

Saving Money
with Nautel's NX
Series MW
transmitters

Agenda

- The Nautel NX Series – what makes it so efficient?
- Modulation Dependent Carrier Level
- Calculating the savings
- A tour through the AUI
- Questions / Comments



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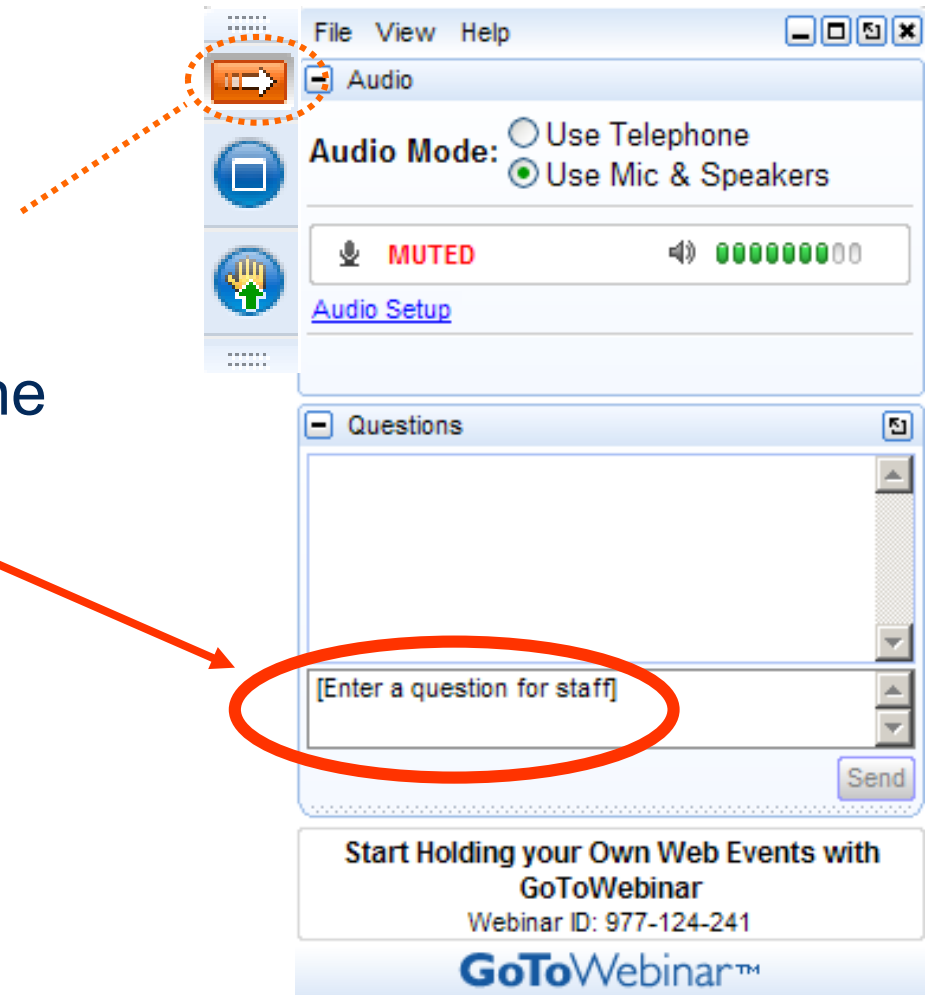
Your questions please?

(If you don't see the control panel, click on the orange arrow icon to expand it)

Please enter your questions in the text box of the webinar control panel (remember to press send)



Remember: The completion of a Nautel webinar qualifies for ½ SBE re-certification credit, identified under Category I of the Re-certification Schedule for SBE Certifications.



The Nautel NX Series

- A full line of state of the art, fully solid state AM transmitters from 3 kW to 2 MW
- Industry leading efficiency combined with legendary Nautel robustness
- Nautel's Advanced User Interface (AUI) offers in depth monitoring and control from anywhere via IP
- Compact yet accessible, with hot pluggable modules, and minimized single point failure
- Industry leading digital performance

