

Video bandwidth of Spacek DV-2P Detector

Lower bound of detector video bandwidth = 0.32 GHz.

Setup: Signal generator set to pulse modulation, feeding 50-75 GHz mmWave Source, frequency set to 60 GHz, output of Source connected to detector via 10 dB pad, output of detector connected to oscilloscope set to 50 ohm termination, use scope rise time and fall time measurement functions.

All measurements are video signals

Measured rise time of Detector Output = 1.1 ns

- Using $BW = 0.35/\text{RiseTime}$, we calculate $BW = 0.35 / (1.1 \text{ ns}) = 0.32 \text{ GHz}$

Measured fall time of Detector Output = 1.0 ns

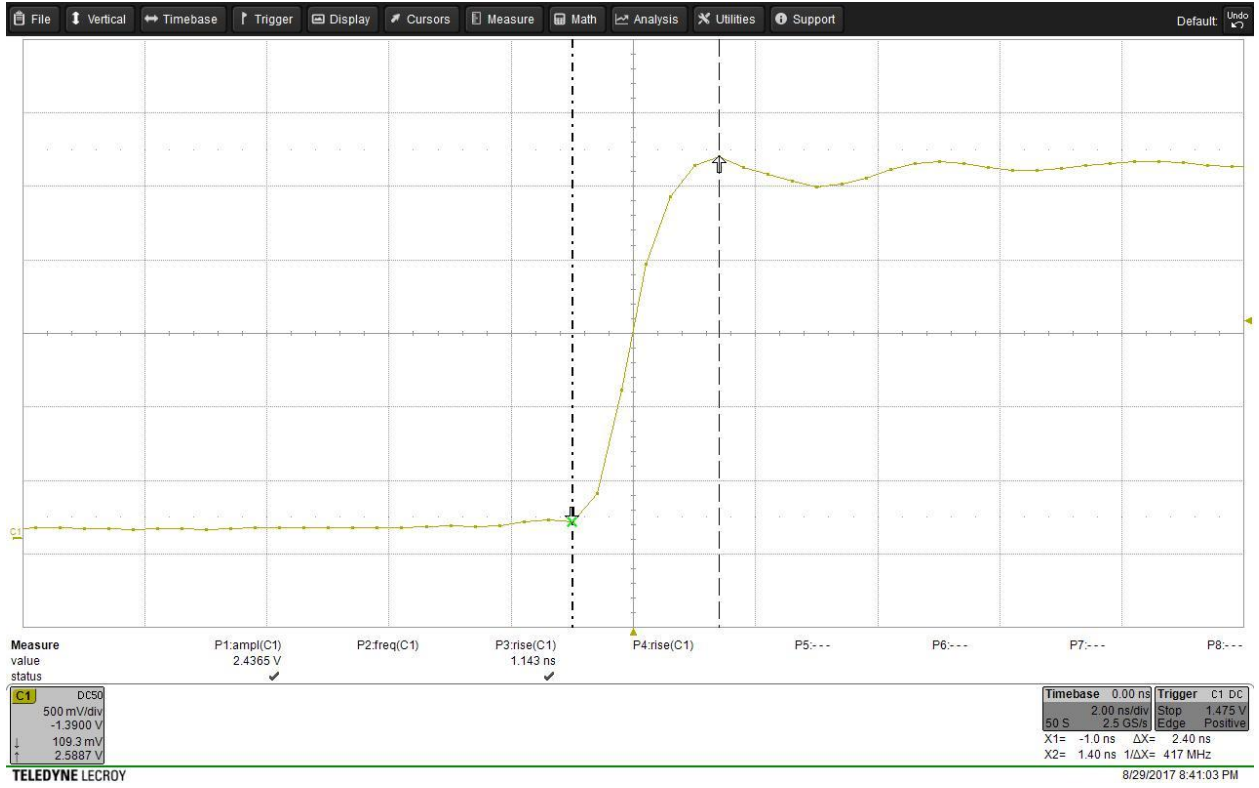
- The rise time is slower than the fall time, therefore the rise time gives a worst-case result.

