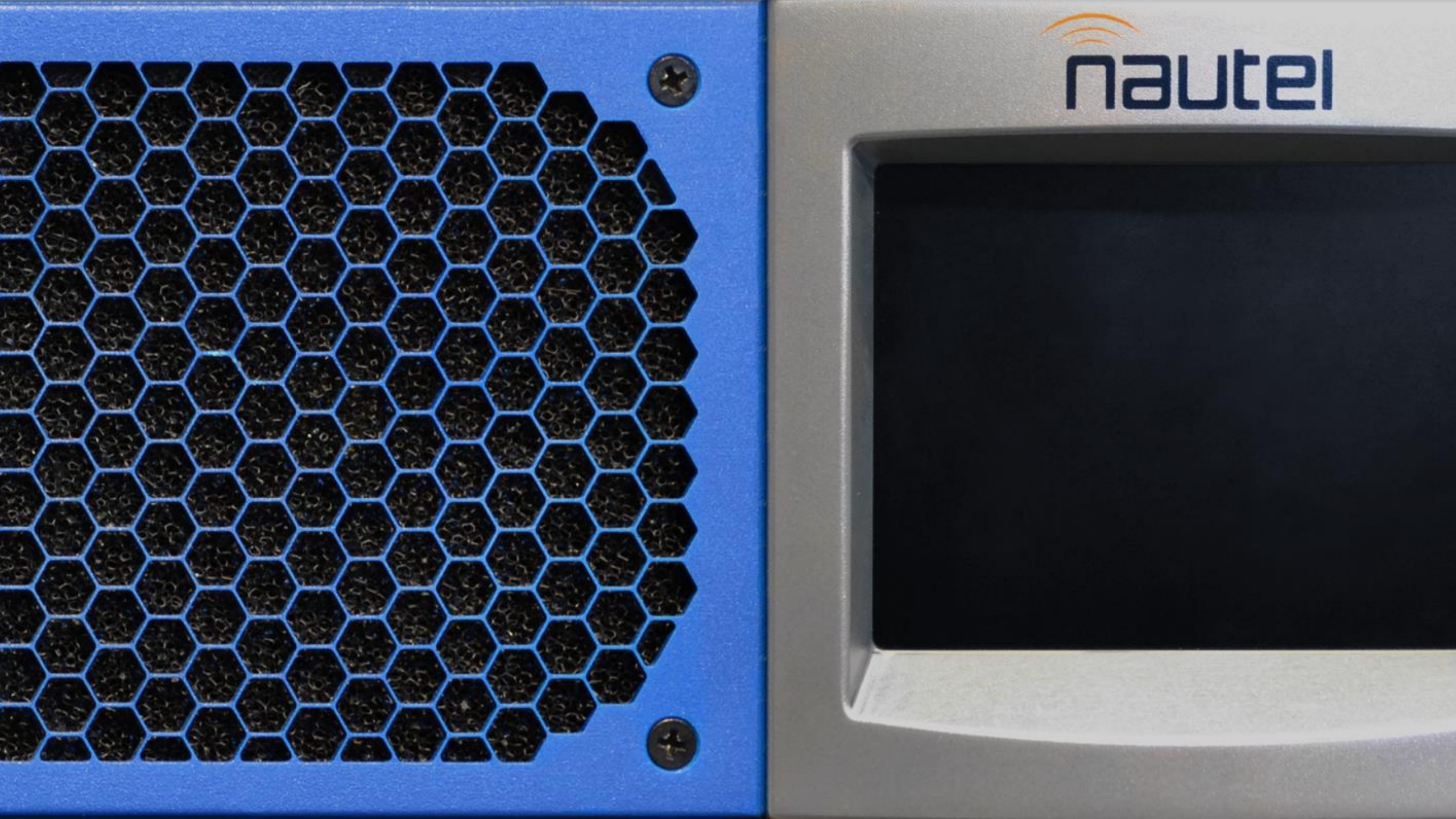
New Power Supplies

Quieter

Easier Maintenance

More Powerful DSP

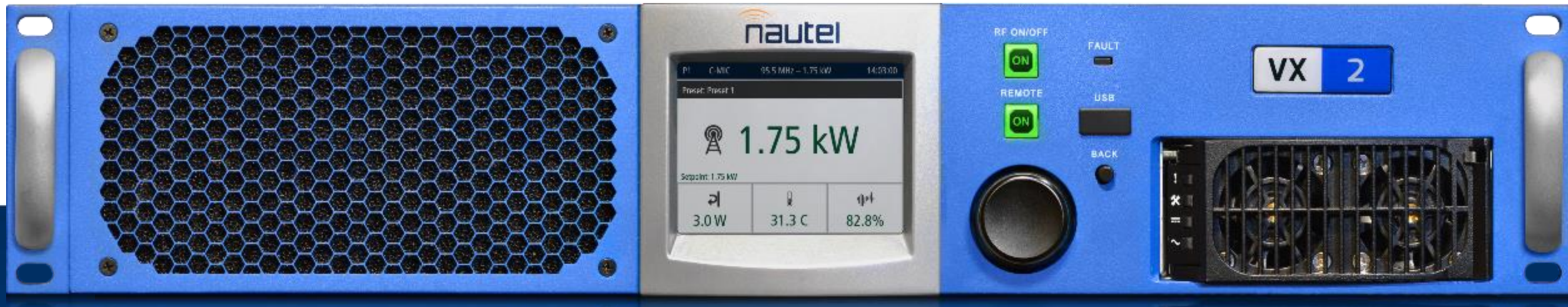
More Affordable



 nautel

VX Series

150 W to 2 kW FM
Analog Transmitters



Introducing the new VX Series...

Compact, Efficient, Affordable

NEW VX Series:

Easy Service

Power Chain

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

Ground-up new design



NEW VX Series: Technology tour

Easy Service

Power Chain

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

Clean accessible design



NEW VX Series: Technology tour

Easy Service

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NEW VX Series: Technology tour

