Electronics & Innovation
RF POWER AMPLIFIERS

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Ultrasonic Frequencies in Therapeutic Applications

Various frequencies are used for different indications in therapeutic ultrasound. The data below is from a paper written by Dr. Coussious Cossins et al. We can see that from the low end of 800 KHz, (0.8 MHz) to 10 MHz, a variety of conditions can be treated. The optimal choice of therapeutic ultrasound frequency is application-specific. Frequencies near 1 MHz have been found to be most useful for heat deposition, with frequencies as low as 0.5 MHz, (500 KHz) being used for deep treatments and as high as 8 MHz for shallower treatments.

Application	Frequency	Device Type
Liver Cancer	0.8/1.6 MHz	E-C
Kidney Cancer	0.8/1.6 MHz	E-C
Breast Cancer	1.6 MHz	E-C
Prostate Cancer	3 MHz	T-R
Prostate BPH	4 MHz	T-R
Pancreatic Cancer	0.8 MHz	E-C
Osteosarcoma	0.8 MHz	E-C
Rhinitis	10 MHz	I-C

E-C: Extra-Corporeal; T-R: Trans-rectal; I-C: Intracavitary

E&I offers a complete line of RF Power Amplifiers, covering frequencies required for any ultrasound application, with power levels ranging from 1 - 1000 Watts. Contact us to learn more.

Focal Drug Delivery

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What's that Noise??

Last month we talked about the electrical noise reduction that E&I has begun implementing in our amplifiers. One comment - alright complaint - that we have had from several of our customers is that our amplifiers are loud and distracting. One of our customers in Norway even went as far to say, "Your amplifiers are the best performing that I know of, but it sounds as if you are standing on a runway while a jetplane is landing!"

Next month, read about our new designs that are not only electrically quiet but also acoustically quiet as well.

Feedback

As always, we welcome your feedback. If there is a specific topic that you would like

Researchers are now able to disrupt the blood-brain-barrier with low power ultrasound, precisely targeting where the drugs are being delivered. Check out the video below to learn more.

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addressed, please let us know. Any questions or comments can be sent directly to Jen Elkins.