
Q: Why modified tractrix?

Roy: Wow, well first let us answer, why tractrix? At its basic core, when compared to the exponential, hyperbolic, conical, it offers the best loading, lowest distortion values, has a frequency band where the wave is controlled, is shorter for a given mouth and other minimal factors. So I decided, that in my quest to get constant coverage without adding distortion or diffraction slots and other undesirables, that I would start with the best basic equation. This was confirmed when John T. Post published his thesis. I spent quite a bit of time in trying to figure out how to balance the criteria I considered important. What I was looking for was the best solution for a given problem. I also wanted to make sure, that today or 10 years from now, I would get the same solution for the same problem. So when I got there, I decided that the modifications I had made to the tractrix area expansion, gave me the best possible balance. Just to make sure that you understand, I could have (and actually did) the same thing with the exponential but because the exponential is not the best basic equation to start with I stuck with tractrix. I also want to make sure that you understand that I don't stick with tractrix for tractrix's sake because if tomorrow I found a better equation and proved it was better I would be all over it. I am in it for the best solution!

Q: Why CD (constant directivity)

Roy: Well it wasn't constant directivity that I was after. I was after constant coverage. A constant coverage horn will always give a constant directivity horn but a constant directivity horn will not always give a constant coverage horn. I think of a horn as an amplifier. I want the horn to give the sound pressure level of a driver a constant gain over as large a bandwidth as possible. If the horn has constant coverage, then the gain of the horn is constant. A horn that beams or changes coverage over frequency is just another equalizer and because of that fact it will be dependent on its environment. I can't control where the horn is placed, but I can control how it emits sound.