

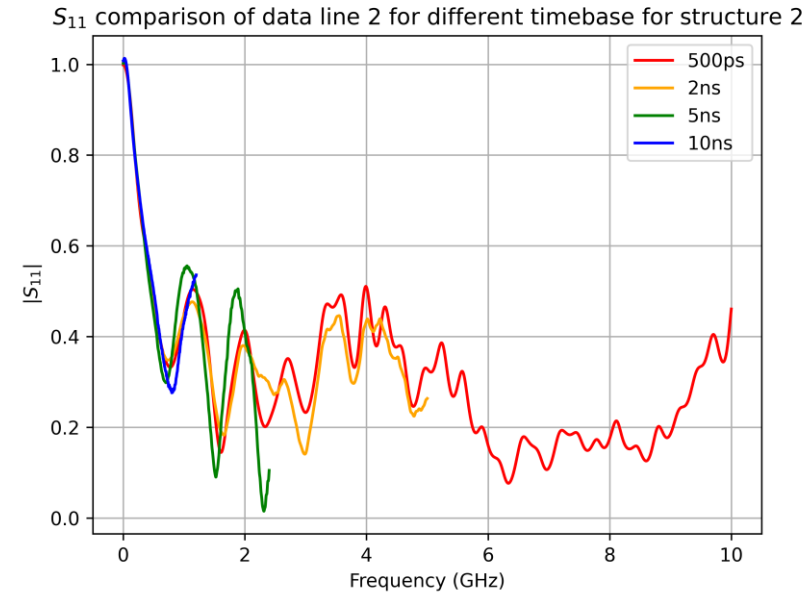
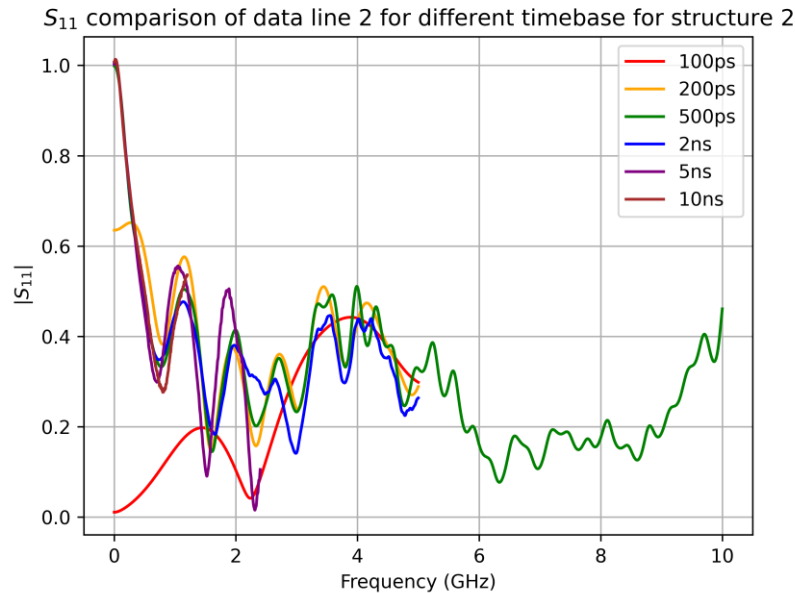
All-silicon meeting

Markus Cristinziani, Qader Dorosti, Stefan Heidbrink, Denise Müller, Noah Siegemund, Dennis Sperlich, Waldemar Stroh, **Darshil Vagadiya**, Wolfgang Walkowiak, Jens Winter, and Michael Ziolkowski

