

# Offline Reverb Analysis Report

Input WAV: samples/verb\_ir.wav  
Sample rate: 48000 Hz (expected 48000 Hz)  
Channels: 2  
Samples: 1151844  
Duration: 23.996750 s

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## Impulse response

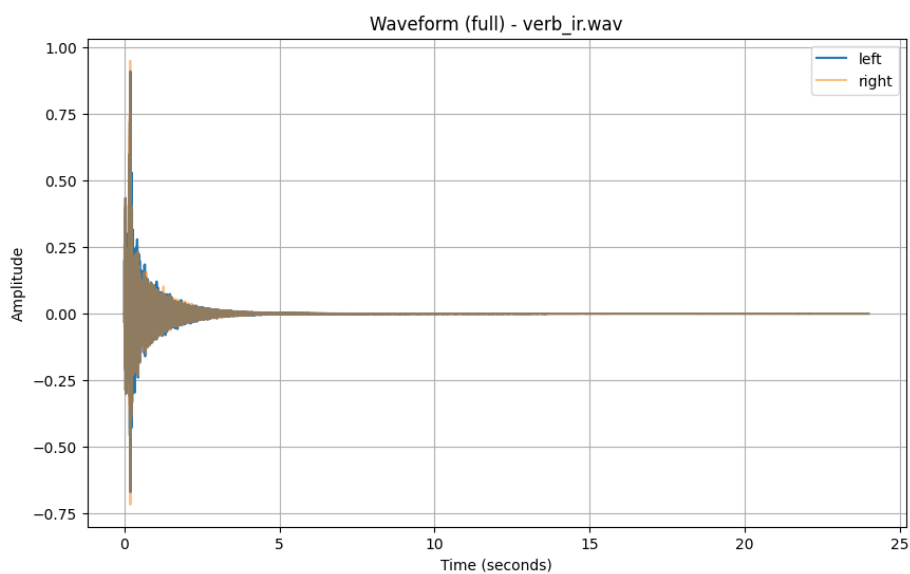


Figure 1: Impulse response overview

## Decay / EDC

```
[left] analysis_start_sample_index=9287
       early_0_to_-10_time=1.0557s
       EDT: NA
       T20: range=[-5.0,-25.0]dB time=[0.4713,2.9514]s slope=-8.058840dB/s r2=0.999619 rt60=7.44
       T30: range=[-5.0,-35.0]dB time=[0.4713,4.4115]s slope=-7.651142dB/s r2=0.998505 rt60=7.84

[right] analysis_start_sample_index=9025
        early_0_to_-10_time=1.0613s
        EDT: NA
        T20: range=[-5.0,-25.0]dB time=[0.4780,2.9747]s slope=-7.979435dB/s r2=0.999571 rt60=7.51
        T30: range=[-5.0,-35.0]dB time=[0.4780,4.4655]s slope=-7.568786dB/s r2=0.998477 rt60=7.92
```