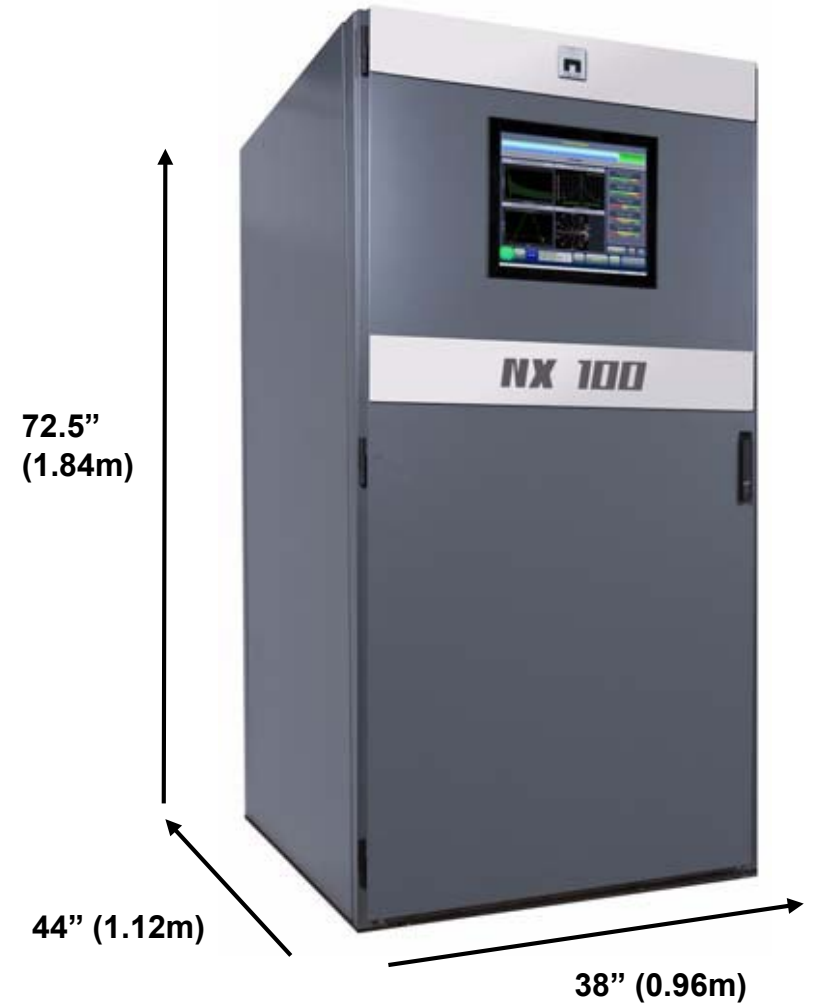


The NX Series Worldwide



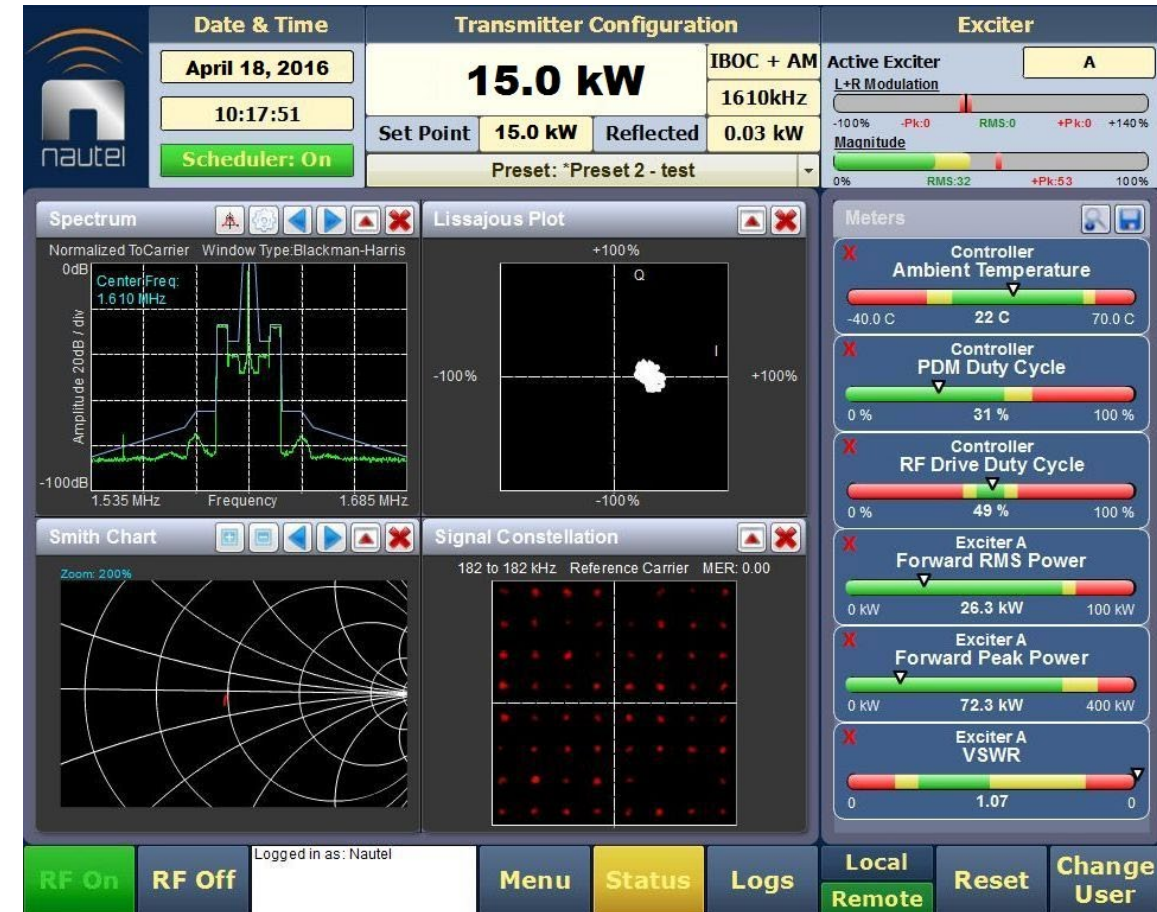
Space *and* energy saving!