18.09.2026

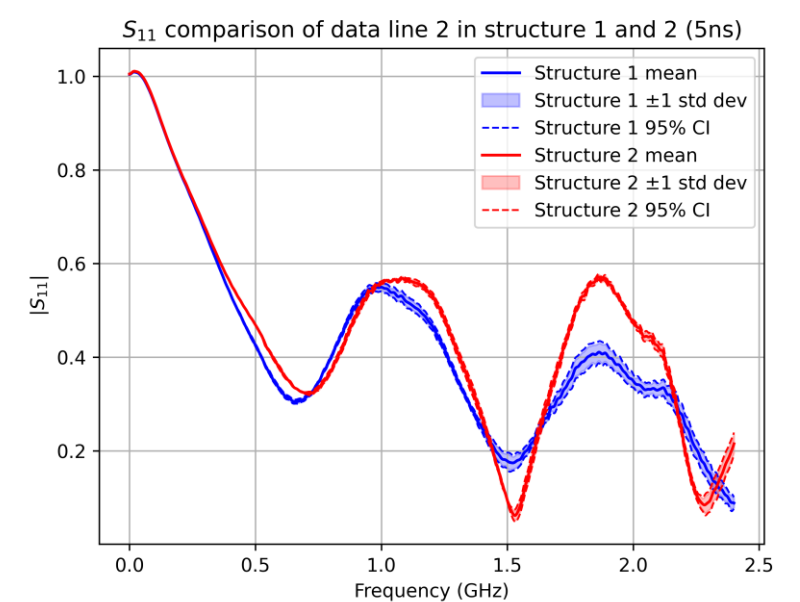
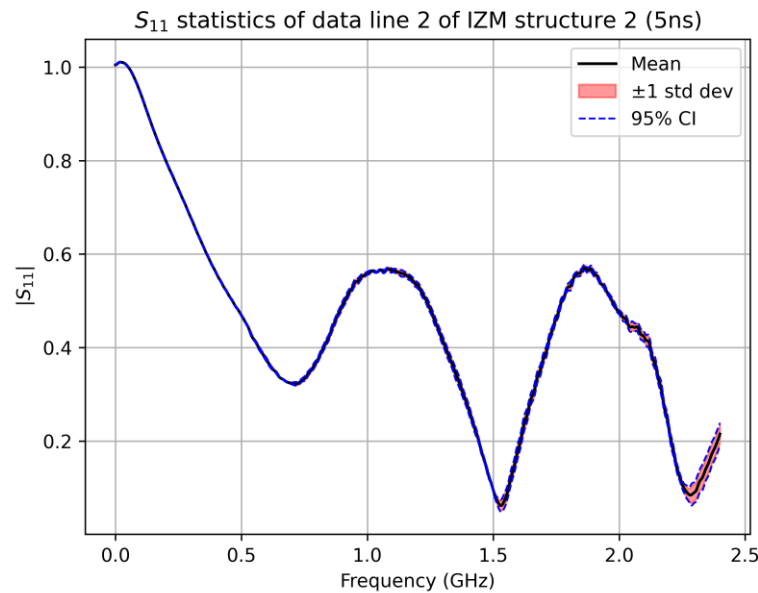
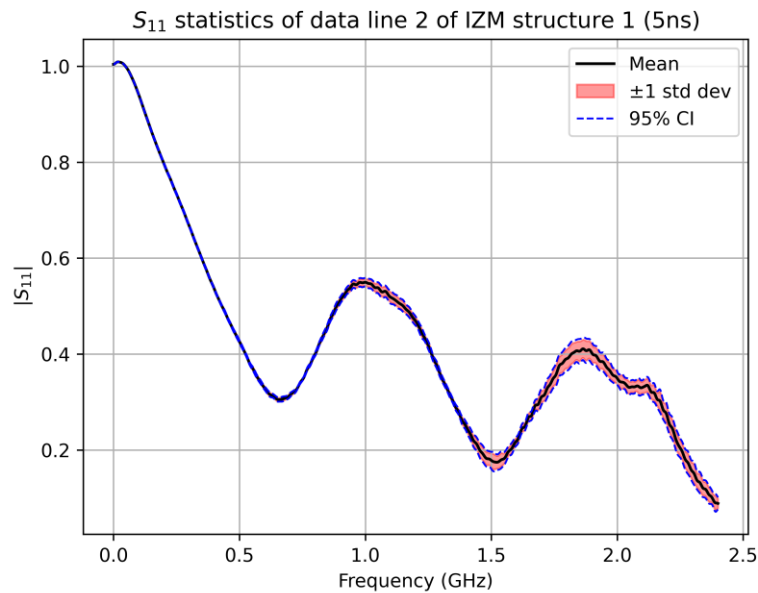
