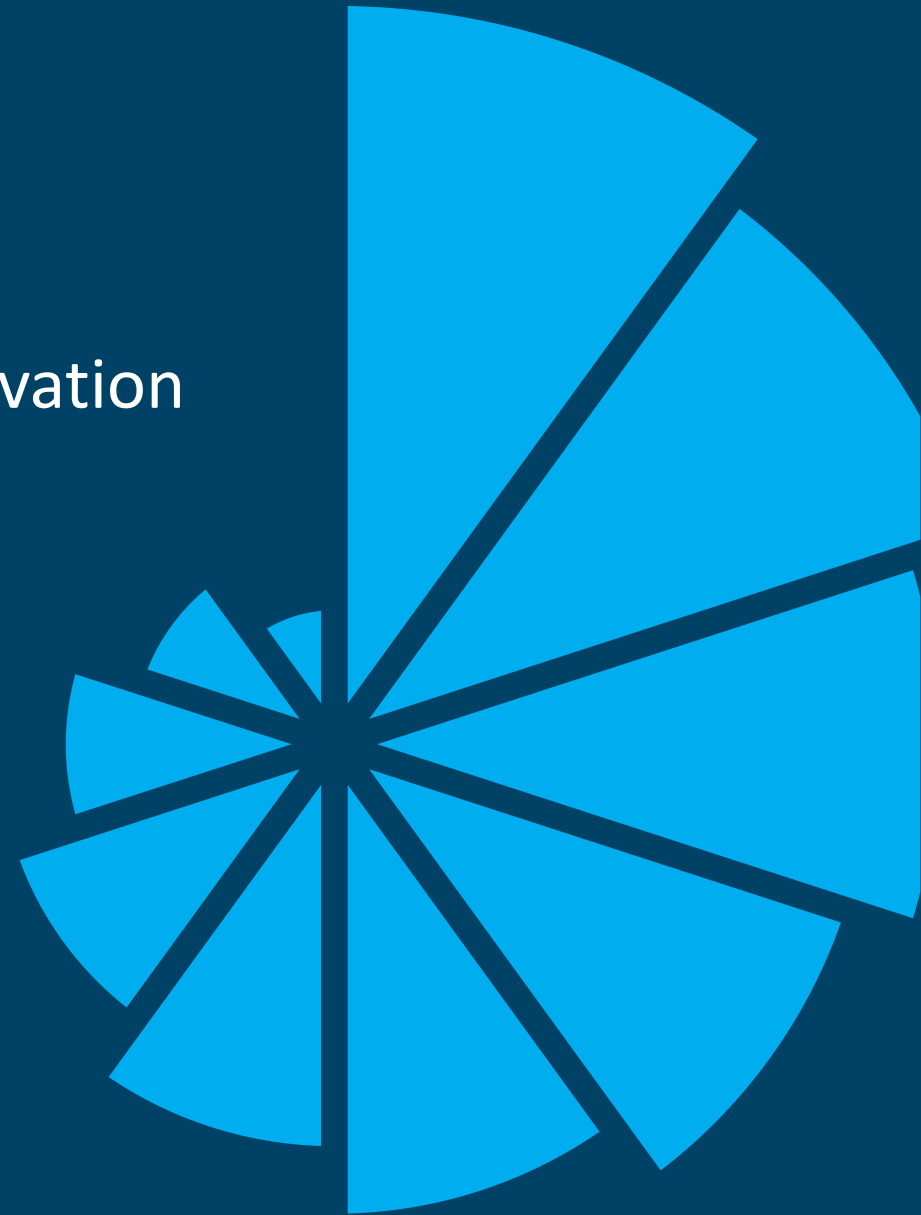


# The *NEW* BE STX<sub>e</sub>-3 – Design Innovation

May 5, 2020



# The *new* STXe-3

- The million-dollar question
- A brief history of BE FM transmitters
- What is the STXe-3?
- A look inside
- Digital readiness
- Hands on!
- Your questions



Your host:  
Chuck Kelly  
VP Market Development



Special Guest:  
Stuart Peters  
Director of Operations



*Remember, watching this webinar qualifies for ½ credit towards SBE certification under Category 1.*



