1:1 Bhagath/Sergio

Bhagath, Sergio
2022

restricted

Week 06

Previous week actions

- Familiarized with background of chip & wire design, TX baseline project, modeling approach.
- Finalized the setup of ADS work environment, libraries & testbenches.
- Doherty study.
- Started chip & wire design of 4.8 mm GaN die.
- Discussion about the IFX Nijmegen RF lab.

Highs & Lows

- **Highs**
- Got access to the final library “rfmcmt”. Will now be able to look into details, simulate the designs.
- Familiar with the background of the Tx baseline project.
- Able to load-pull the GaN die and see impedances and expected performance.
- **Lows**

Plan for this week

- Prepare an overview for LP system equipment, availability, functionality and pricing estimation.
- Continue Doherty study using the chip and wire design and derive a Doherty, simulation, design, tuning, testing workflow.
- Continue the chip & wire design of 4.8mm die for Baseline project.

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Week 07

Previous week actions	› Prepare an overview for LP system equipment, availability, functionality and pricing estimation. › Continue the chip & wire design of 4.8mm die for Baseline project. › Continue Doherty study using the chip and wire design and derive a Doherty, simulation, design, tuning, testing workflow.
Highs & Lows	› **Lows** › Not so clear picture to get and overview regarding the lab needs (Power level, Frequency) › **Highs** › Able to have good conclusive discussion with lab team. › Knowing the core team of lab equipment H/W, S/W experts within IFX Munich & Villach.
Plan for this week	› Chip and wire design of 4.8 mm die › Finalize equipment for at least 1 verification bench. › Follow up on IFX lab setup: Measurement method, H/w & S/W harmonization. › Maury, IVCAD LP setup follow up.

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Week 08

Previous week actions

- Chip and wire design of 4.8 mm die
- Finalize equipment for at least 1 verification bench.
- Follow up on IFX lab setup: Measurement method, H/w & S/W harmonization.
- Maury, IVCAD LP setup follow up.

Highs & Lows

- **Lows**
- No progress on LP equipment
- **Highs**

Plan for this week

- Meet and discuss with team in Munich
- Lab tour Munich and Villach
- Follow up on IFX lab setup: Measurement method, H/w & S/W harmonization.
- Discussion on chip & wire design 4.8 mm with Theepak.

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Week 09

Previous week actions

- Chip and wire design of 4.8 mm die
- Finalize equipment for at least 1 verification bench.
- Follow up on IFX lab setup: Measurement method, H/w & S/W harmonization.
- Maury, IVCAD LP setup follow up.

Highs & Lows

- **Lows**
- **Highs**
- Get to know with team in MUC and VIH
- Lab tour and VB finalization

Plan for this week

- Prepare overview based on MUC and VIH lab tour
- Start and continue chip and wire design
- Participate /continue discussion on H/W harmonization across sites

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Week 10

Previous week actions	› Prepare overview based on MUC and VIH lab tour › Start and continue chip and wire design › Participate /continue discussion on H/W harmonization across sites
Highs & Lows	› **Lows** › Input impedance of bigger dies (10.1 mm) is very low (0.1 + j 2.2) › **Highs**
Plan for this week	› Design of 10.1 mm die chip & wire › Discussion with Keysight, R&S for lab equipment › Participate /continue discussion on H/W harmonization across sites › Attend Tx-Modules design workshop

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Week 11

Previous week actions	› Design of 10.1 mm die chip & wire › Discussion with Keysight, R&S for lab equipment › Participate /continue discussion on H/W harmonization across sites › Attend Tx-Modules design workshop
Highs & Lows	› **Remark** › Change of design from 10.1 mm to 12 mm › Design on Laminate starting from build #3
Plan for this week	› Design of 12 mm die chip & wire › Finalize VB bench quotation Keysight, R &S › Update lab file with quotation for other lab equipment (rework station, Amplifiers). Handover the file ? › Participate /continue discussion on H/W harmonization across sites and update lab

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Week 12

Previous week actions

- Design of 12 mm die chip & wire
- Finalize VB bench quotation Keysight, R &S
- Update lab file with quotation for other lab equipment (rework station, Amplifiers). Handover the file ?
- Participate /continue discussion on H/W harmonization across sites and update lab

Highs & Lows

- **Highlights**
- Quotation finalized for key lab equipment. Can proceed with procurement
- **Lowlights**
- Design going at slow pace initially, will catch up speed this week.

