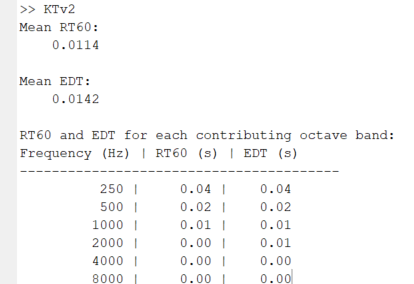
# Monday, 19 August 2024

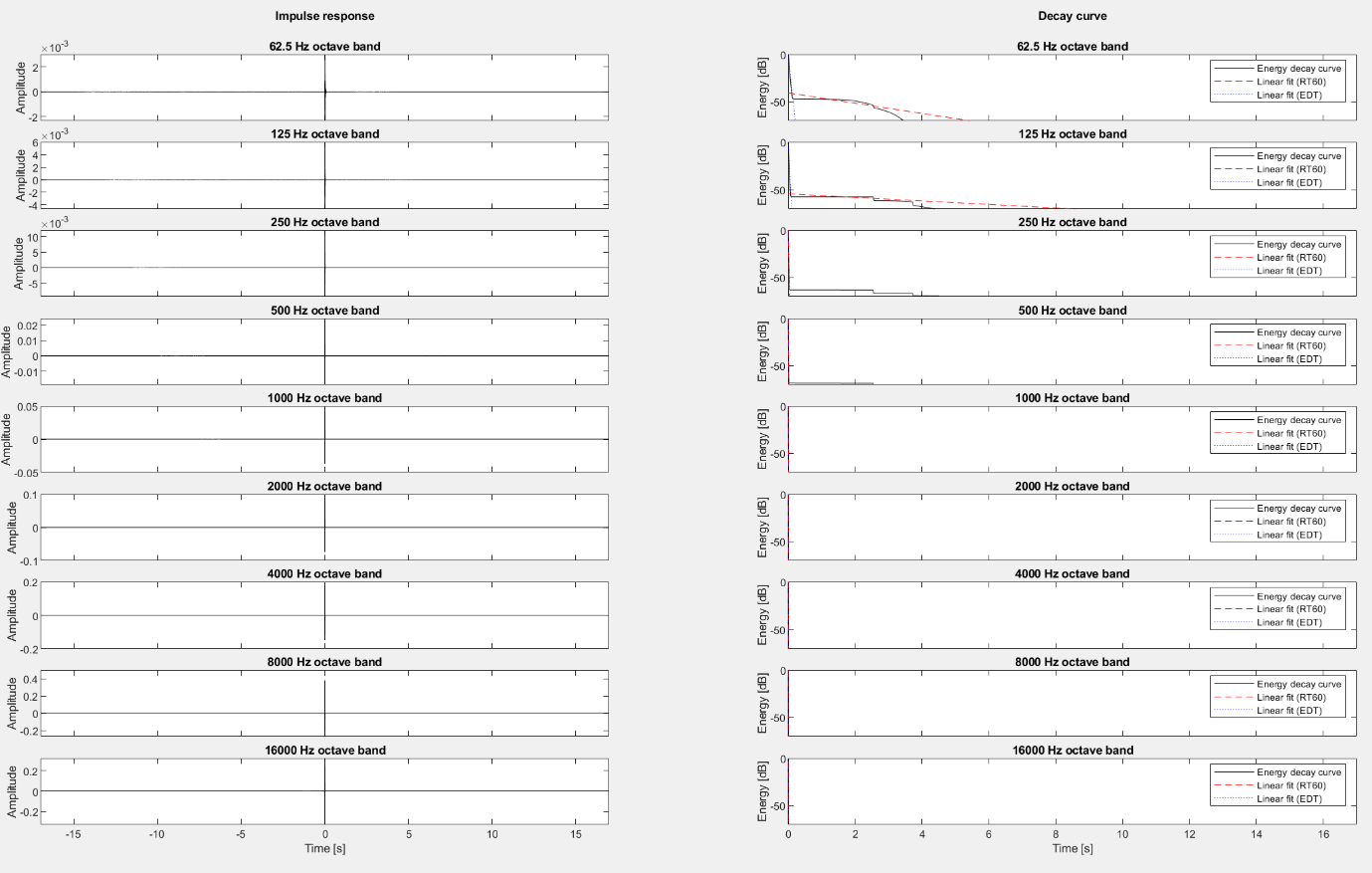
WFH, restudy RIR and deconvolution. Also looked into existing Unity project that have RIR/realistic simulation (not found).