Innovation Lives  
Here

# The Million Dollar Question



# A brief history of BE FM transmitters

- 44 years ago, BE began developing a new series of FM transmitters, based on the unique folded half-wave cavity as well as a new exciter design, the FX-30 that offered S/N 10dB better than other companies.
- Eventually, other companies' exciters caught up, but at the same NAB show, BE introduced the FX-50 exciter, which beat the competitions' S/N by a further 10dB.
- Later BE introduced one of the first direct to channel FM exciters, the FXi-60.
- BE developed a full line of solid-state FM transmitters.
- Nearly 20 years ago, BE was the leading innovator in HD Radio™ technology with the first commercial Engine card, and the first multicasting installation.



# STX<sup>e</sup>-3 digital 3kW FM

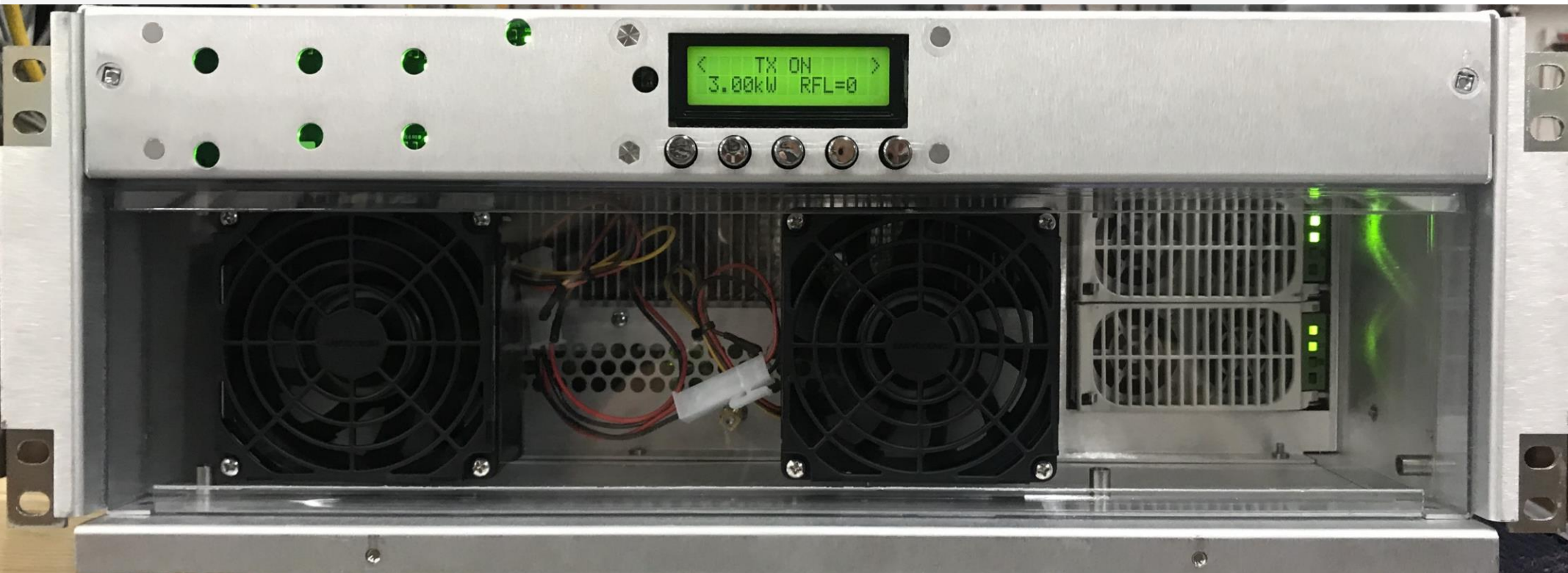
Joins the fully solid state STX family from 60W to 20kW