Easy Service

Power Chain

Modern Exciter

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Control & UI

More Affordable

Long-Life Design

Weight

VS2.5

65 lb

VX2

24 lb

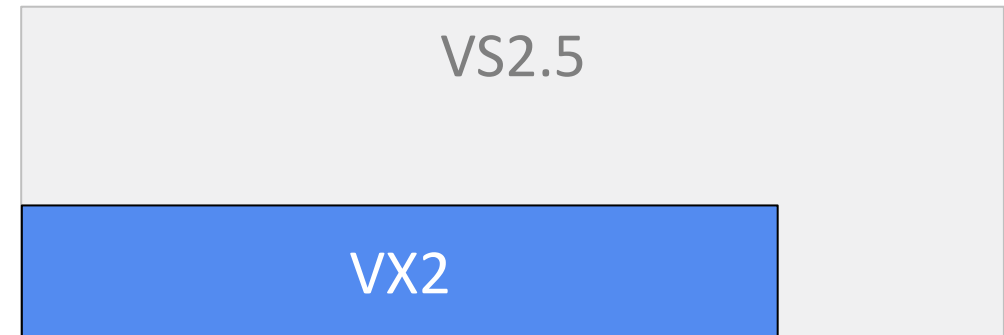
Volume

VS2.5

2.34 ft³

VX2

0.71 ft³



NEW VX Series: Technology tour

Easy Service

Power Chain

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



Variable voltage PS
Efficiency implications

Titanium grade
power supply
96% efficiency

Fingertip access

NEW VX Series: Technology tour

Easy Service

Power Chain

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

Optional Orban Inside
audio processing

Design headroom:
dual core signal
processor

Separate
analog
audio card

Direct-to-digital
exciter for
outstanding
RF purity



NEW VX Series: Technology tour

Easy Service

Power Chain

Modern Exciter

Advanced RF

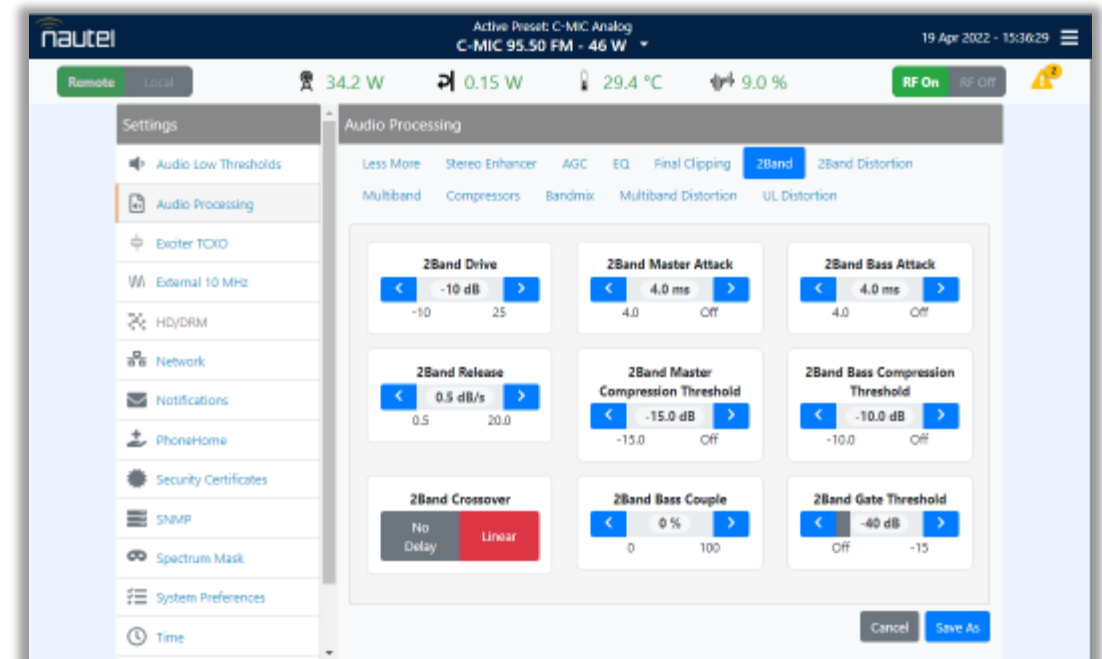
Control & UI

More Affordable

Long-Life Design

Orban Inside

- Optional DSP card mounts inside any VX transmitter
- Based on Orban 5500 5-band / 2-band processor software
- Monitor and control via AUI
- Works with:
 - L & R, AES/EBU
 - USB player inputs
- AES/EBU in/out
 - Uses VX stereo generator
 - Savings \$ relative to standalone processors



NEW VX Series Technology tour

Easy Service

Power Chain

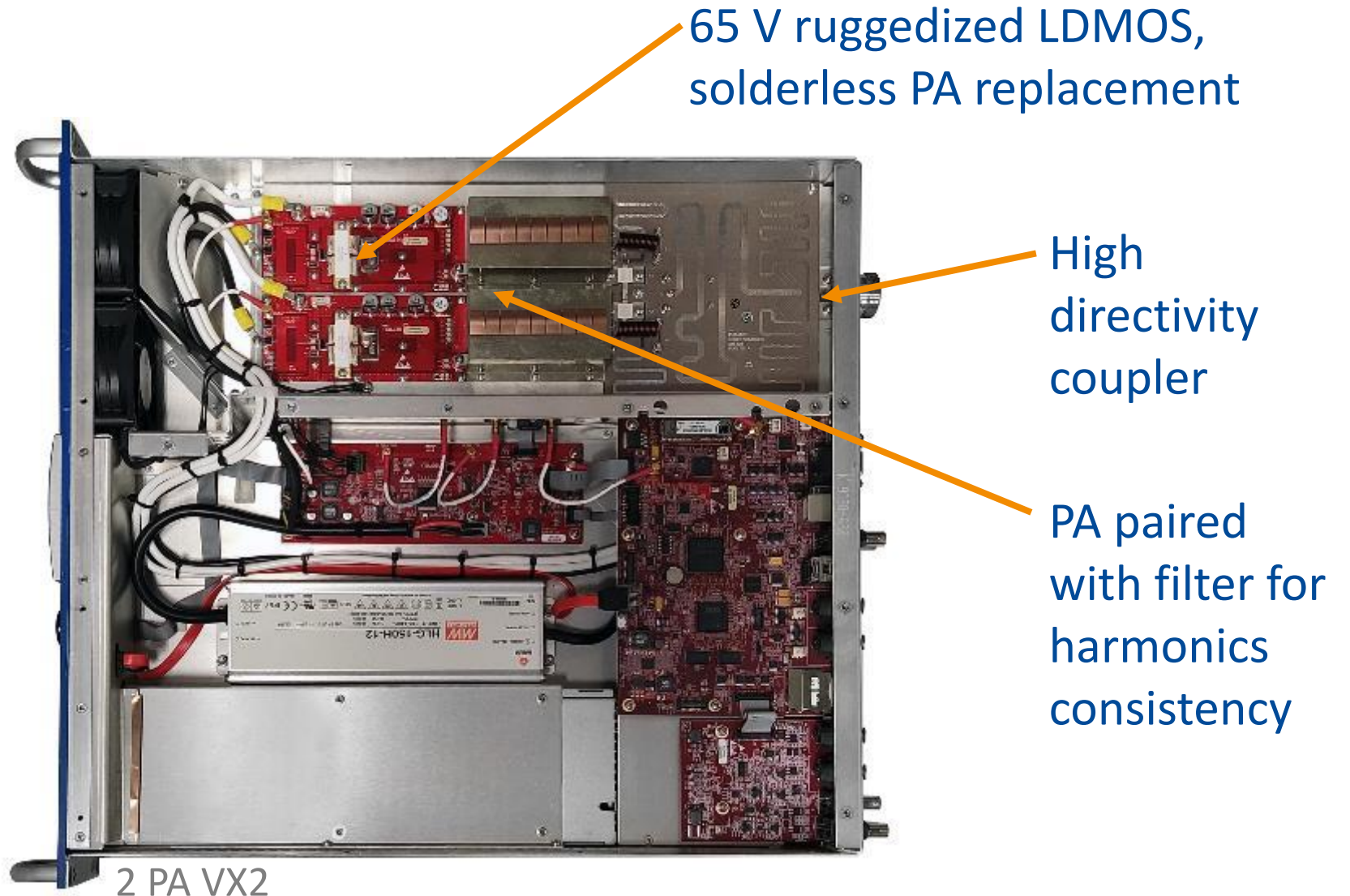
Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