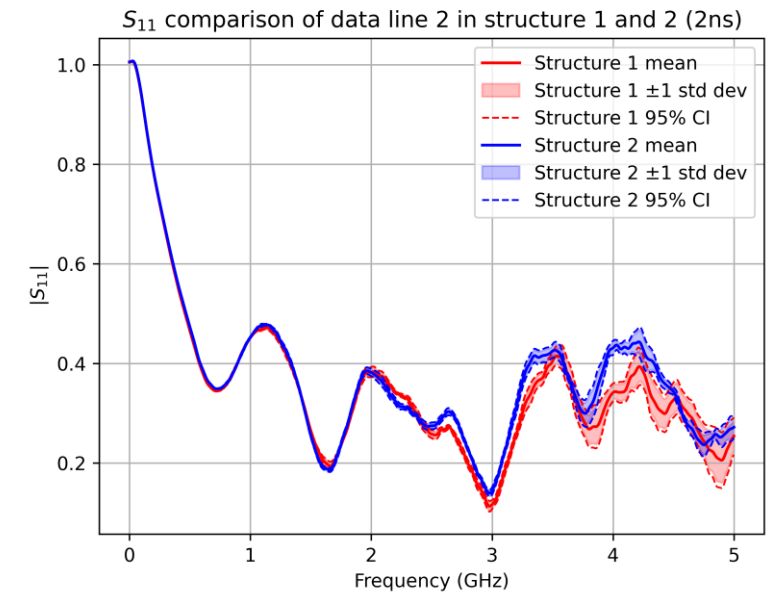
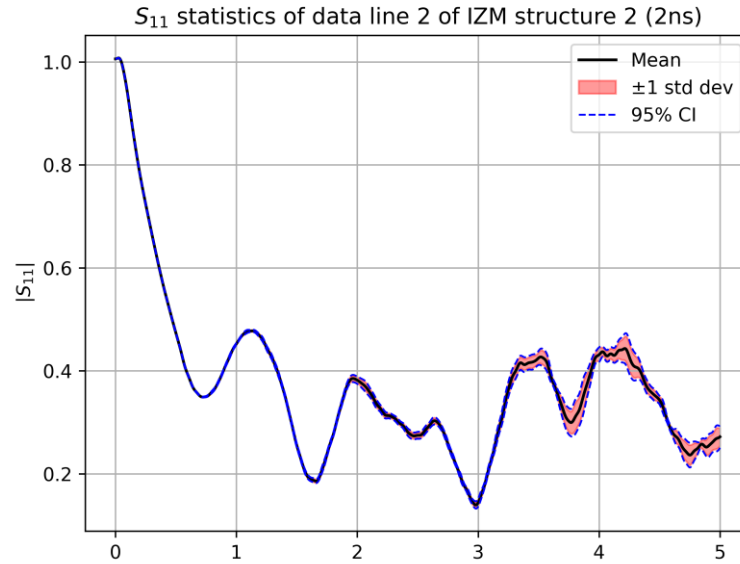
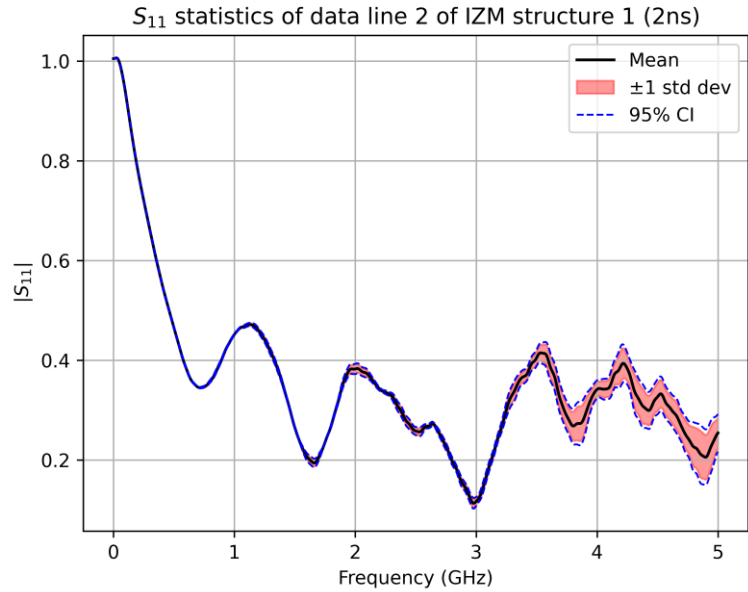
In collaboration with