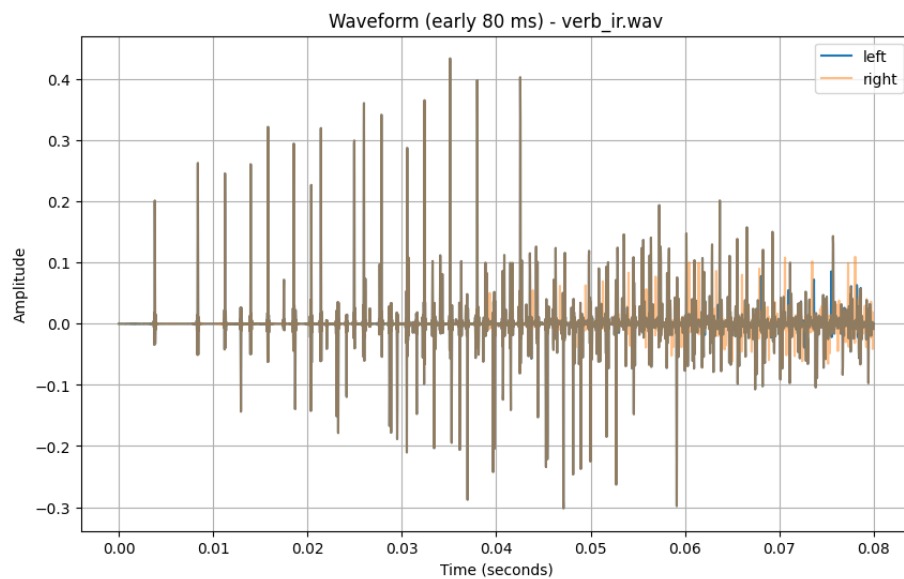


Figure 2: Early reflections

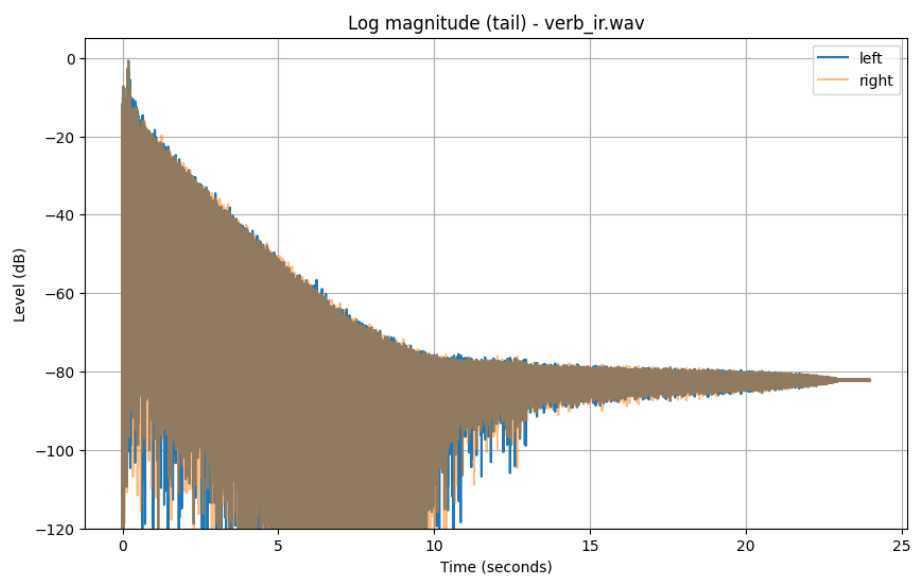


Figure 3: Tail (log magnitude)

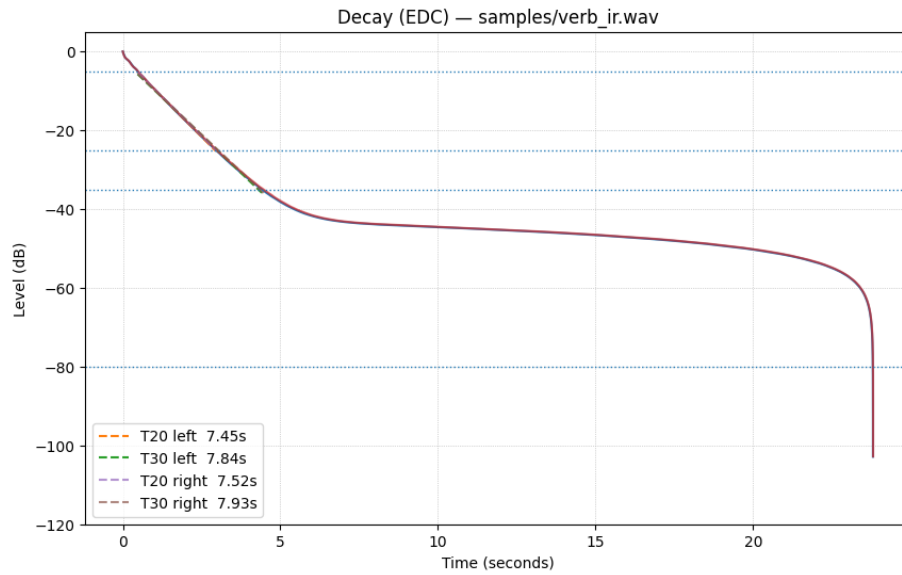


Figure 4: Decay analysis (T20/T30/RT60/EDT)