Plan for this week

- Complete design of 12mm chip & wire
- Handover lab equipment file ?
- Participate /continue discussion on H/W harmonization across sites and update lab
- Prepare/organize LP measurements of minipack devices at Anteverta

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Week 14

Previous week actions

- Complete design of 12mm chip & wire (DOE6)
- Handover lab equipment file ?
- Participate /continue discussion on H/W harmonization across sites and update lab
- Prepare/organize LP measurements of minipack devices at Anteverta

Highs & Lows

- **Highlights**
- Visited Anteverta to discuss LP measurements.
- Design almost done (Moscap: 5.5 pF & 10 pF):
  - Gain around ≥ 15 dB, Eff. ≥ 70 %, Enough power @ P1 dB (min. 46.8 dBm)
- **Lowlights**
- DOE6
  - Zin {Re} = 0,5 Ohm

Plan for this week

- Prepare design review12mm Chip and wire design (DOE6)
- Delivery of DOE6 on Friday 8th April
- Participate /continue discussion on H/W harmonization across sites and update lab
- Prepare/organize LP measurements of minipack devices at Anteverta
  - Discussion on measurement requirements and finalize request form and send to Anteverta.

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Week 16

Previous week actions

- Prepare design review12mm Chip and wire design (DOE6)
- Delivery of DOE6 on Friday 8th April
- Participate /continue discussion on H/W harmonization across sites and update lab
- Prepare/organize LP measurements of minipack devices at Anteverta
  - Discussion on measurement requirements and finalize request form and send to Anteverta.

Highs & Lows

- **Highlights**
- Build #3 DOE6 design is ready.
- **Lowlights**
- DOE6
  - Zin {Re} = 0,5 Ohm

Plan for this week

- Update documentation for DOE6 design
- Alignment on next build
- Lab harmonization and prepare CV updates/overview.
- Follow up and arrangements for LP at Anteverta.

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Week 18

Previous week actions

- Update documentation for DOE6 design..
- Alignment on next build.
- Lab harmonization and prepare CV updates/overview.
- Follow up and arrangements for LP at Anteverta.
- Alignment on LP data readout & driver design.
- MUC business trip

Highs & Lows

- **Highlights**
- First LP measurements at Anteverta finished. Alignment FOCUS vs Anteverta is planned.
- DOE6 is ready to go for assembly.
- Anteverta viewer is available for 30 days. FOCUS viewer is also available and doesn't need license it seems
- **Lowlights**
- Not starting with a strategy with the LP measurements.
- LP only 2 samples, DC-IV could not be completed due to oscillations.
- Partial information sharing regarding test fixture, already performed LP measurements, oscillations.

Plan for this week

- Design of DOE7 2.4mm die.
- LP data readout & data display template.
- Finalize LP measurements with Anteverta & Report. Come up with LP measurement flow.

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Week 20

Previous week actions

- Design of DOE7 2.4mm die.
- LP data readout & data display template.
- Finalize LP measurements with Anteverta & Report. Come up with LP measurement flow.

Highs & Lows

- **Highlights**
- Measurements with SMA as reference plane are performed. Align with measurements from Villach (not yet the same sample measured)
- DOE7 2.4 mm design, review & drawings finalized and checked in
- **Lowlights**
- We will for now use Pin1 as Gate for Tx baseline pjt. Later we have to change to Pin1 as Drain.

Plan for this week

- Design of DOE9 11.52mm die.
- LP data readout & data display template.
- Finalize LP measurements with Anteverta

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