

1:1 Bhagath/Sergio

Bhagath, Sergio
2022



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.

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.

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.

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

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

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

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

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
 - > $Z_{in} \{Re\} = 0,5 \text{ Ohm}$

Plan for this week

- > Prepare design review 12mm 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.

Week 16

Previous week actions

- > Prepare design review 12mm 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
 - > $Z_{in} \{Re\} = 0,5 \text{ Ohm}$

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.

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.



Part of your life. Part of tomorrow.