## RT60 by band

```
[left]
Band  T30_RT60(s)
Low   86.019
Mid   9.213
High  6.688
```

```
[right]
Band  T30_RT60(s)
Low   85.214
Mid   9.226
High  6.666
```

## Frequency response

```
[left] start_sample=9287 len_samples=1142557 peak=645.5Hz centroid=7775.9Hz
[right] start_sample=9025 len_samples=1142819 peak=647.0Hz centroid=7744.8Hz
```

## Spectrogram

```
[left] start_sample=9287 len_samples=1142557 dur=23.803s stft(n_fft=4096, frames=2224)
[right] start_sample=9025 len_samples=1142819 dur=23.809s stft(n_fft=4096, frames=2225)
```

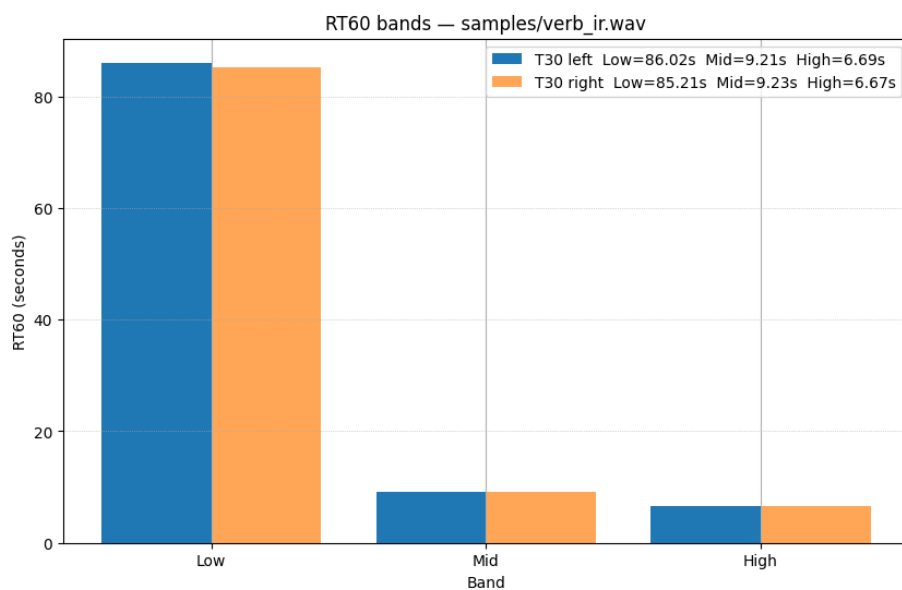


Figure 5: RT60 by frequency band

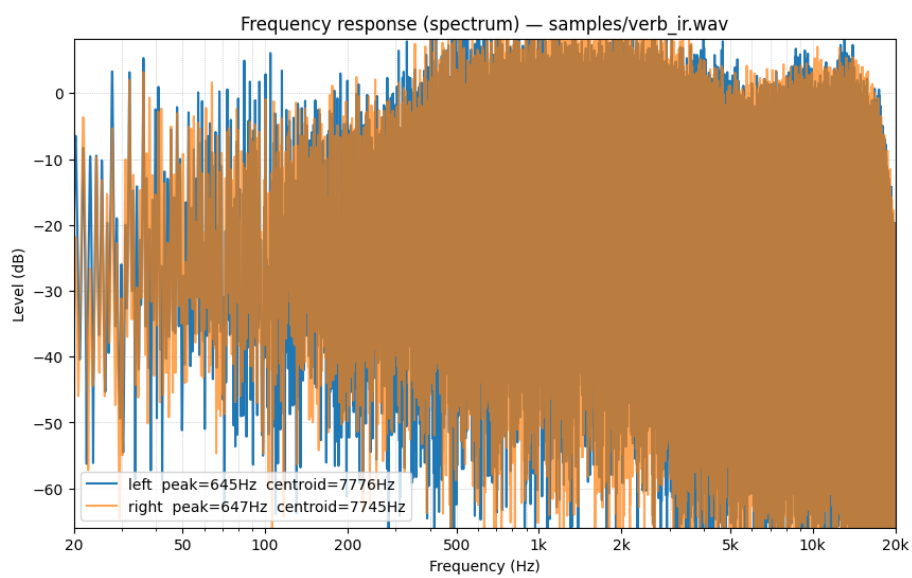


Figure 6: Frequency response spectrum

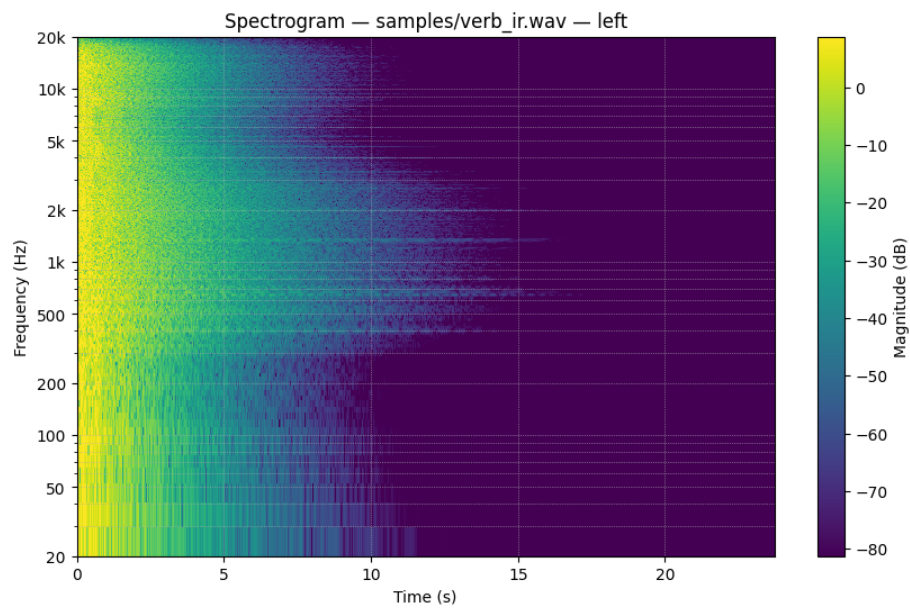


Figure 7: Spectrogram (left)

