AES PNW Section Meeting - Zoom chat log
2022 Nov 22 - jj Johnston/Bob Smith, What is Bandwidth?

Times are USA-CST

20:01:48 From Alexey Lukin : Good to see you, JJ!
20:02:30 From Steve Turnidge : https://www.audiosciencereview.com/forum/index.php
20:04:15 From James D. Johnston : Elliot, it's not you!
20:08:06 From James D. Johnston : Joe Carter, Hello!
20:39:36 From Michael Clements : Does this imply that wider transition band gives narrower / better impulse response?
20:41:49 From Michael Clements : Yes!
20:46:13 From Michael Clements : Isn't sinc(t) from the whittaker-shannon reconstruction formula, which should be theoretically perfect? But computationally expensive since it requires computing an infinite series for every sample point.
20:47:02 From Alexey Lukin : right: truncating the sinc(t) in time is a rectangular window, which has poor stopband attenuation and passband ripple
20:47:16 From Steve Wilkins : For a non-engineer can you clarify what you mean by filter and what you are using it for.
20:48:11 From Alexey Lukin : filter, in this presentation, is a smoothing operator that eliminates high frequencies from a signal
20:48:55 From Luke Pacholski : ^Let me know if that's an answer for you, Steve, or if you would like me to ask JJ.
20:54:58 From Steve Wilkins : For my use I think that is clear enough unless you think JJ can do some de-mystification. Alexey, thanks.
20:55:15 From Don Herman Jr : A crossover is a filter (usually two or more, high-pass and low-pass).
20:56:55 From Juan Sierra : You can also have a symmetric IIR by processing the signal forwards and then backwards 🙂
20:57:42 From Don Herman Jr : Done audio and radar all-pass filters for phase compensation. It's not worth it.
20:58:06 From Alexey Lukin : all-pass filters can only be IIR
21:00:24 From Juan Sierra : I don’t think that is true, you can create an FIR that has flat magnitude response for any practical sense (as we do with any design objective) and arbitrary phase
21:00:48 From Michael Clements : The ideal DAC filter:
* does nothing to frequencies in the passband
* applies full attenuation (- infinity) to frequencies above stopband
The difficulty of achieving/implementing this depends (in part) on the width of the transition band.
21:01:02 From Alexey Lukin : right, FIR filters can approximate allpass, but with IIRs you can be perfectly allpass
21:02:09 From Juan Sierra : I mean… they are perfectly all pass once you have integrated the full impulse response which is infinite XD

21:02:22 From Don Herman Jr : Amazing what a few thousand taps in a DSP can do...
21:17:59 From Michael Clements : Intuitively, this formula looks related to the fact that the max slope of a sin wave is when it crosses 0, which is the max rate of amplitude change, and you're describing how precisely you can hit where it crosses zero.
21:21:25 From James Johnston : Exactly.
21:25:24 From Morgan Shook : I'm sorry I have to head out so early. I have to prep for work tomorrow at 3am. Thank you for having me!
21:25:49 From Dan Mortensen : Thanks for joining us!
21:29:01 From Juan Sierra : Could you explain how you find the 10% and 90% points?
21:29:23 From Jamie Howarth : could you put up the slide with the formula so i can get a screenshot?
21:29:40 From Don Herman Jr : 0.1*(Vmax-Vmin) is 10%
21:30:17 From Jamie Howarth : thanks
21:31:50 From Juan Sierra : Oh got it… so you know before hand the starting amplitude and target point… quick follow up, so you also don't have DC Blocker, right?
21:32:41 From Juan Sierra : Thanks so much 🙂
21:33:33 From Michael Clements : Lots of HF noise, Zoom needs a better filter! 😉
21:33:47 From Ken Creten : That's the coolest sound of the evening so far.
21:34:03 From Jamie Howarth : with a slap echo in it
21:35:49 From michele casalgrandi : Need to head out as well - thank you!
21:36:12 From Ken Creten : thanks for everything.
21:36:28 From Erick Sheldon : Thanks very much for the presentations, J.J. and Bob!
21:36:30 From Michael Hess : thank you, very interesting stuff!
21:36:41 From Elliot Omiya (EHO) : I have to say Hi and leave now. Thanks JJ and Bob and everyone! 🙂
21:36:59 From Ken Creten : are there any general comments about human perceptibility of various …
21:37:03 From Ken Creten : sample rates?
21:37:13 From Ken Creten : or... whateve. sorry.
21:37:14 From Don Herman Jr : Great show, thanks! Even snuck in Gibbs!
21:37:19 From Brian Dorsey : Thank you very much for the talk!
21:38:20 From Michael Clements : I've heard FIR and IIR described as linear phase & minimum phase. Is it a different name for the same thing, or are they just related but not the same thing?
21:38:26 From Ken Creten : Thanks.
21:40:30 From Don Herman Jr : Linear phase = constant group delay = good pulse response in the time domain, all frequencies

