



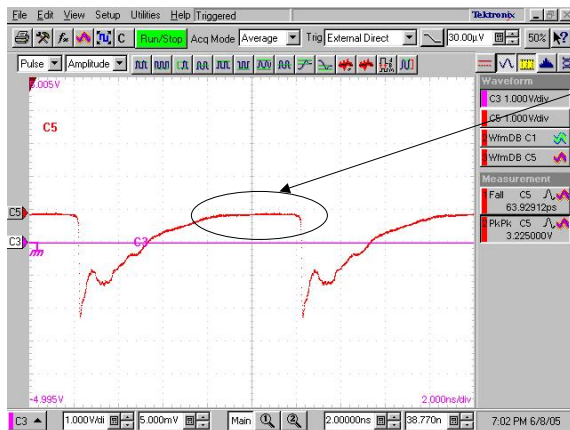
Low Phase Noise Comb Generators

Steve Pepper, Robert Norton, Jason Breitbarth,
Zoya Popovic and Clayton Smith

Picosecond Pulse Labs, Boulder CO
University of Colorado



Time Domain Output Spectrum

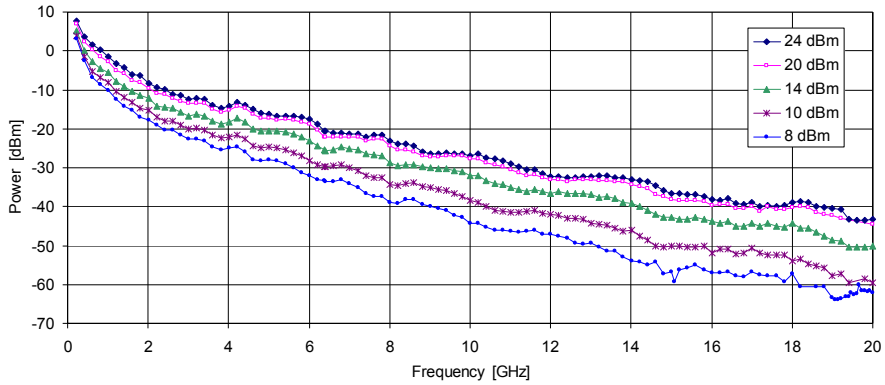


- Steady State Between Pulses
- 3.2V Output
- Limited Output
- No DC Bias Required



Low Phase Noise Comb Generators

Harmonic Output vs. Input Power Level for a 200MHz Sinusoidal Input



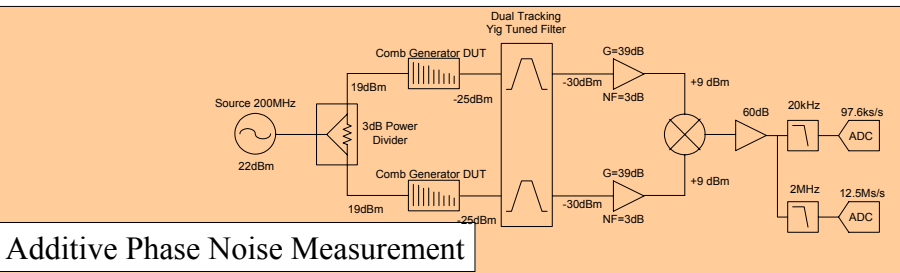
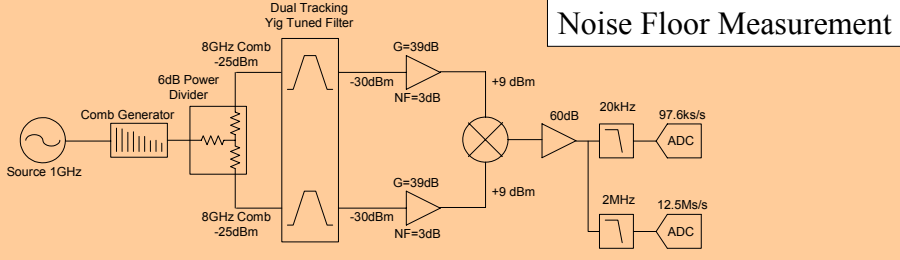
3

June 16, 2005



Low Phase Noise Comb Generators

Noise Floor Measurement



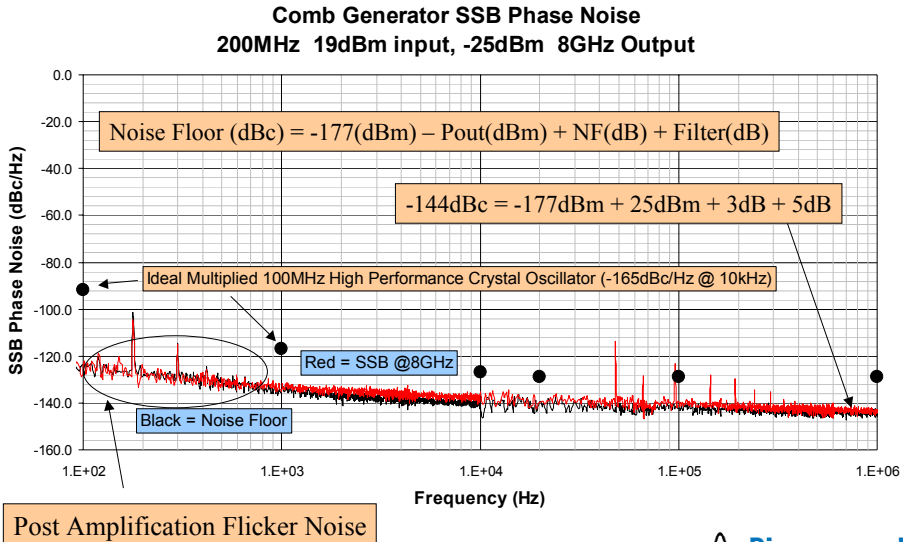
Additive Phase Noise Measurement

4

June 16, 2005



Low Phase Noise Comb Generators



5

June 16, 2005



Low Phase Noise Comb Generators

Summary

- Zero Bias Comb Generator ($P_{\text{IN}} > 14\text{dBm}$)
- Low SSB Phase Noise at 40X Harmonic
- AM Noise Suppression
- Scalable to $>100\text{GHz}$

6

June 16, 2005