**NEW**





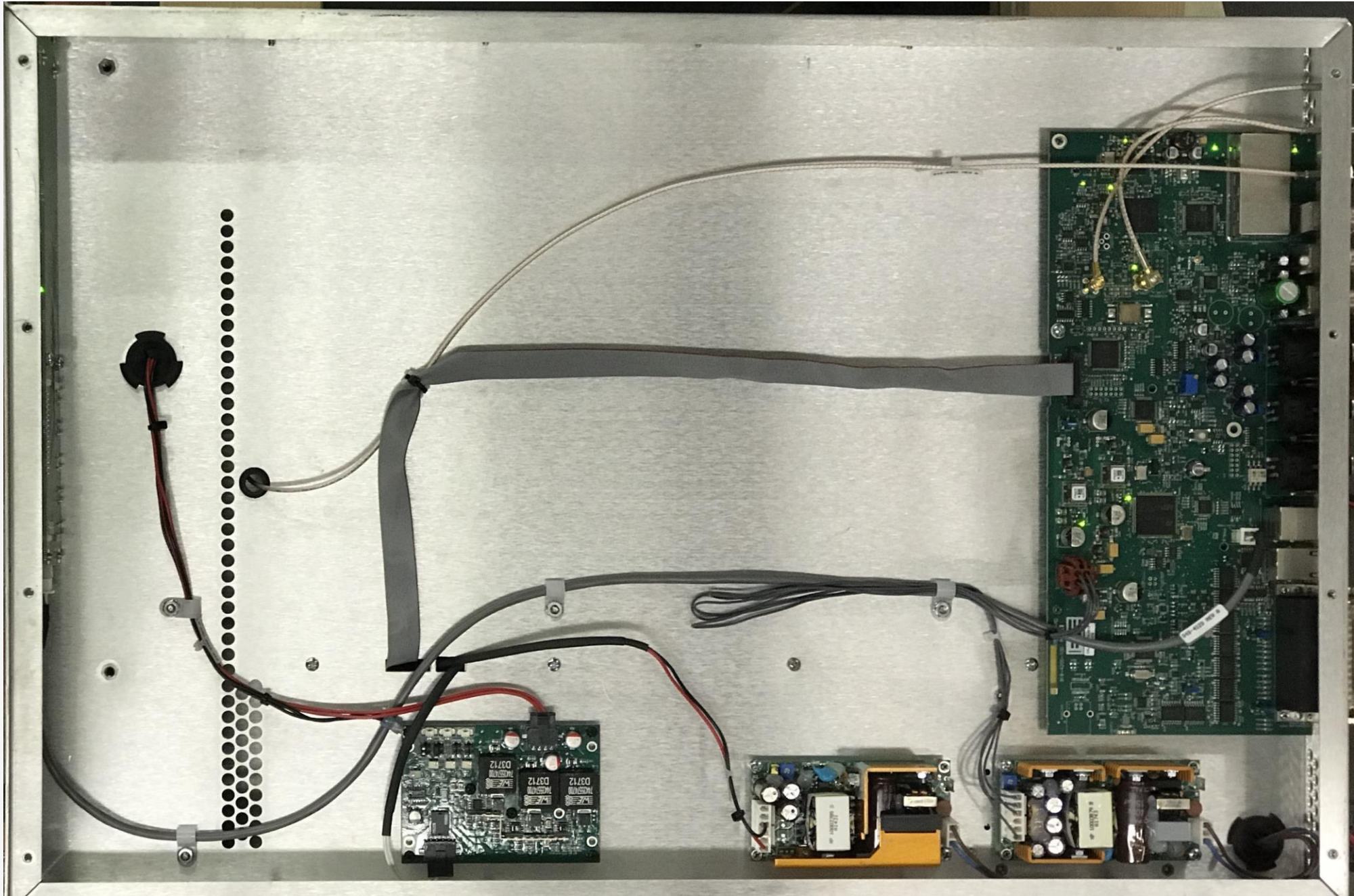
# STXe-3 front panel hot pluggable power supplies



- No tools needed to replace power supply
- Stay on the air while replacing a supply
- Even the cabinet fans can be replaced while on the air!
- Air is pulled through the front filter and fed thru the PA and PS's.
- Air filter is replaceable and reusable.