- The Nautel NX400 takes only 4.3 m²
- “Brand G” is nearly 3 times as large
- “Brand T” is nearly 4 times as large
- “Brand S” is almost 4 times as large
- And at 90% total efficiency, the Nautel is more efficient than any of them!



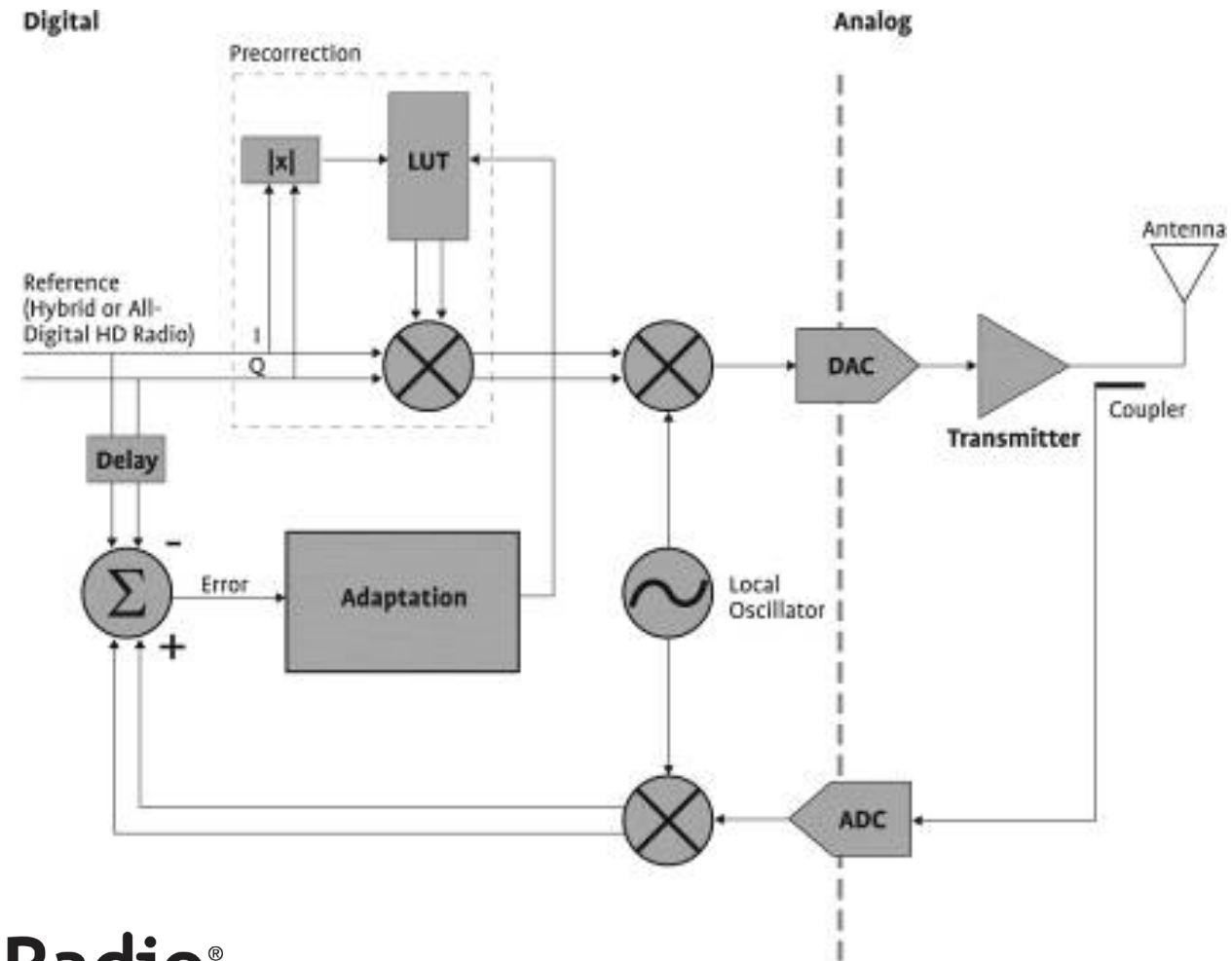
The incomparable AUI

- Accessible from anywhere with just a web browser