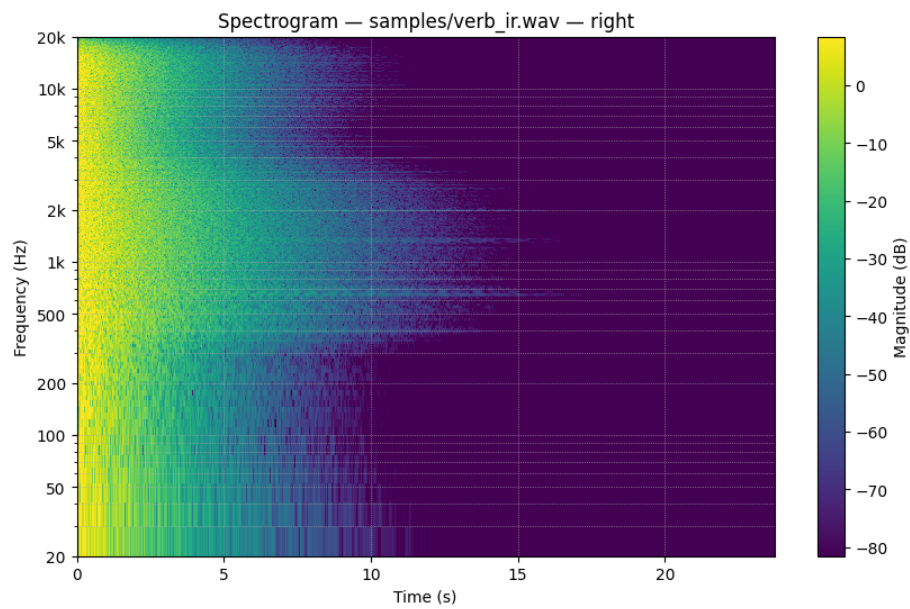


Figure 8: Spectrogram (right)

## Waterfall

Waterfall — samples/verb\_ir.wav — left

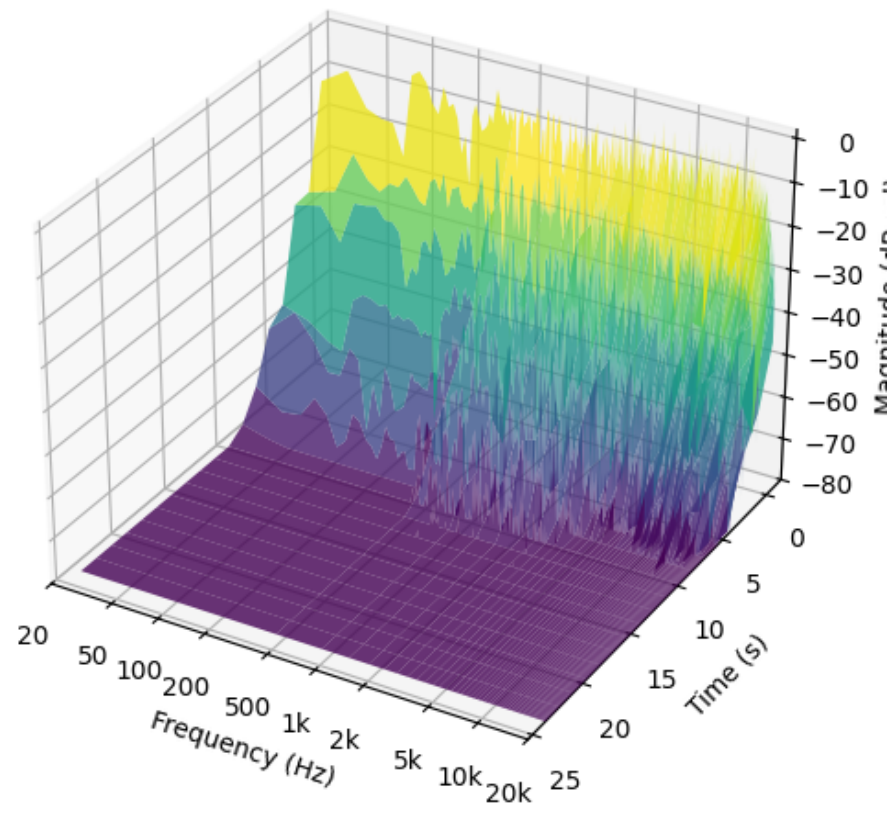


Figure 9: Waterfall plot (left)

```
[left] start_sample=9287 dur=23.803s slices=18 f_bins=1705  
[right] start_sample=9025 dur=23.809s slices=18 f_bins=1705
```

## Diffusion / echo density proxy

```
[left]  
  median_max_abs_autocorr=0.854  
  median_echo_density=1.002  
  median_corr0=0.053  
  median_iacc_max=0.158  
[right]
```