NEW VX Series Technology tour

Easy Service

Power Chain

Modern Exciter

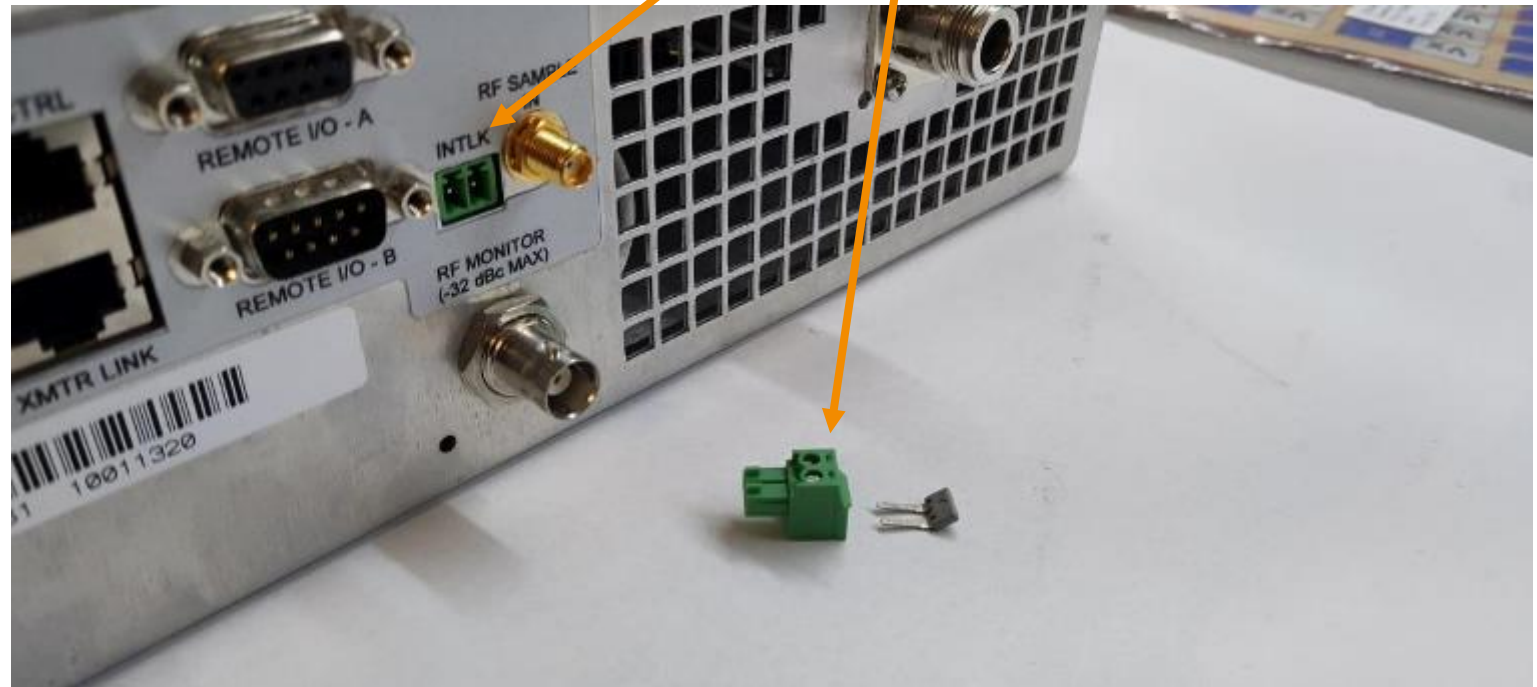
Advanced RF

Control & UI

More Affordable

Long-Life Design

Solderless
dedicated
interlock



NEW VX Series: Technology tour

Easy Service

Power Chain

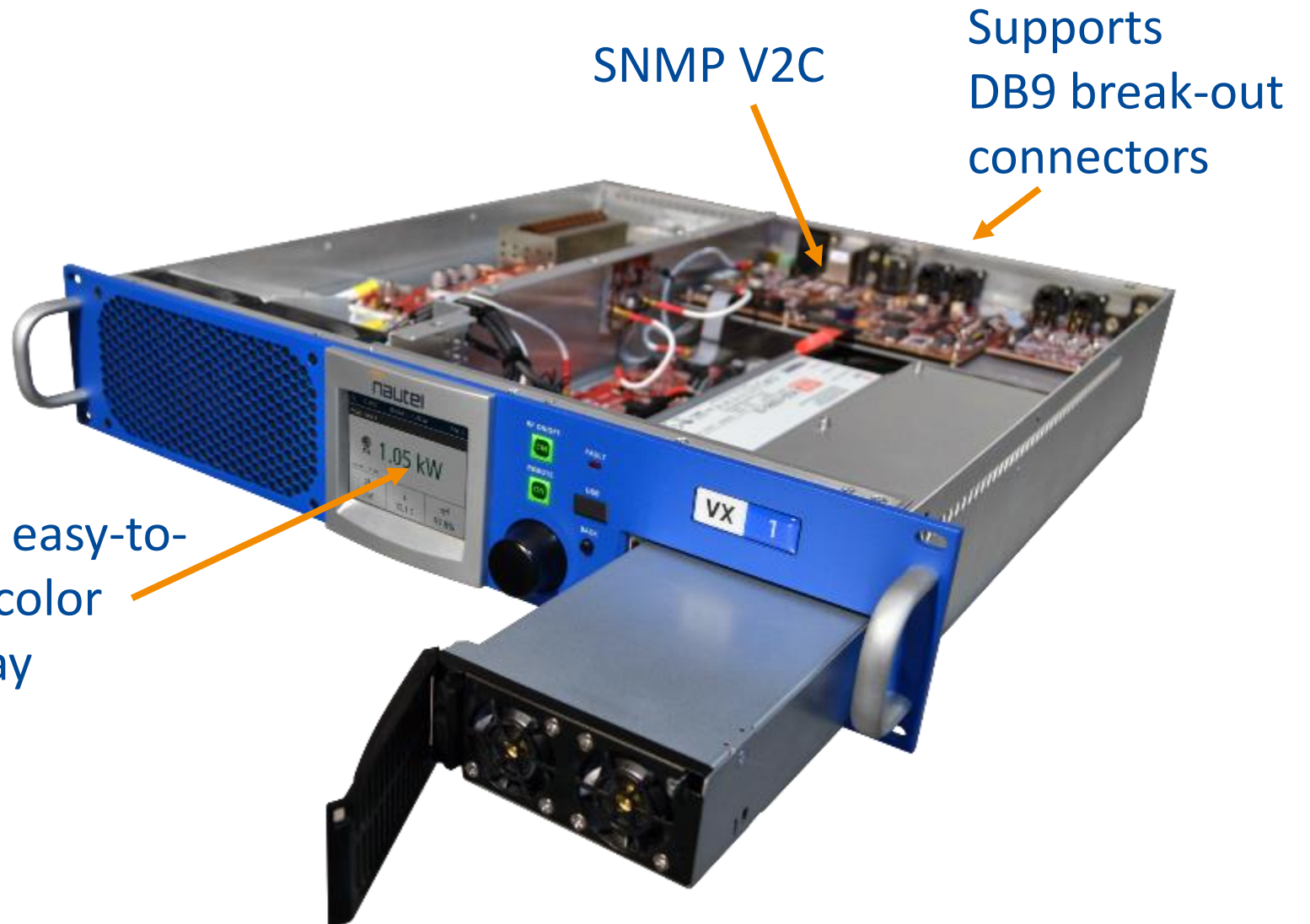
Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