- Monitors and controls hundreds of parameters
- Real-time spectrum analyzer
- Real-time network analyzer
- Can be configured to send email or SMS alerts



Industry leading digital performance

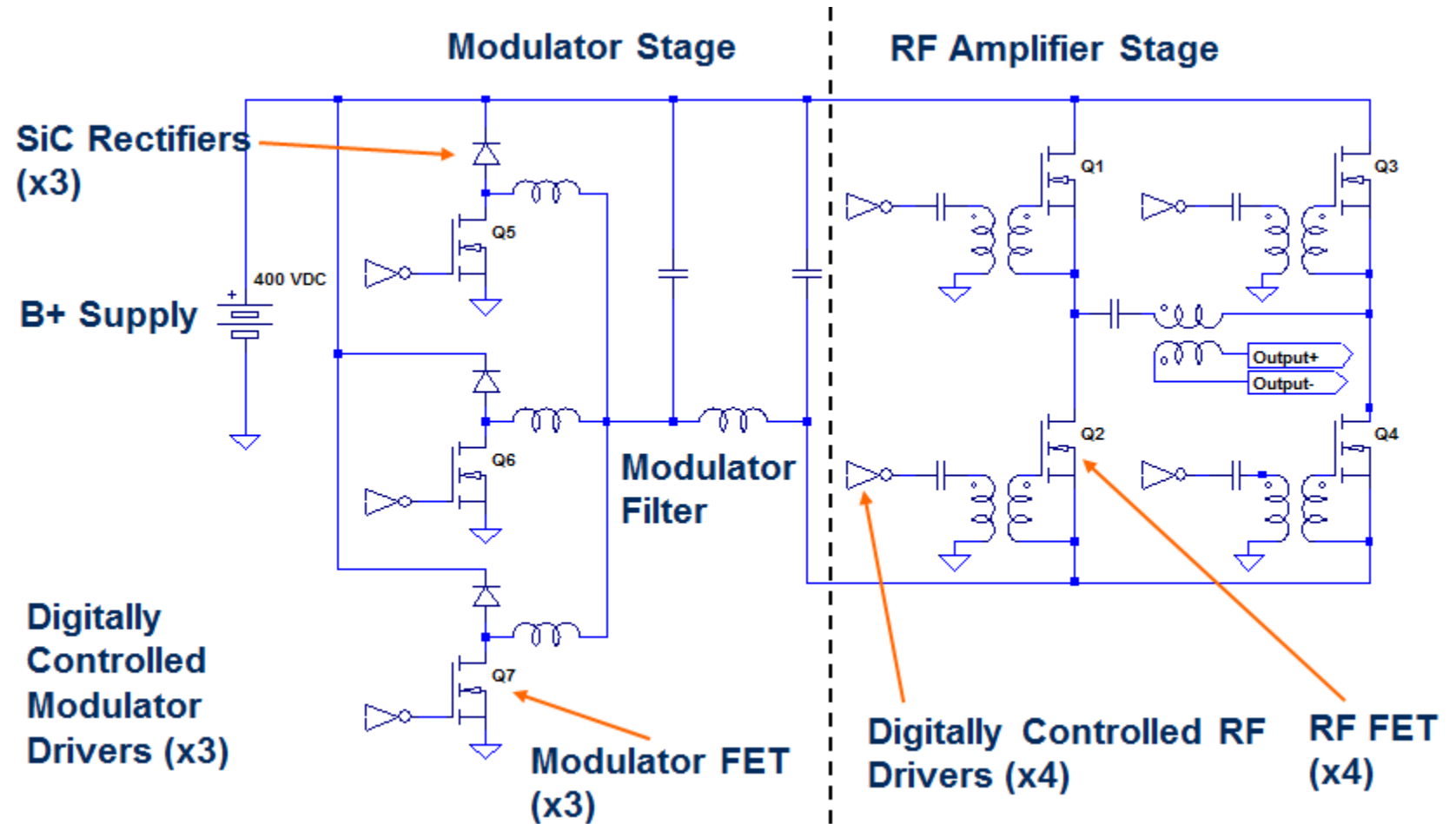
- DSP based precorrection
- Digital exciter creates MW waveform, sampled at 1.8 MSPS
- Direct I/Q over AES feed
- Works for both DRM and HD Radio