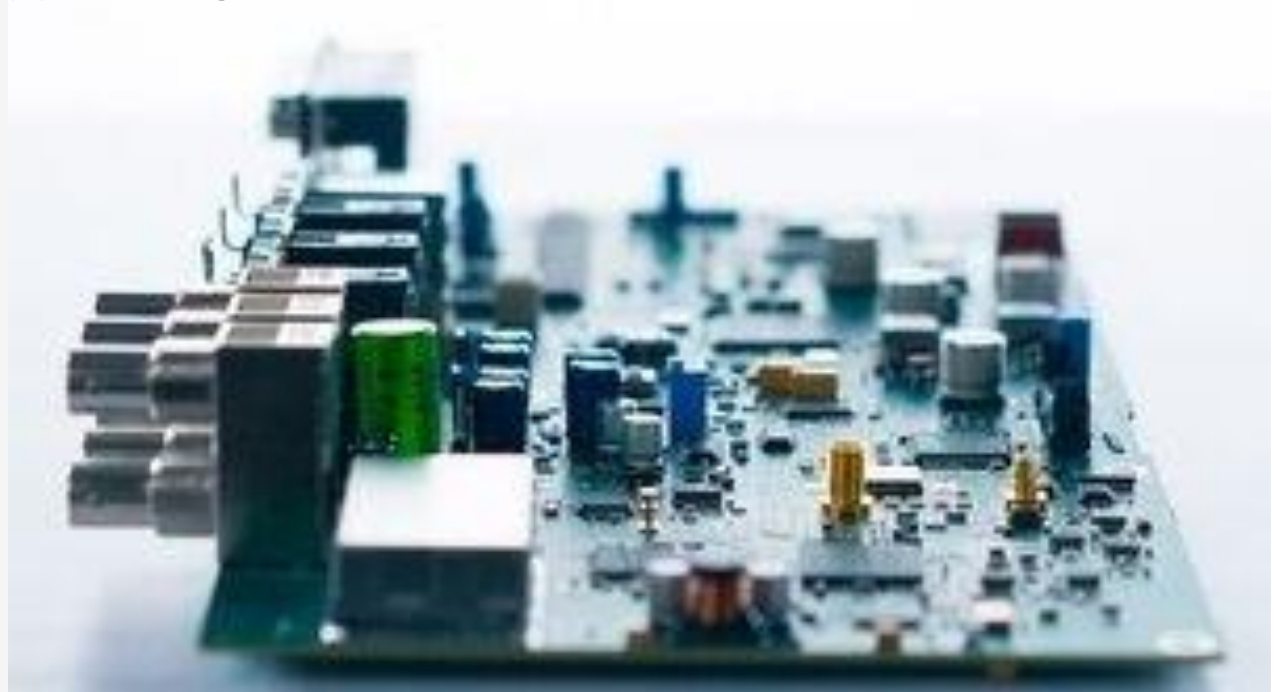
# STXe-3 top cover off





# STXe-3 direct to channel digital exciter

- Unparalleled audio performance
- Multiple audio inputs with auto-failover
- RDS Generator built-in (static and/or dynamic with TRE)
- Synchronous FM compatible – micro-adjust delay built-in
- Unparalleled audio quality
- AES over MPX / Baseband 192 capable
- Next generation digital radio capable (HD Radio & DRM+)
- Perfect for translators with built-in FSK-ID
- Ideal for N+1 systems