Waterfall — samples/verb\_ir.wav — right

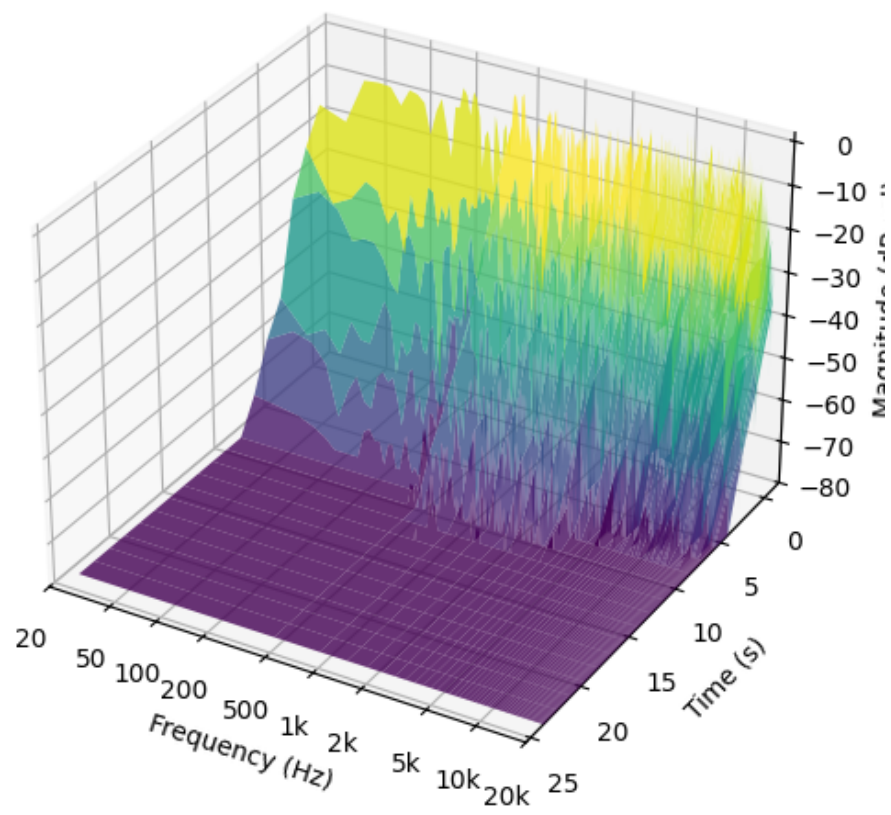


Figure 10: Waterfall plot (right)

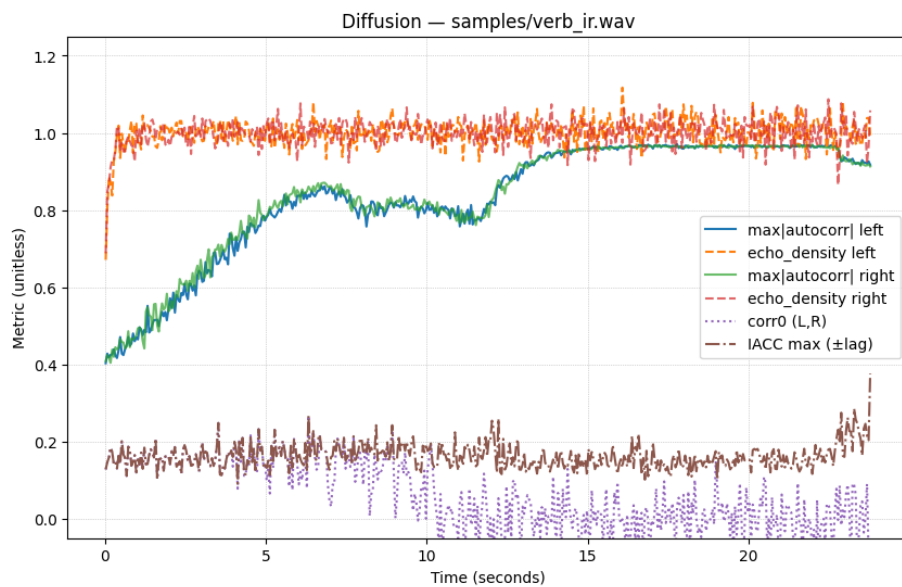


Figure 11: Diffusion metrics over time

```
median_max_abs_autocorr=0.862
median_echo_density=1.003
median_corr0=0.053
median_iacc_max=0.158
```