NEW VX Series: Technology tour

Easy Service

Efficient Power

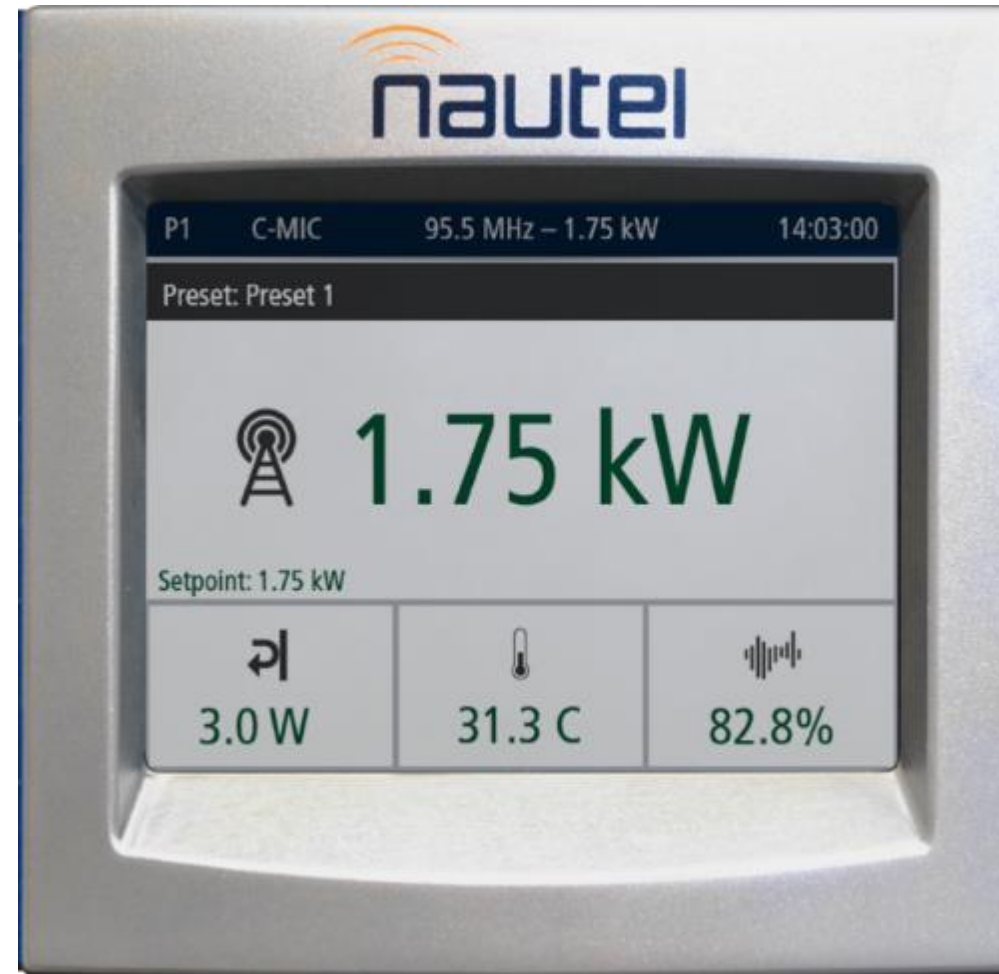
Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



NEW VX Series: Technology tour

Easy Service

Efficient Power

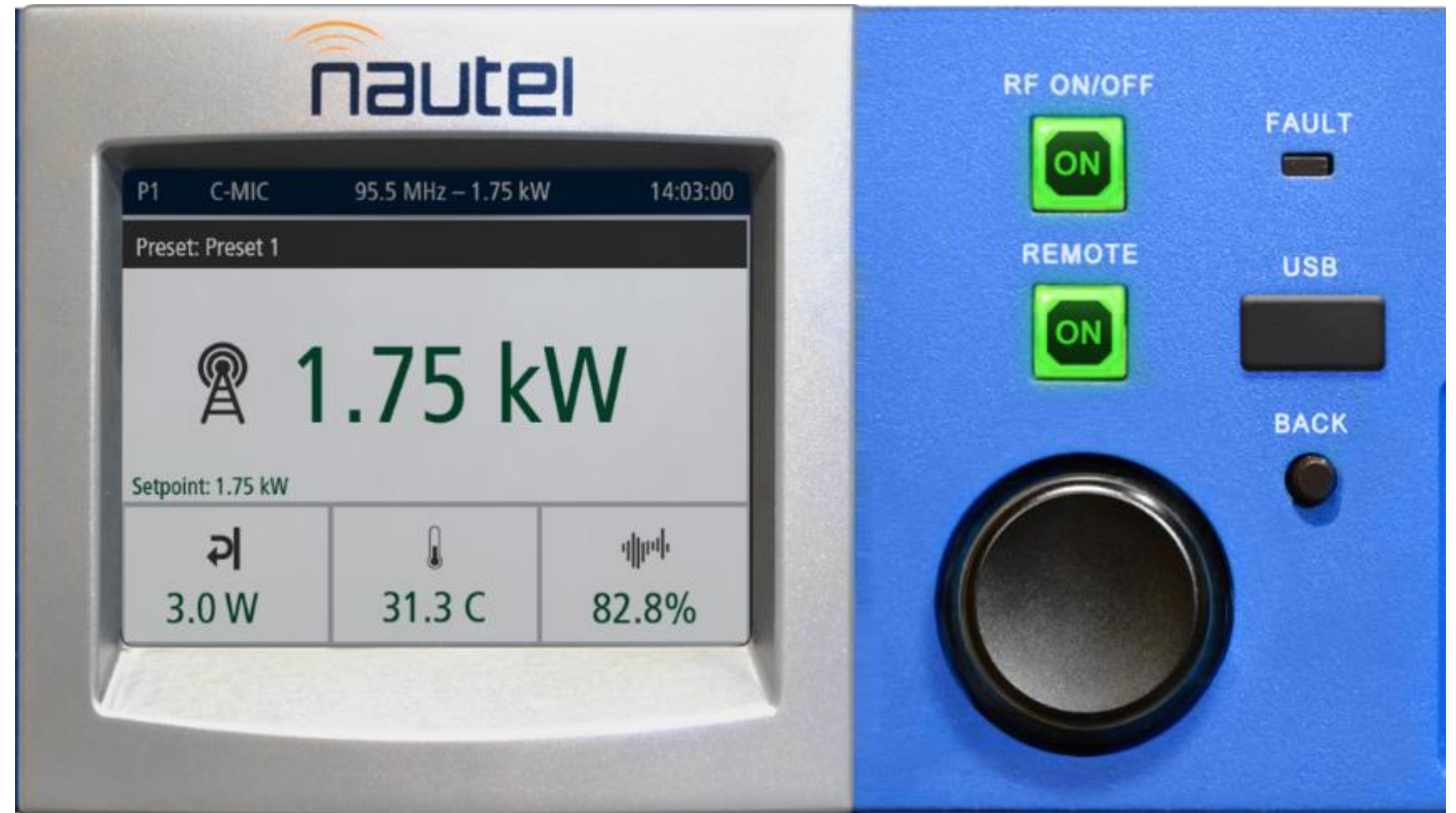
Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