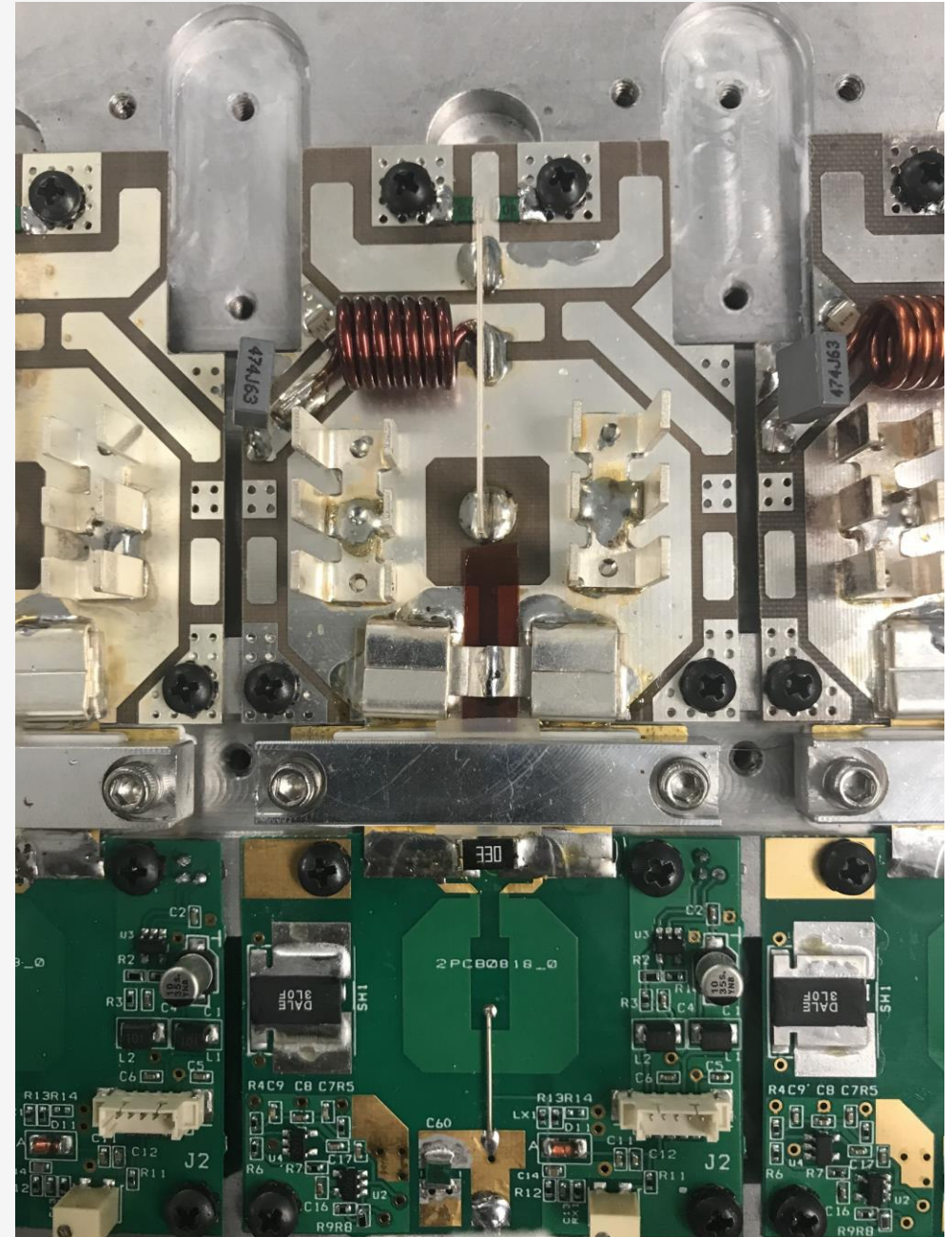
# STXe-3 driver interface and splitter

- Stripline technology for inductors and splitter. Robust and precise.
- Driver is MRFE6BP100H rated for 100W.
- 100mW from exciter, amplified to up to 40 watts in driver with plenty of headroom for digital operation.
- Each of the 4 PA pallets needs about 5W of drive
- Lots of removeable RF shields provides freedom from spurious operation.