Why is the NX series so efficient?

Utilizes multiphase
PDM, precisely
controlled by the
DSP

RF drive is also
controlled by DSP



Why is the NX series so efficient?

High current FETs
with extremely low
on resistance

High efficiency
SiC modulator
rectifiers



Why is the NX series so efficient?

Oversized power transformer with hyper-efficient windings reduces losses

This is the transformer for a NX400



NX MDCL Power **Saving**: It's in there.

AM carrier

No information yet contains $>2/3$ of the transmitted power

Challenge

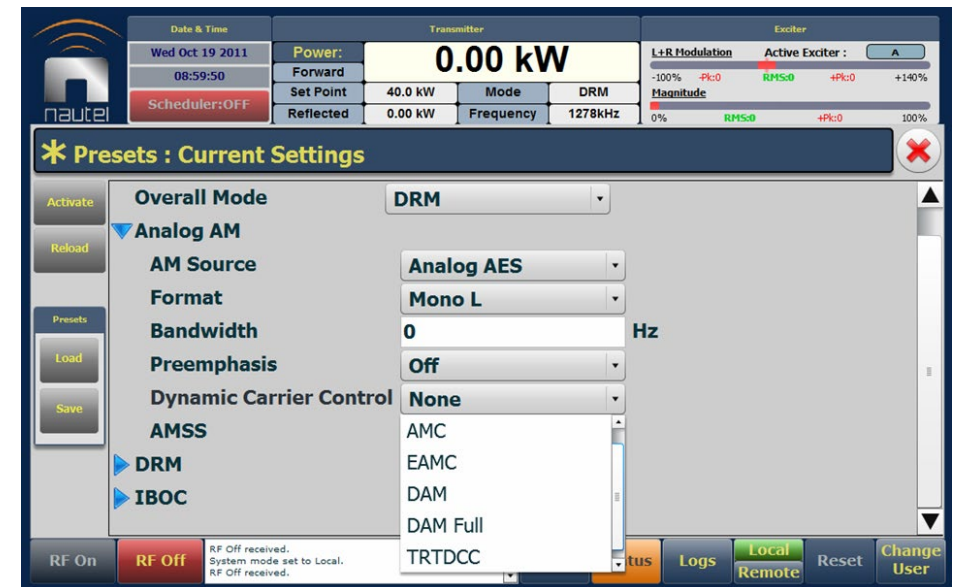
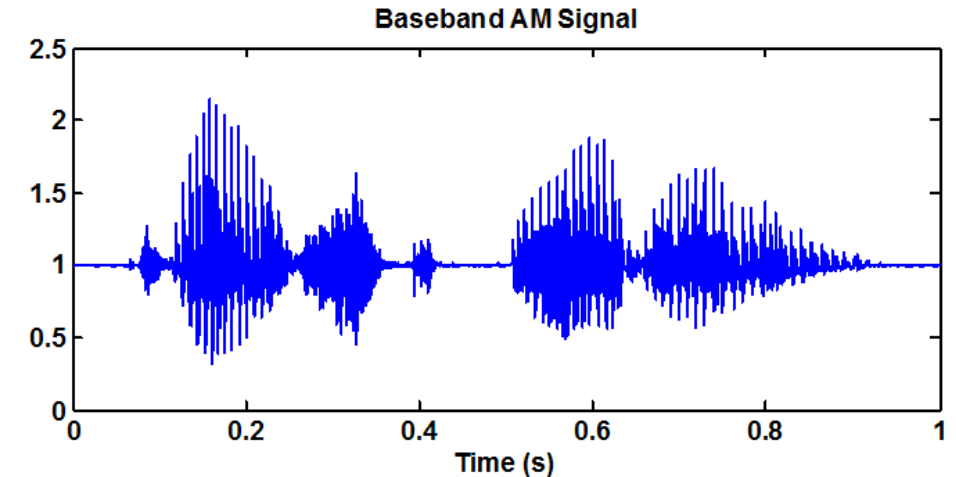
Modify transmitted waveform to reduce power without reducing received quality in receivers