## Modal cloud

```
[left] metric=t30 start_sample=9287 dur=23.803s points=190
      rt60: median=7.573s p90=9.309s max=17.050s
[right] metric=t30 start_sample=9025 dur=23.809s points=188
      rt60: median=7.421s p90=9.247s max=10.182s
```



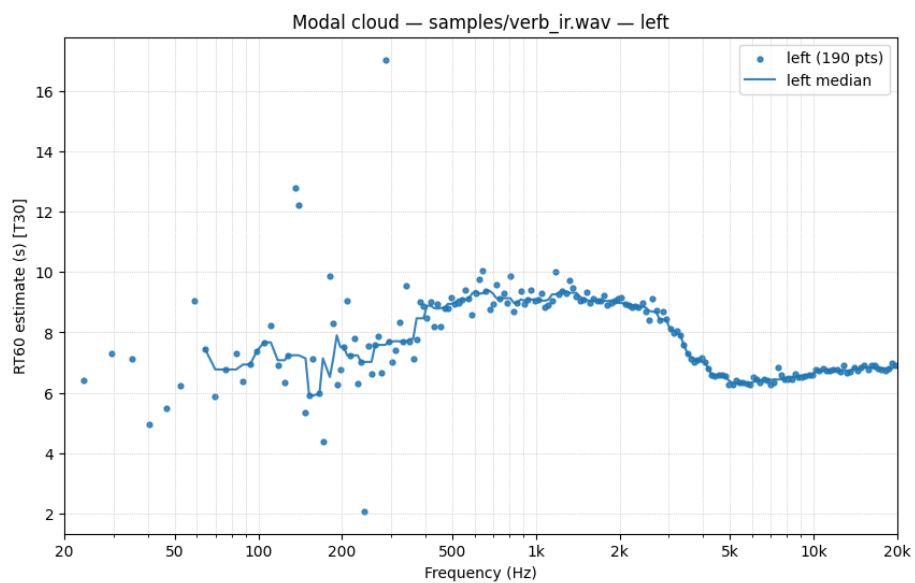


Figure 12: Modal cloud (left)

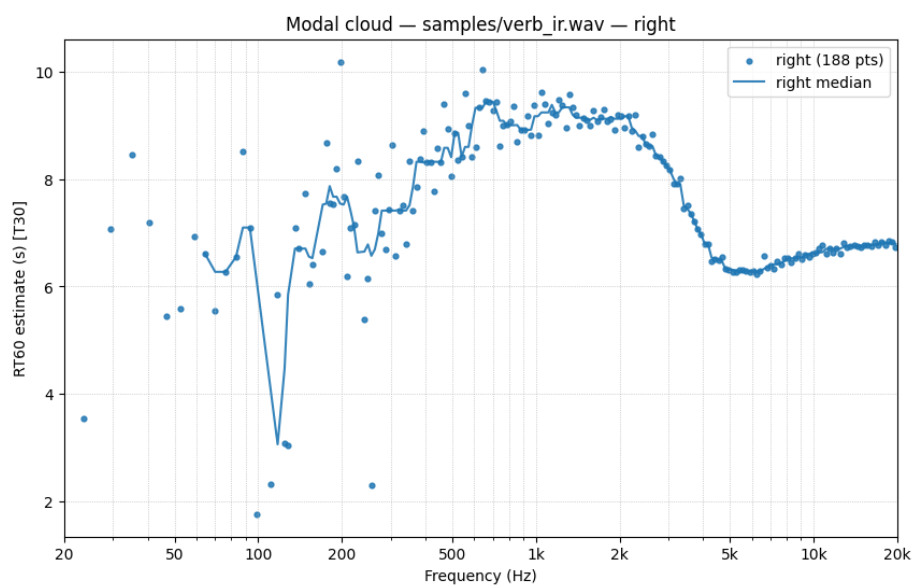


Figure 13: Modal cloud (right)