TDR measurements of data line 2

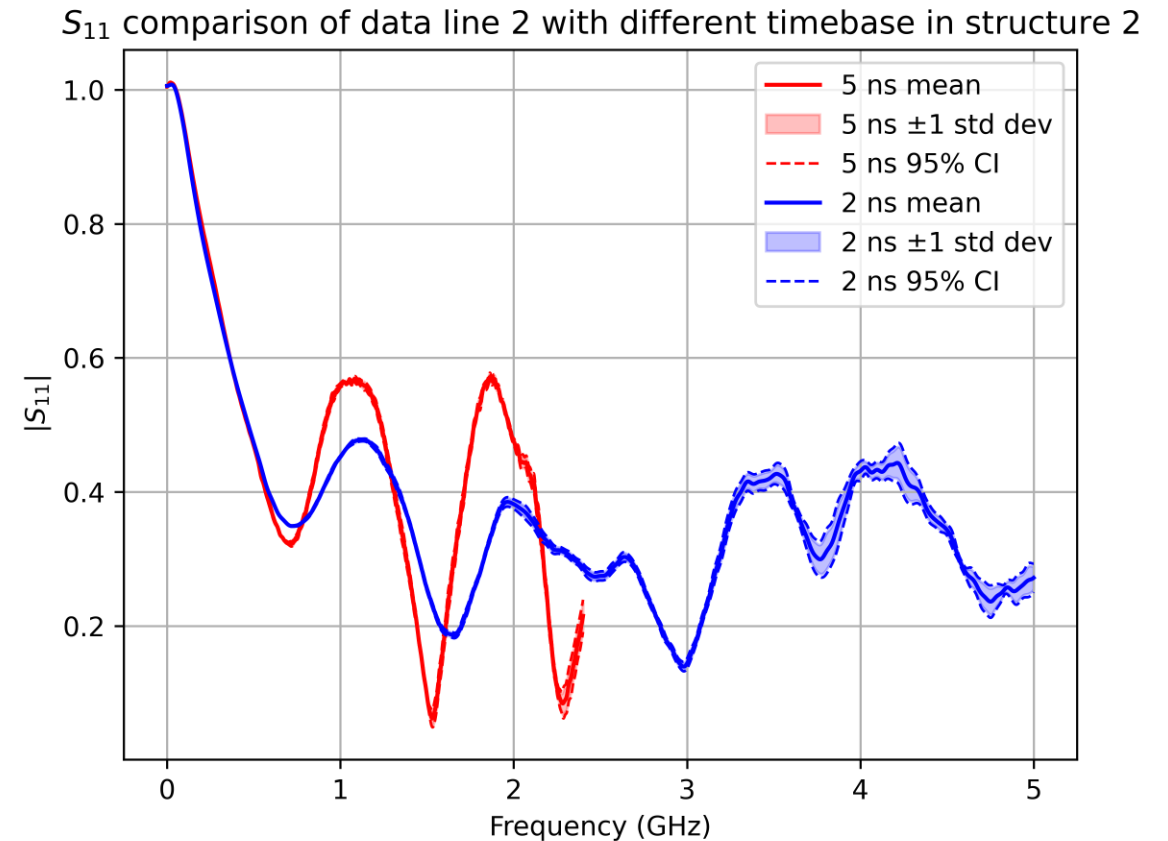
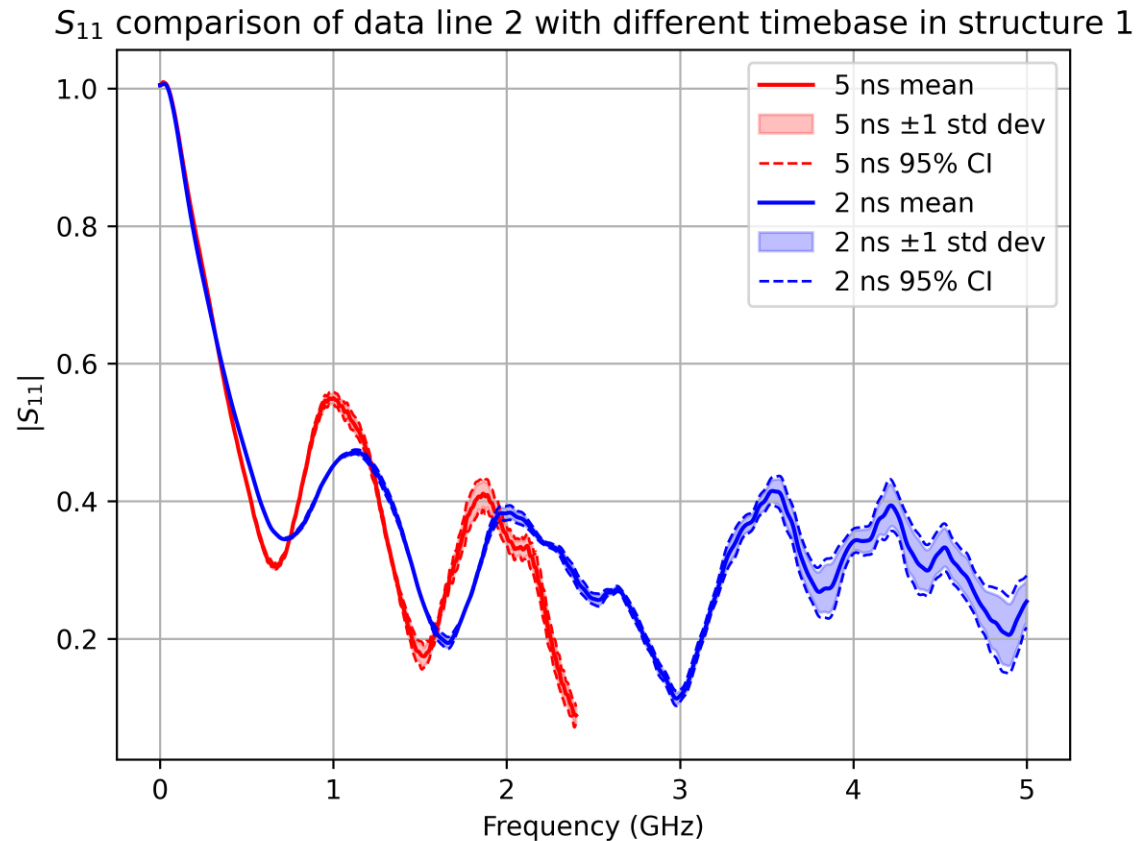


- Timebase is the time over which the waveform for TDR measurement is acquired. For example 100ps timebase, TDR device will record S-parameters only for the first 100ps. After 100ps, it will not record any reflection coming from the structure.
- Data line 2 is approximately 600ps long, therefore 100ps timebase is not sufficient.
- At least need $2 \cdot 600\text{ps} = 1.2\text{ns}$. Ideally $> 5 \cdot 600\text{ps} = 3\text{ns}$ to cover all the reflections.
- Increase the timebase while keeping the same record length; the oscilloscope has to spread the same number of sample points over a longer time interval; therefore, it decreases the maximum frequency to maintain resolution.

TDR measurements of data line 2



TDR measurements of data line 2



- S_{11} value is higher in the 5 ns timebase measurement. A possible reason could be that **the 5 ns measurement contains more late-time reflections**. Because its total observation window is longer, it may include reflections from connectors, launches, cables, discontinuities, or multiple reflections that occur later in time.

Next steps :

- Improved simulations of the IZM structure with tolerance in trace height and via height are in progress for all transmission lines
- Thesis writing

