## **CO-SIMULATION RESULTS AND COMPARISON WITH MEASUREMENTS**



## CONCLUSION

A global analysis for a millimeter-wave amplifier module with surface wave mode transmission lines was demonstrated at 60-GHz region using a co-simulation technique between an FDTD-based electromagnetic simulator and a semiconductor device simulator. The amplifier module consists of an HFET and PDTLs. The HFET was analysed by 2-dimensional semiconductor device simulation, and compared with the measured results and the results of the intrinsic extracted model. The device simulation results roughly correspond with the compared results. Considering the finger length, more accurate simulation will be performed. In the co-simulation, the scattered waves occurred at the HFET mounted place were observed clearly. Furthermore, the reflected scattered waves at edges of the substrate were also observed. It was confirmed that the S-parameters are largely affected by the reflected scattered waves. In this module, it is important to decrease the reflection at the edges of the PDIC substrate as small as possible. And it can be predicted by this co-simulation.