NEW VX Series: Technology tour

Easy Service

Efficient Power

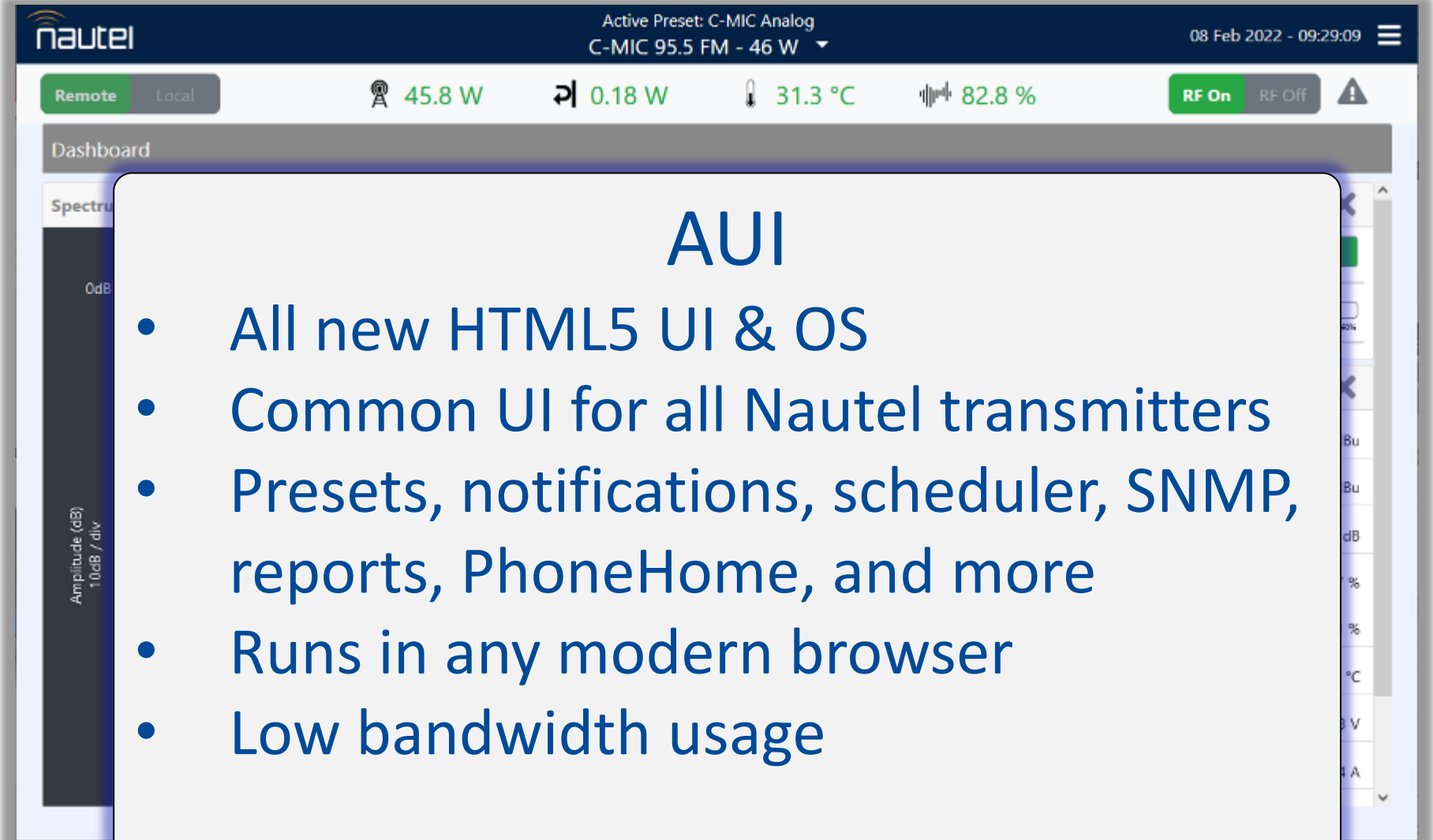
Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design