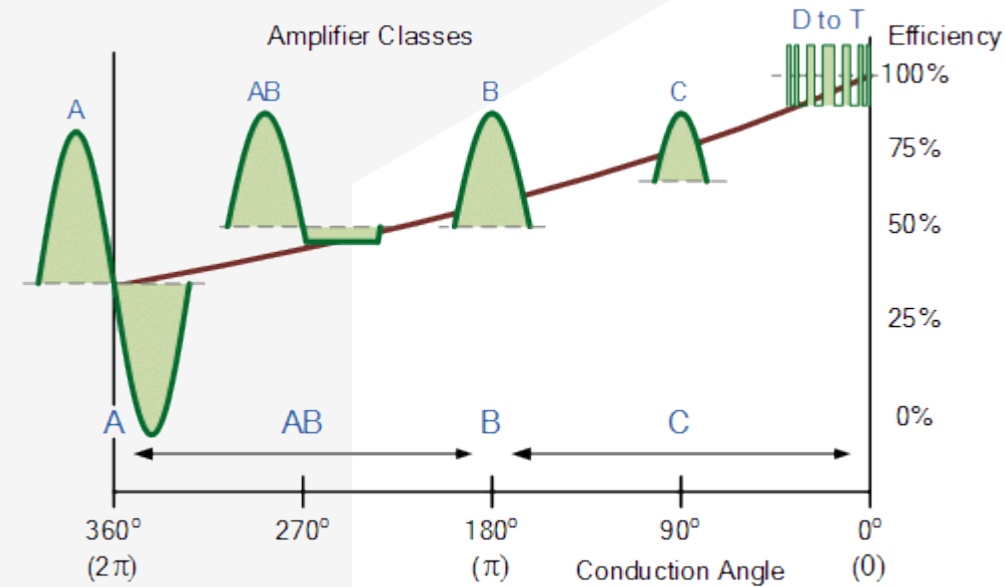
## STXe-3 PA pallet

- Uses the latest BLF-188XR LDMOS device
- Configurable for Class-F for FM, and Class-AB for digital operation
- Only filtered air cools the PA and heatsink
- Totally broadband – no adjustments
- Over 40% headroom in the PA design for long life
- Temperature and currents monitored



# Class F?

- Reduced conduction angle provides increased DC to RF efficiency.
- Class-F amplifiers boost both efficiency and output by using harmonic resonators in the output network to shape the output waveform into a square wave.