delayed equally in time (no "pulse smearing").
21:41:16 From Juan Sierra : My take on that: FIR vs IIR, Analog vs Digital, Minimum Phase vs Linear Phase, all combinations are possible.
21:42:09 From Juan Sierra : I did mention before that if you flip the signal and process it again it becomes linear phase with only IIRs just two pases 🙂
21:43:31 From Jamie Howarth : would the trick of running IIR in both directions sound as good as an FIR linear filter
21:44:19 From Jamie Howarth : got it.
21:45:22 From Tom Hannon : Thank you, Dan & JJ
21:47:32 From Juan Sierra : As trivial as it seems a single impulse is a linear phase causal filter XD… of course these edge cases most times are just gotchas XD
21:49:02 From Jamie Howarth : I want that table
21:49:22 From James D. Johnston : Mineral Ridge, Oh, says Hello. (well, not an more)
21:50:09 From John Chester : Getting late for me, so I'm dropping off now. Thanks for a very interesting presentation.
21:50:37 From Jayney Wallick : Great you could make it John-- until next time!
21:51:05 From Ken Creten : Thanks for everything. Great talk. Heading out.
21:51:11 From Don Herman Jr : Gotta' run to finish a test (work sucks). I am on ASR where I get to bug JJ now and then. EE and trumpet player, gave up recording a few years ago when work got crazy. Weaned on audio before a diversion into radar and now SAS/SATA/PCIe SerDes. Abourt 10degF and snowing at the house in Monument, CO at the moment. Great talk, thanks!
21:51:22 From Jamie Howarth : 1045 here
21:51:45 From Bob Cavanaugh : I have to go. Thanks to JJ. Se y'all next time.
21:52:11 From Jayney Wallick : Thanks for stopping by to those who've had to leave early
21:54:13 From Jamie Howarth : hah ki' - bitz
21:54:26 From Jamie Howarth : here late
21:54:48 From Steve Turnidge : https://www.solar-guitars.com/product/chug/
21:56:50 From gg@aes.org Gary Gottlieb : I've got to start getting ready for tomorrow. Thank you JJ for tonight's presentation and everyone in PNW for numerous great presentations. Good evening all from Ukiah, California (no snow here, but it's gotten a bit chilly).
21:57:18 From Jayney Wallick : Have a great evening Gary!
21:58:31 From James D. Johnston : I'm afraid I am going to have to bail, too. I need to make sure work on house did not come a cropper.
21:58:55 From Jamie Howarth : thanks everyone
22:02:15 From Rene Jaeger : Saying good night. Thanks for a great meeting.
22:02:35 From Jayney Wallick : Good night Rene, thanks for

stopping by!
22:05:27 From Chris Myring : Thanks for chairing Dan, and to JJ for the presentation.
22:07:58 From M.S Choi : Sorry for mass!
22:08:24 From Dan Mortensen : It was fine, thanks, for joining us!
22:08:27 From Jayney Wallick : No problem M.S! It was great to hear from you!
22:08:59 From Jon Lautenschlager : no mic. SPED Teacher in San Antonio, audio enthusiast, ASR follower, retired Air Force electronics tech. Thanks for the presentations.
22:10:15 From M.S Choi : Thanks Jayney!
22:10:33 From Jayney Wallick : You bet M.S.!
22:13:11 From M.S Choi : 👍
22:13:33 From M.S Choi : Thanks Dan too!
22:18:12 From Steve Turnidge : https://my.matterport.com/show/?m=BSEUMthm5BP
22:18:37 From Steve Turnidge : https://my.matterport.com/show/?m=RisucL7LQ8X
22:18:40 From Dan Mortensen : Link to Players' Lounge
22:19:11 From Dan Mortensen : ^^^^
22:28:09 From Brian Dorsey : Gotta run. Thank you all!
22:28:25 From Jayney Wallick : Glad you could make it Brian!
22:29:31 From Joe Grisso : My turn to egress... thanks for the awesome evening everyone!
22:29:49 From Dan Mortensen : Like I said, I'm going to let you go on as long as you'd like. This is great.
22:29:50 From Jayney Wallick : Thanks for joining us Joe!
22:30:10 From Jayney Wallick : Hope your set up goes smoothly Dan!
22:31:21 From Luke Pacholski : I'm going to say good night. Looks like Dan's computer is still on so he can record the chatter.