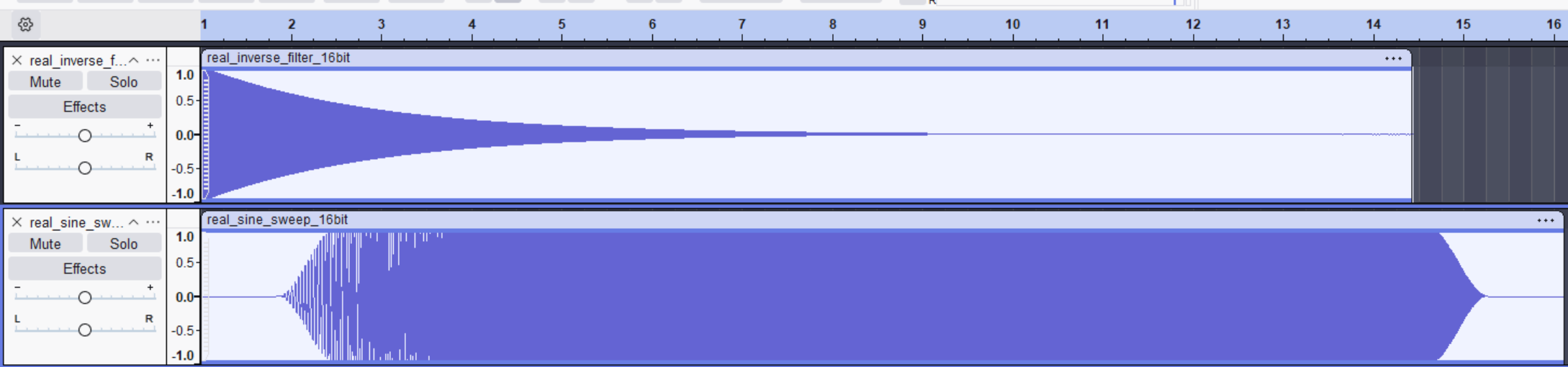
Tested RIR using generated sweep as recorded sweep:



Im assuming this anomaly (floor) is due to inaccurate inverse filter thus causing problem after deconvolve.

Instead of generating the sine sweep and inverse filter ourselves, let’s try using audacity plugin instead.



Old sine sweep and inverse filter: 

# Tuesday, 20 August 2024

## Meeting w/ Dr Hansung Kim:

### What I did last 2 weeks:

Implemented direct Unity audio recording  
Created test scenes to isolate Steam Audio issues  
Experimented with various audio parameters

### Problems encountered:

Deconvolution/inverse filter inaccuracy issue.  
Audio clipping limiting further tuning  
High EDT value (compared to RT60)  
Peak in open air test environment

### Plans:

Regenerate sine sweep and inverse filter using audacity plugin instead of python manual coding to eliminate errors etc  
Retest on test scene and generated as recorded to sanity check  
Have a meeting with Mona for evaluation progress.  
Update progress with Dr, Mona and Atiyeh.

### Take time off on 29 and 30, but work on 2 September instead. Meeting w/ Dr on 2nd September, and meet Mona for system handoff (laptop, VR HMDs) on different date.

Make a demo video or try to make it easy for VR to work (whichever most convenient to demo)

Send poster for print before 28th.

Prepare report (around 20 pages), no deadline but don’t overwork outside intern time if possible.

Make it well structured for handoff! (Well documented and structured)

Think about writing papers as dual First author w/ Mona or secondary author (prob depends on how well I got result evaluation going).

Let’s rewrite all this into proper todo list.

## Next 2 week TODO:

* Send poster for print before 28th.
* Make a demo video or try to make it easy for VR to work (whichever most convenient to demo)
* Prepare report (around 20 pages), no deadline but don’t overwork outside intern time if possible.
* Meeting w/ Dr Hansung on 2nd Septembe, Mona on any day after 3rd for handoff.
* Make it well structured for handoff! (Well documented and structured)
* Think about writing papers as dual First author w/ Mona or secondary author (prob depends on how well I got result evaluation going).

## Immediate TODO:

1. Regenerate sine sweep and inverse filter using audacity plugin instead of python manual coding to eliminate errors etc
2. Retest on test scene and generated as recorded to sanity check
3. Have a meeting with Mona for evaluation progress.
4. Update progress with Dr, Mona and Atiyeh.

Gave up on no. 1 because I think its impossible to get better approximate of sine sweep from input only, and generating sine sweep together with inverse filter (where parameter is known and defined) is a better way. Although because this would be exactly the same as Mona’s previous one, so instead I used matlab to generate the sine sweep and inverse filter instead of Python.

I also ran the deconvolve on the on the generated sweep straight away (without any simulation/noise) to get as perfect impulse response as I can, it still not perfect but good enough imo which prove the deconvolve is working.

Let’s also add in the RT60 and EDT calculation.