


# Specialization Project - Weekly meeting

Fredrik Feyling

August 28, 2020

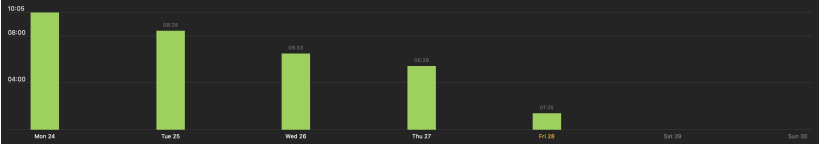
Since last week



32:00  
Hrs. Worked

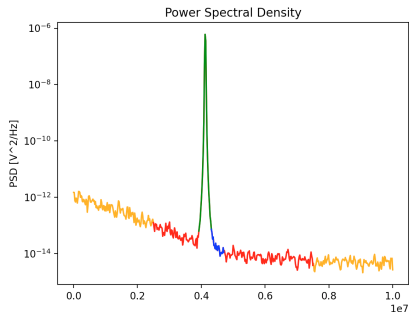
# Hours Worked

32:00



# Since last week

Started writing script for  
simulating ADC and LNA  
Written classes for ADC,  
LNA and Signal Generator  
Function for



# Timeline

Activity\Week	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	Comments
Understand behaviour Control-Bounded ADC	■	■	■	■															
Python Simulation C-B ADC			■	■	■	■													
First Python Sim Ready				X															
Optimize analog filter/digital control			■	■	■	■	■	■	■	■									
Second Python Sim						X													
Implement building blocks in Cadence						■	■	■											To obtain estimate for power consumption
Synthesize Verilog for digital estimation							■	■											To obtain estimate for power consumption
First Power Estimate Ready								X											
Cadence implementation							■	■	■	■	■	■	■						Full analog part and digital control
Final Simulation Results ready													X			■			
Report writing			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Report deadline																		X	19.12.2020

Today

# Timeline

Activity\Week	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	Comments
Understand behaviour Control-Bounded ADC	■	■	■	■															
Python Simulation C-B ADC			■	■	■	■													
First Python Sim Ready				X															
Optimize analog filter/digital control			■	■	■	■	■	■	■	■									
Second Python Sim						X													
Implement building blocks in Cadence						■	■	■											To obtain estimate for power consumption
Synthesize Verilog for digital estimation							■	■											To obtain estimate for power consumption
First Power Estimate Ready								X											
Cadence implementation							■	■	■	■	■	■	■						Full analog part and digital control
Final Simulation Results ready													X			■			
Report writing			■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
Report deadline																		X	19.12.2020

Today

Table: ADC Specs

Parameter	Symbol	Value	Comment
Carrier Frequency	$f_c$	5 MHz	
Bandwidth	$B$	5 MHz	2.5 – 7.5MHz
Effective number of bits	ENOB	> 10 bits	
Noise density	$\overline{V_n}$	< 10 nV/ $\sqrt{\text{Hz}}$	NF=3 dB
Supply Voltage	$V_{dd}$	< 0.8 V	
Power Consumption	$P_{tot}$	< 50 $\mu\text{W}$	500 aJ/c.s <sup>12</sup>

---

<sup>1</sup>Walden FOM

<sup>2</sup>Hårete mål