NEW VX Series: Technology tour

Easy Service

Efficient Power

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

VS Series



NEW VX Series: Technology tour

Easy Service

Efficient Power

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

VS Series



Improved Affordability



NEW VX Series: Technology tour

Easy Service

Efficient Power

Modern Exciter

Advanced RF

Control & UI

More Affordable

Long-Life Design

VS Series



... and more choice



The right TPO to meet your needs

NEW VX Series: Technology tour

Easy Service

Efficient Power

Modern Exciter

Advanced RF

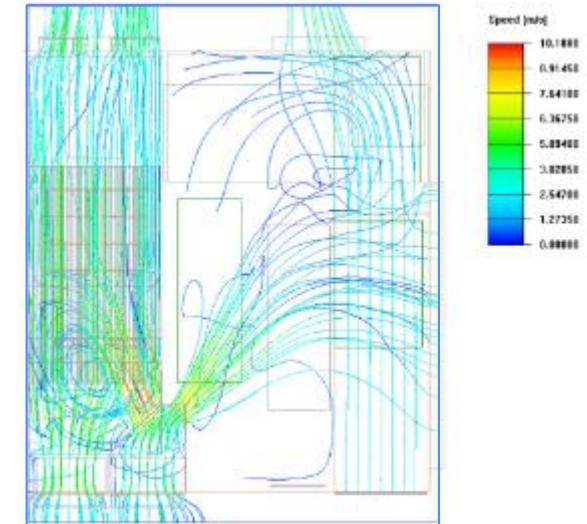
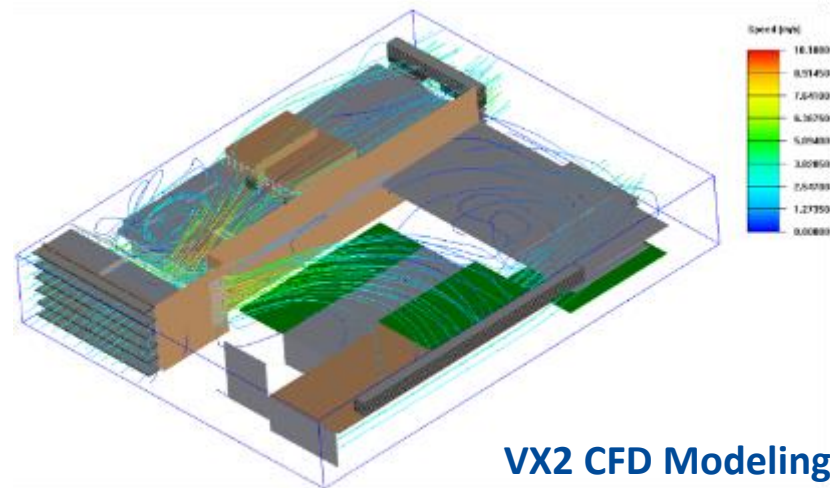
Control & UI

Affordable

Long-Life Design

Rigorous design & device selection:

- Exhaustive thermal design:
 - Cool air over fans extends bearing life
 - Utilize variable speed, long-service-life fans
- 250 million hour FET MTTF (electromigration)



NEW VX Series: Technology tour

Easy Service

Efficient Power

Modern Exciter

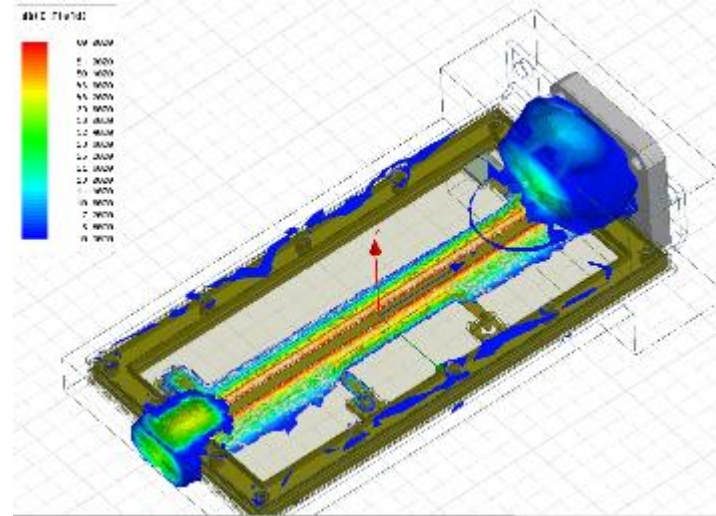
Advanced RF

Control & UI

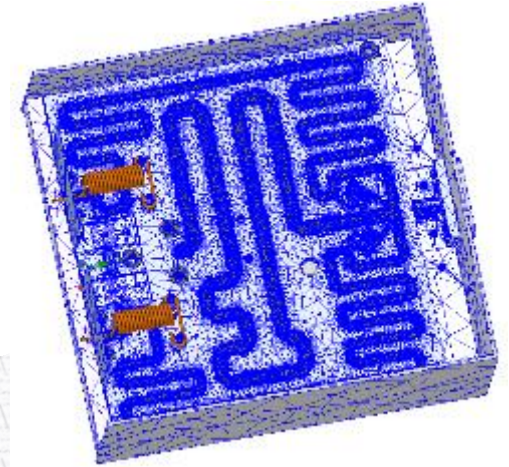
Affordable

Long-Life Design

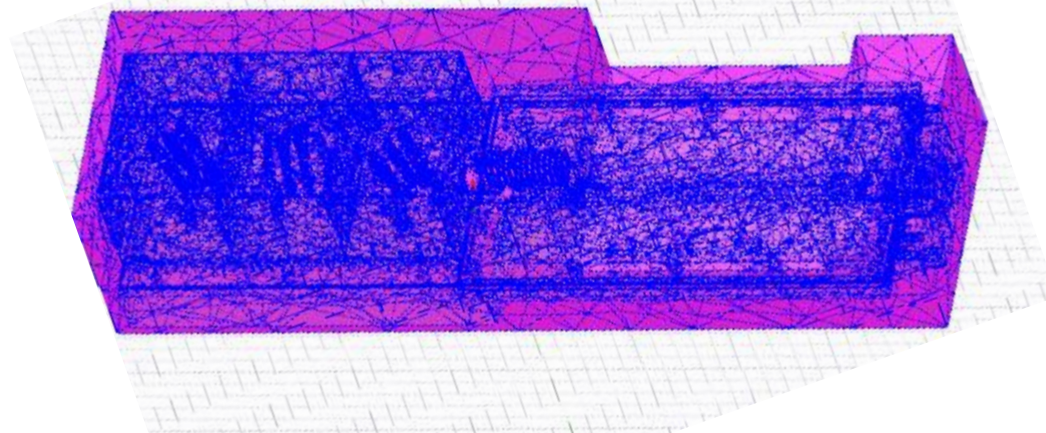
Extensive Electromagnetic Modeling:



Directional Coupler EM Modeling



VX2 Combiner
EM Modeling



NEW VX Series Technology tour

Easy Service

Efficient Power

Modern Exciter

Advanced RF

Control & UI

Affordable

Long-Life Design

- Nautel's conservative design approaches
- Exhaustive thermal modeling
- Extensive electromagnetic analysis
- North American Design, Build, & Support

All contribute to long service life for a transmitter that lasts years longer ensuring a low cost of ownership

NEW VX Series: Performance



Fully digital exciter and digital stereo generator

- **S/N Ratio:** Mono / Composite: 90 dB; Stereo: 80 dB
- **Frequency Response:**
 - Composite: ± 0.05 dB, 20 Hz to 53 kHz
 - Stereo/Mono: ± 0.1 dB, 30 Hz to 15 kHz
- **THD: Mono/Composite:** 0.005% or less; Stereo: 0.025% or less
- **Stereo Crosstalk:** 60 dB below 100% (30 Hz to 15 kHz)
- **IMD:** CCIF: 0.008% or less, SMPTE: 0.025% or less
- **DIM:** 0.05% or less (2.96 kHz square wave / 14 kHz sine wave)

NEW VX Series: Rich selection of audio inputs



| | |
|---------------|---|
| Audio Sources | 2 x AES (incl. MPX over AES) |
| | Analog L/R |
| | 2 x Wideband (suitable for composite, RDS, or SCA) |
| Audio Backup | Automatic changeover to backup audio source in the event that main audio source fails |