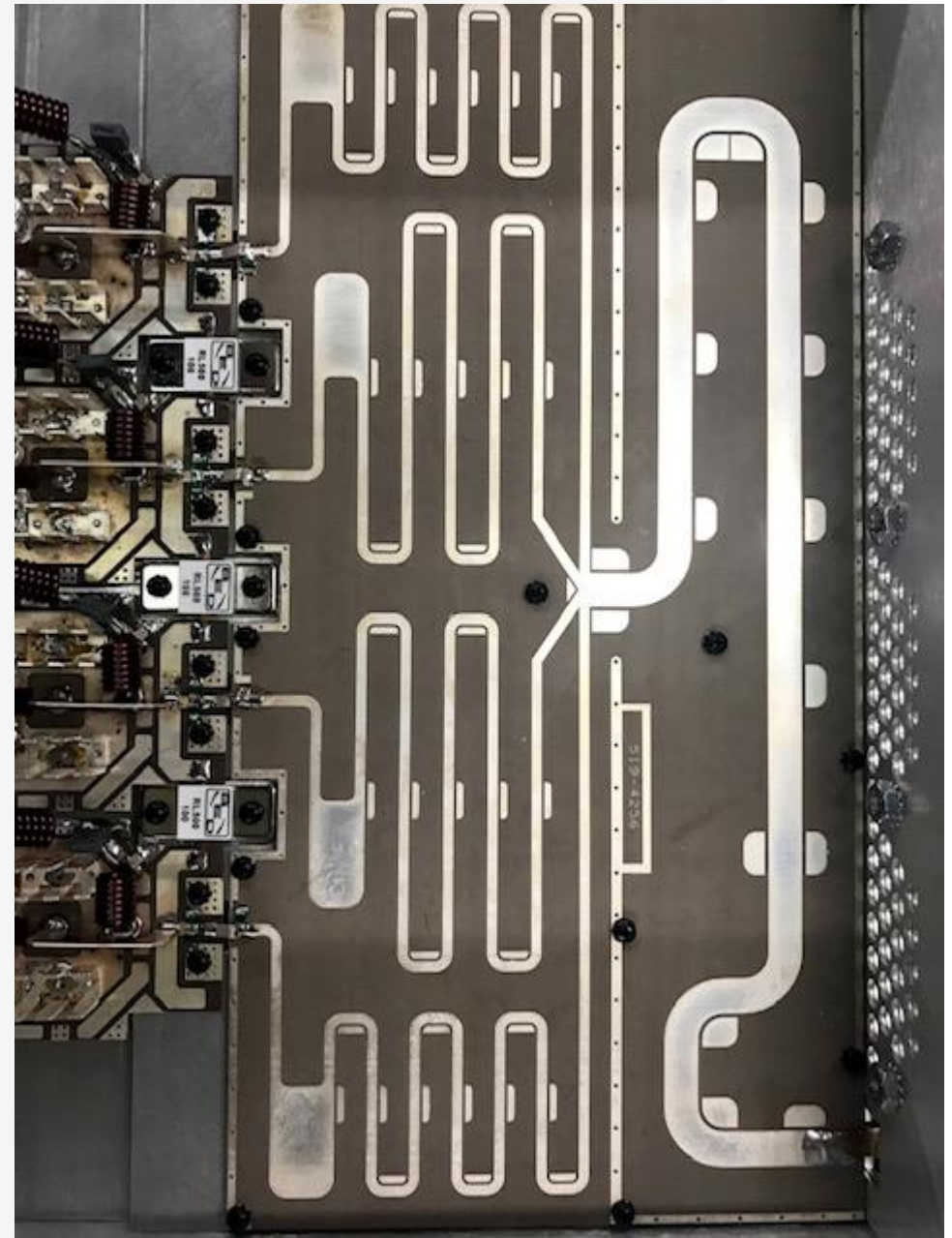


- Integrated ESD protection
- Excellent ruggedness
- High efficiency
- Excellent thermal stability
- Designed for broadband operation (HF to 600 MHz)



## STXe-3 combiner

- Four port modified Wilkinson combiner
- Totally stripline design for robustness, and precision.
- High efficiency – very low loss across the band





# STXe-3 web interface

- Does not use Flash
- Works on all computers and smart phones
- SNMP Level III control and security
- All graphics are scalable vector graphics – looks the same on a PC or smartphone.



*Let's see it live!*





# STXe-3 specifications

**Power Output:** 750 to 3,300W

**Efficiency:** 72% typical AC to RF (FM only)

**Modulation:** Direct to channel digitally generated FM

**Modes:** FM only, HD Radio only, or HD Radio + FM

**Modulation capability:** Up to 300kHz

**Audio Inputs:** AES/EBU, Analog L&R, Composite, SCA/RDS (2), MPX over AES

**Frequency response:** MPX/AES +/- 0.03 dB, 30Hz to 53kHz; +/-0.1dB, 53kHz to 100kHz  
Analog L/R: +/- 25, 30Hz to 53kHz

**THD+N:** MPX:0.005% or less 400Hz, 10-22kHz BW. AES/Analog L+R: -0.01 typical @ 400Hz, 10-22kHz

**MPX IMD:** 0.13%, SMPTE (60/7000Hz, 1:1 ratio)

**SNR:** MPX: 85dB below 100% mod at 400Hz

AES/Analog L+R: 85dB below 100% mod at 400Hz

**Stereo Separation:** AES: -74dB below 100% modulation @ 400Hz. Analog L/R: -70dB, 30Hz to 15kHz

**Dimensions:** 7" x 19" x 28.33 (HWD)

**Weight:** 58 lbs.

**RF Output connector:** 7-16 DIN

**Operating Temperature:** -10° to 50° C (14° to 122° F)

**Altitude / Humidity:** 10,000ft ASL, 95% non-condensing

**AC Input:** 200-264VAC, 47-63Hz (Single phase)



# Summary

- The STXe-3 is the latest in a long line of reliable, efficient and performance-leading FM transmitters from Broadcast Electronics.
- The Elenos Group with 90 years corporate experience, 60,000 installations and some exciting new products for all radio stations is here to be of assistance.
- Contact your BE representative to find out how cost effective the STXe-3 can be!
- Register for our schedule of upcoming free webinars at:  
<https://www.elenosgroup.com/webinar/>



# Your Questions?

*We'll try to answer them all here, but if we  
can't we'll email you.*





# Thank You



Radio & Television  
Broadcast Equipment  
and Solutions Worldwide

## Contacts:

Stuart Peters – [speters@bdcast.com](mailto:speters@bdcast.com)

Chuck Kelly - [ckelly@elenosgroup.com](mailto:ckelly@elenosgroup.com)

We know how valuable your time is, and we are honored that you chose to spend time with us.

For further information, contact your regional Elenos Group sales professional

Register for our schedule of upcoming free webinars at:

<https://www.elenosgroup.com/webinar/>