Verified by numerous studies

No change in S/N or quality and average of 30% savings

Algorithms supplied

DAM, Full DAM, DCC, AMC

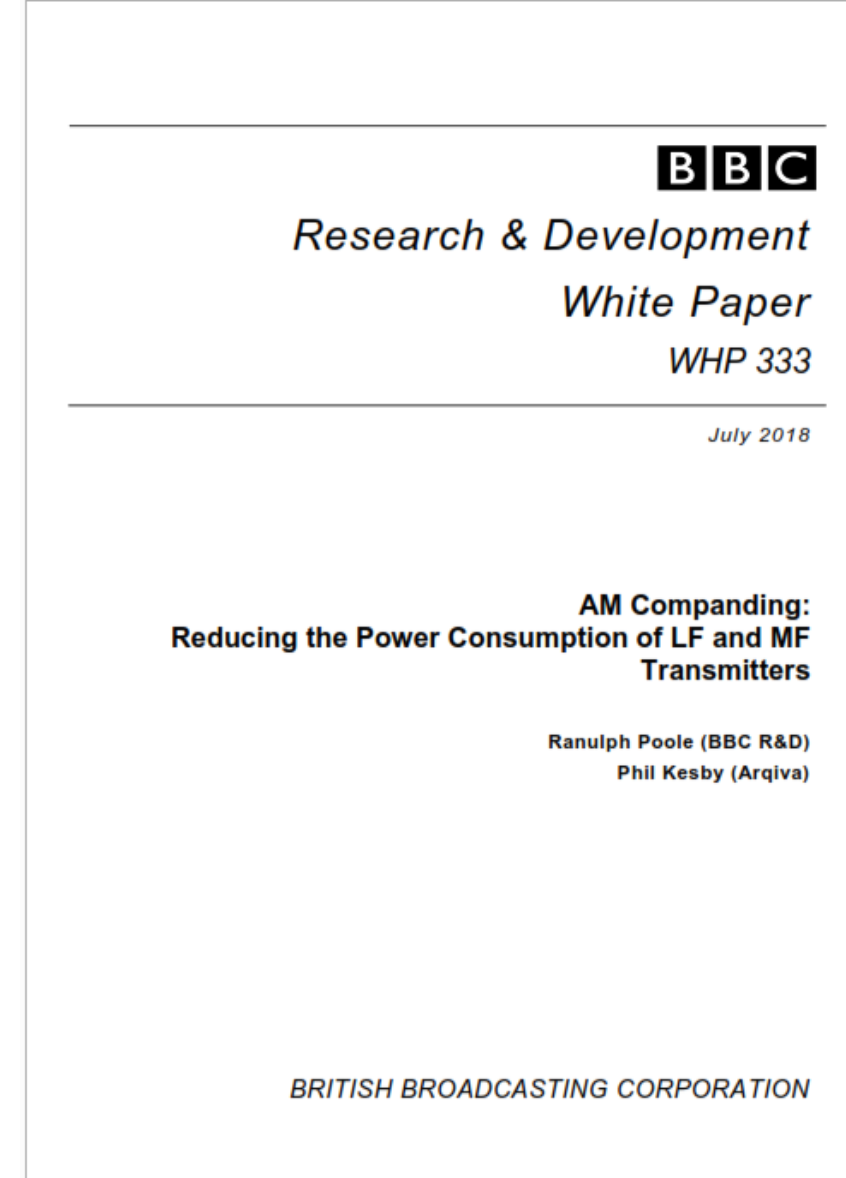


MDCL new innovations hold promise of even more savings

The BBC and Arqiva in the UK have published a paper detailing the results of tests to increase companding from 3dB to 6dB while increasing attack time to reduce distortion