NEW VX Series: Power Summary

| GENERAL | VX150 | VX300 | VX600 | VX1 | VX1.5 | VX2 |
|--------------------|----------|----------|----------|------------|------------|------------|
| Rated Output Power | 150 W | 300 W | 600 W | 1000 W | 1500 W | 2000 W |
| Output Power Range | 15-165 W | 30-330 W | 60-660 W | 100-1100 W | 150-1650 W | 200-2200 W |
| Power Amplifier | 1 | 1 | 1 | 1 | 2 | 2 |

| AC INPUT | VX150 | VX300 | VX600 | VX1 | VX1.5 | VX2 |
|---|---------------------------|---------------------------|---------------------------|-----------------------------|-----------------------------|-----------------------------|
| Voltage | 90-265 VAC, 1PH, 47-66 Hz | | | | 185-265 VAC, 1PH, 47-66 Hz | |
| Power Consumption at Rated Output Power | 286 W (295 VA) Typical | 465 W (470 VA) Typical | 811 W (819 VA) Typical | 1322 W (1349 VA) Typical | 2046 W (2067 VA) Typical | 2650 W (2677 VA) Typical |
| Typical Efficiency | 51% | 65% | 74% | 75% | 73% | 75% |

| | | |
|---------------------|------------------|------------------|
| RF Output Connector | Type "N", female | 7/16 DIN, female |
|---------------------|------------------|------------------|

Putting the VX Series to work:

- Main transmitter
- Back-up transmitter
- LPFM (150 W, 300 W)
- Exciter replacement
- Translator
- SFN
- Portable emergency transmitter



NEW VX Series: Summary

- More TPO choice 6 models 150 W – 2 kW
- Large, easy-to-view, color display
- Easy Serviceability: FETS, Fans, Filters
- Optional Orban-Inside audio processing
- AUI: Powerful, Secure, HTML Tx Control
- Instrumentation, RDS, SNMP, Presets
- Fingertip-access power supplies
- State-of-the-art high voltage FET
- Direct-to-digital exciter, outstanding RF purity
- Industry-standard Titanium power supplies
- Clean simple, long service-life design
- High AC-RF efficiency

- Availability:
 - Pre-order now
 - Shipments Q4, 2022



- 100% North American Design and Build
- #1 Support
- Rigorous testing and quality assurance
- 4-year warranty

But one more thing...

VX Series: Mid-Range Power FM



4 more **NEW** VX Series



VX 3



VX 3.5



VX 4



VX 5

3.35 kW

VX 3 – 5 kW

Separate Exciter/Controller

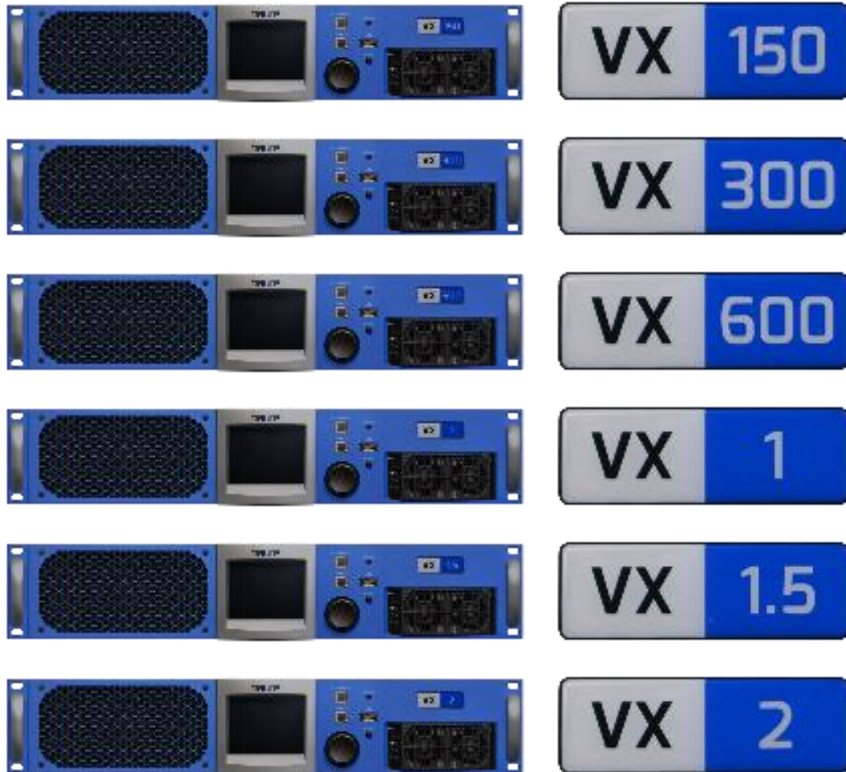
- Low weight
 - Exciter/Controller: 15 lb
 - Power Section:
 - 65 lb with power supplies
 - 50 lb without power supplies
- Easy access serviceability
 - Fingertip access power supplies
 - Quick RF pallet access
 - Front-access washable filters
 - Solderless PA Pallets