Measured rise time of Signal Generator Pulse = 1.1 ns

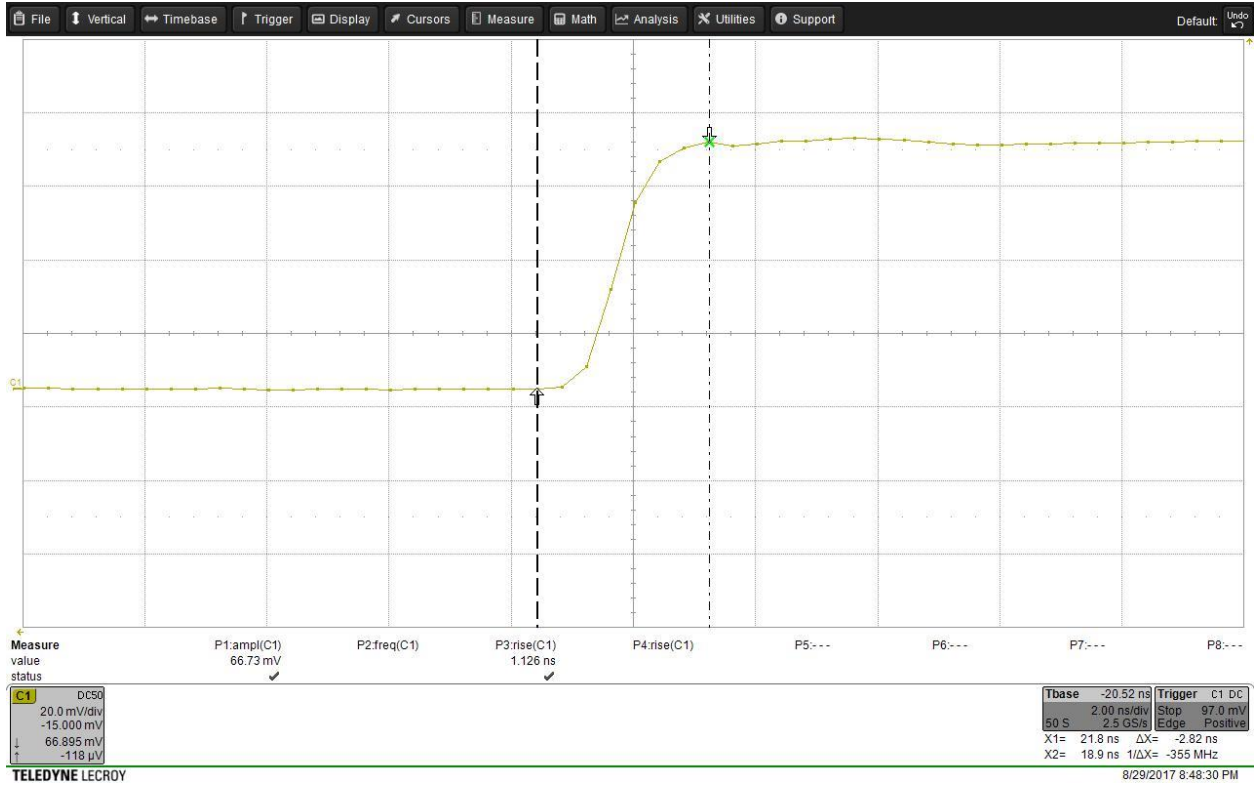
Measured fall time of Signal Generator Pulse = 1.0 ns

- The rise and fall time of the detector matches the rise and fall time of the signal generator RF pulse.
- The signal generator rise and fall times limit the bandwidth that can be measured.
- The detector bandwidth is greater than or equal to the value measured.

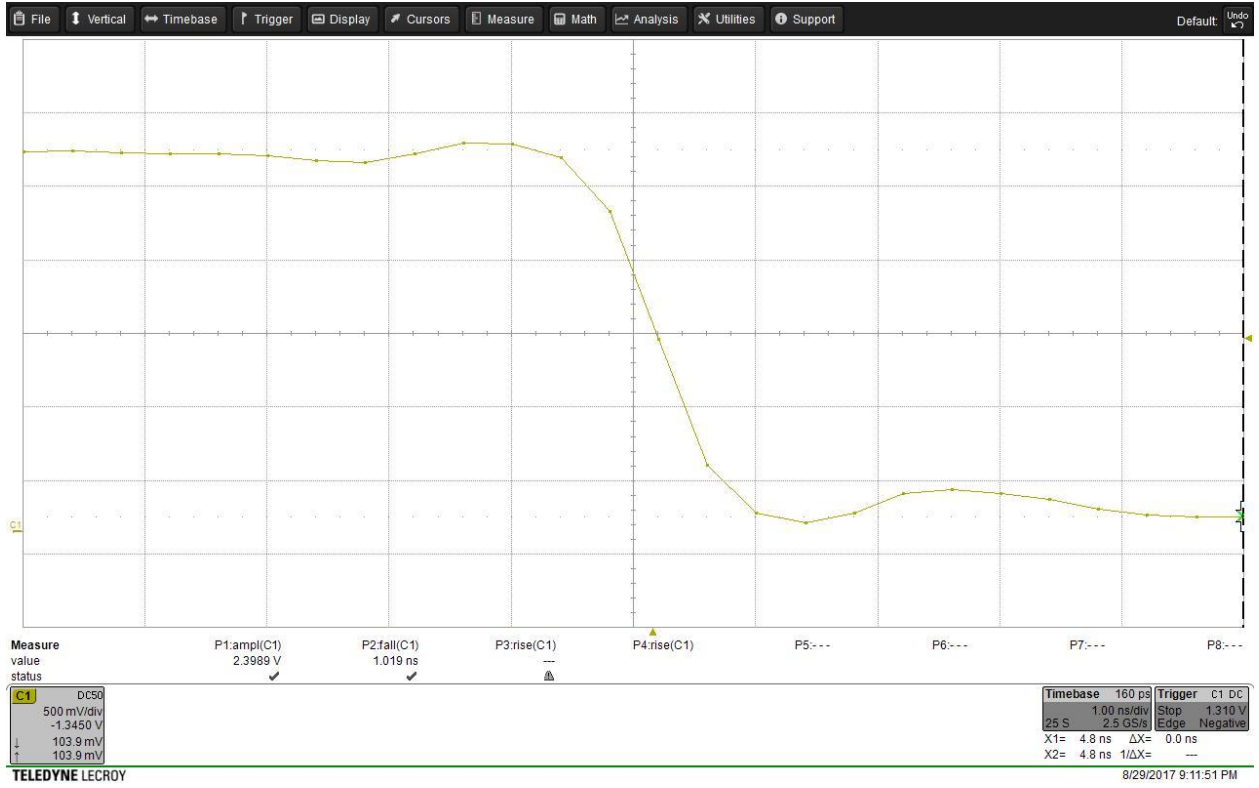
Risetime of Signal Generator Pulse



Risetime of Detector Output



Fall Time of Signal Generator Pulse



Fall Time of Detector