In addition, audio processing manufacturers have been working on understanding how processing can affect savings

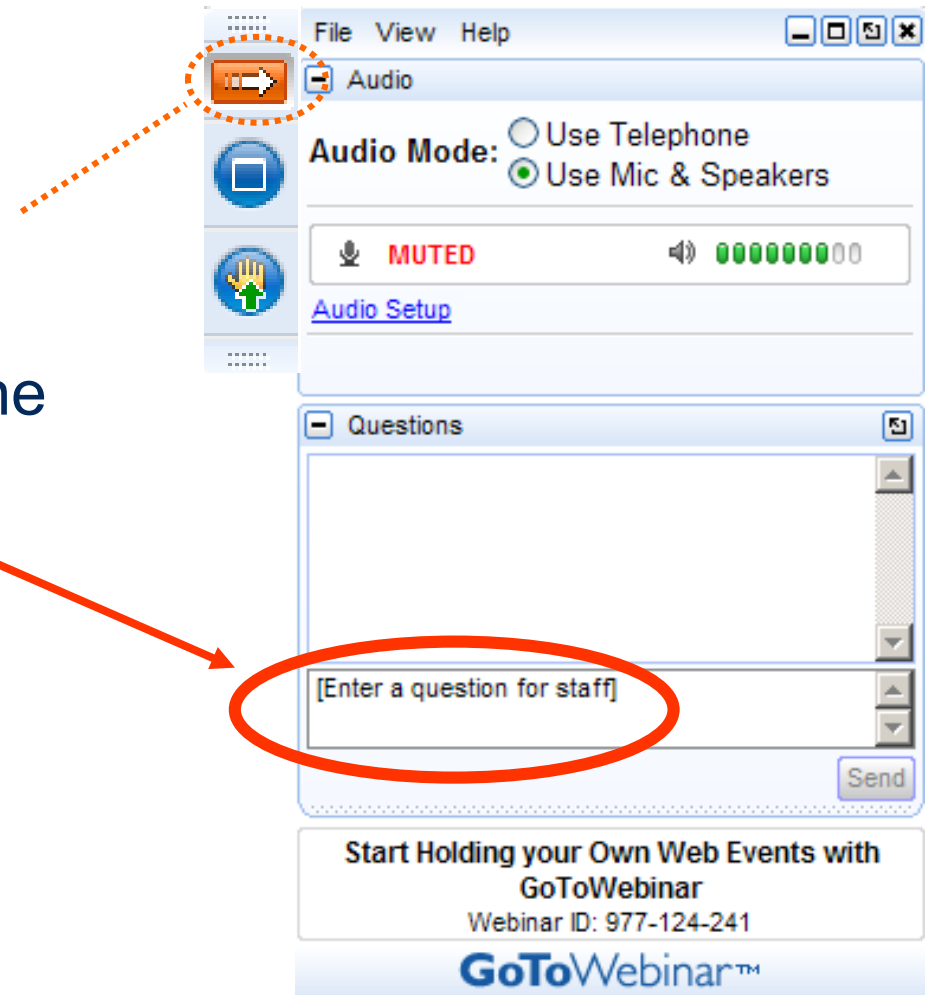
Nautel is investigating these for possible inclusion in our products



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For additional information:

MDCL:

<https://www.nautel.com/products/innovations/efficiency/power-saving-mdcl/>

New BBC AMC paper:

<https://www.bbc.co.uk/rd/publications/whitepaper333>

Chuck Kelly: ckelly@nautel.com

Nautel Support:

<http://support.nautel.com/>

Building the biggest:

<https://www.nautel.com/article/2-megawatt-transmitter-for-antenna-hungaria/>

Nautel Webinars

<https://www.nautel.com/resources/webinars/>

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