Shipping planned for Q1, 2023

10 NEW VX models!

More Choice



VX 3



VX 3.5



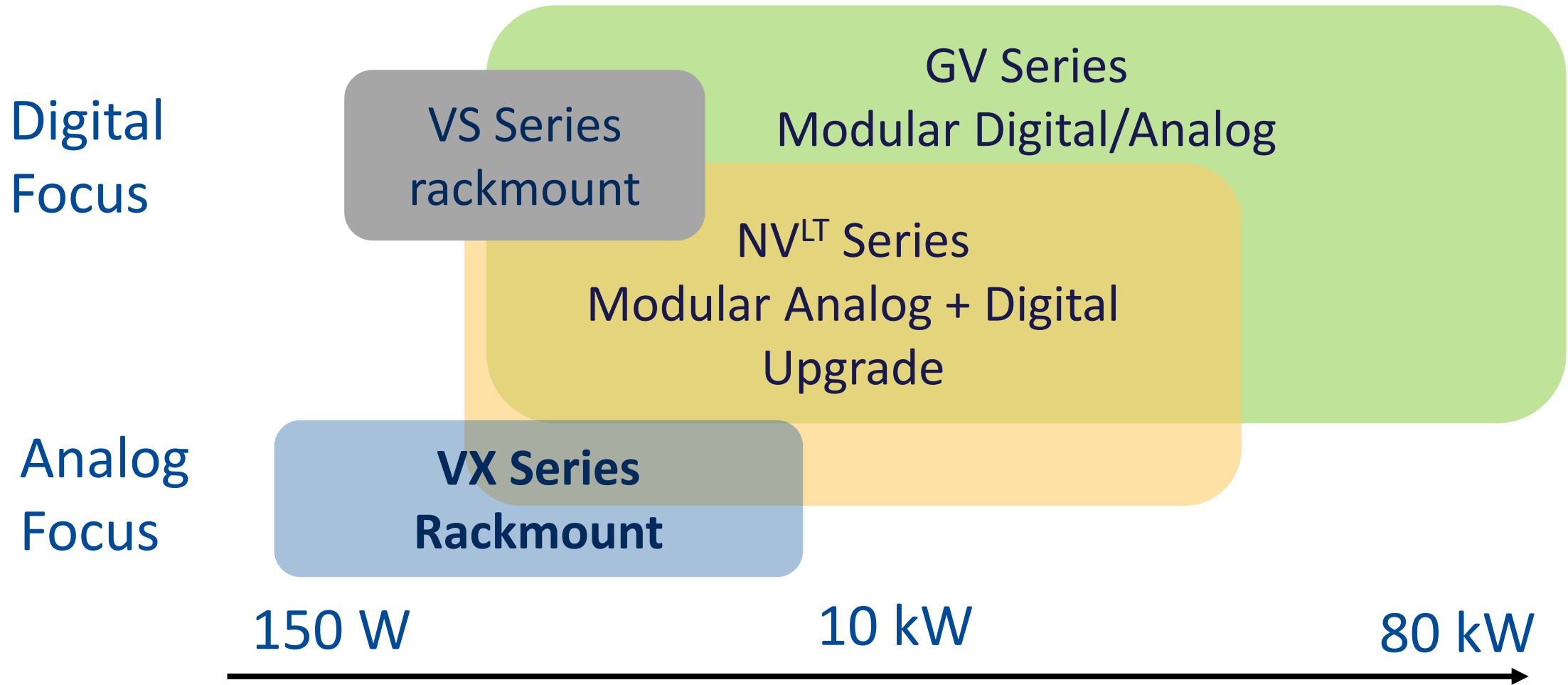
VX 4



VX 5

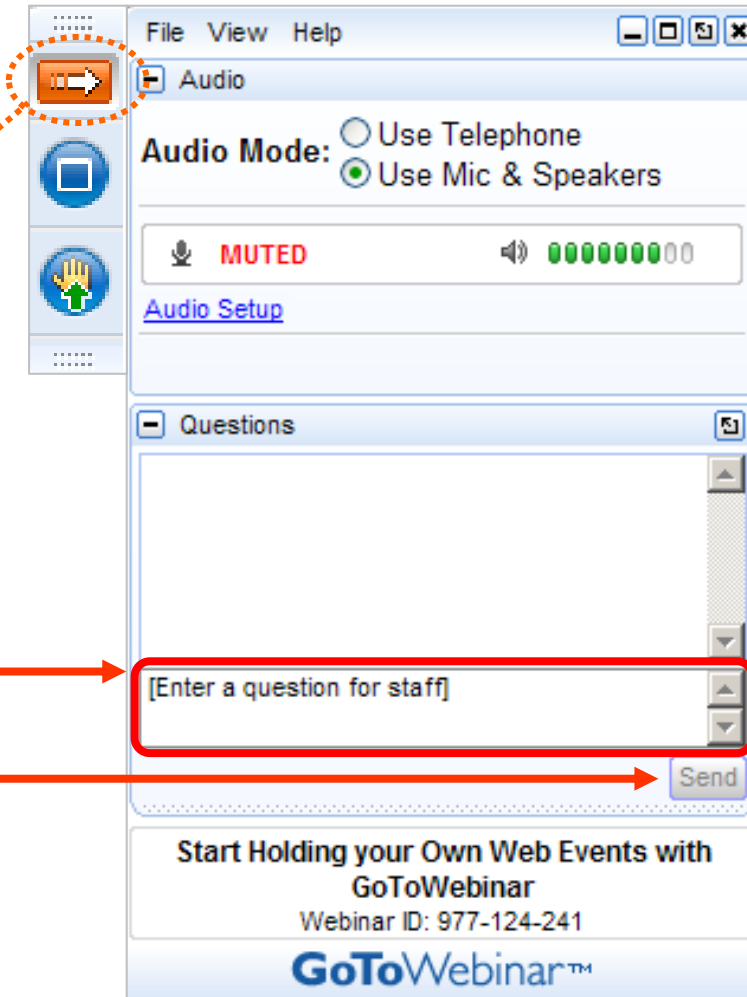
The right TPO to meet your needs

Nautel FM Transmitter Families



Q & A

Click on  to open/close webinar panel



Enter questions here
...then press **Send**

Online Information

- **Nautel Waves Newsletter**

<http://www.nautel.com/newsletter/>

Webinars

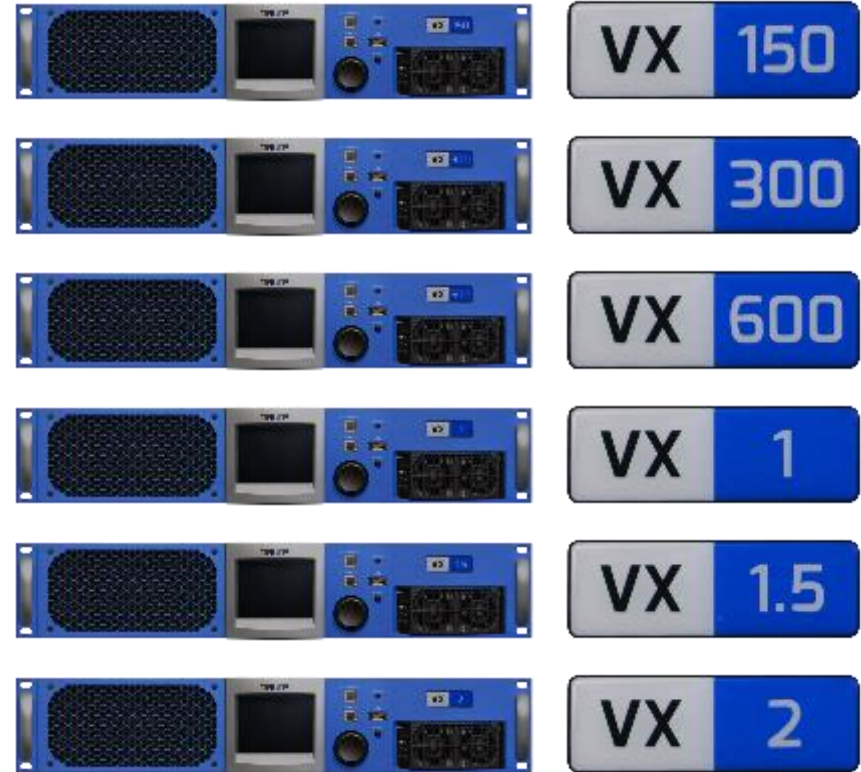
<http://www.nautel.com/webinars/>

YouTube

<http://www.youtube.com/user/NautelLtd>

- **VX Series Product Page**

<https://www.nautel.com/vx-launch/>



Thank You!

www.nautel.com

