

The Radio Hotel – A Random Thought

by Rick Hiller – W5RH

Remember back to TRH November 2022 about the IARPA Antenna Challenge to increase the radiated output of an electrically small antenna? Well, I ran across a statement from Tom Rauch, W8JI*, that drove home the point that this competition is going to be extremely interesting to observe. Tom says *“something we all should know and remember. It is impossible to have antenna gain without having a more directional pattern. In order to increase gain, an antenna must focus more and more radiation in certain directions and radiate less signal in other directions. Always.”*

I found his statement to be very true, of course, and got me to thinking further of just how the teams in this antenna challenge competition will increase the radiated output. From Tom’s statement it will come from more directivity performed in some ingenious way, i.e. controlled phasing / current distribution by using meta materials and controlling segments individually...my hypothesis. Increasing the drive power input to the antenna is another way to achieve this radiation increase. Assuming the PhD level of the minds concentrating on this challenge, I am sure they will come up with a few new and ingenious methodologies. I hope they tell us just how they accomplish the feat. It should be pretty cool. Stay tuned!

**Tom Rauch, W8JI, was the designer of the MFJ 259 series antenna analyzers. Check out his QRZ page and his web page full of antenna and other ham radio related information at <http://www.w8ji.com>*

Next Time – Get Ready for WRTC – the Olympics of Ham Radio

*The purpose of **The Radio Hotel** is to give you a practical kick start into exploring the workings of antenna systems Read up on antenna system theory to see how it all works together. You will be glad you did.*