

Parliament Hill measurements

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Introduction

- **Different Parliament sessions were recorded during the period July 21st to July 24th, 2020.**
- **Official video recordings of the sessions were provided by the Translation Bureau.**
- **Subjective comparison was performed for all sessions and the recorded data using NRC laboratory grade equipment was analyzed.**
- **This first campaign allowed a better understanding of the constraints and the working environment of the translators for an efficient preparation of a test procedure to thoroughly assess the behaviour of different interpretation consoles deployed on the Parliament Hill.**

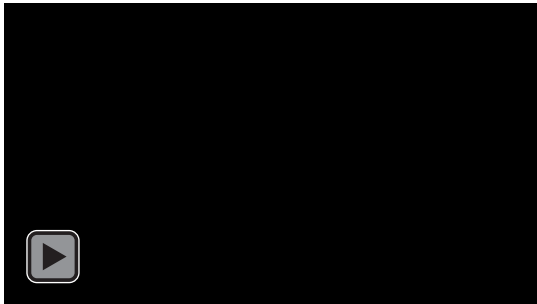
Executive summary

- **NRC data acquisition system was prepared and deployed for four days to record Parliament sessions.**
- **Sound pressure levels exposure and preliminary assessment of the acoustic environment of the Translation Bureau booths was assessed through data acquisition and data analysis in preparation for a more detailed data acquisition and performance characterization to be performed in the next phase of the project (Phase III).**
- **It was observed that the translators are not exposing themselves to sound levels that could threaten their hearing in the long term. The recorded sound levels at the entry of the ear were in the safe range, below 85 dBA, of steady noise level permitted for a full eight-hour work shift.**

Audio files comparison

Official video recording

21 July 2020 Room 035B



Official video recording

22 July 2020 Room 218B-1



Manikin recording (translator audio signal)

Translator eardrum

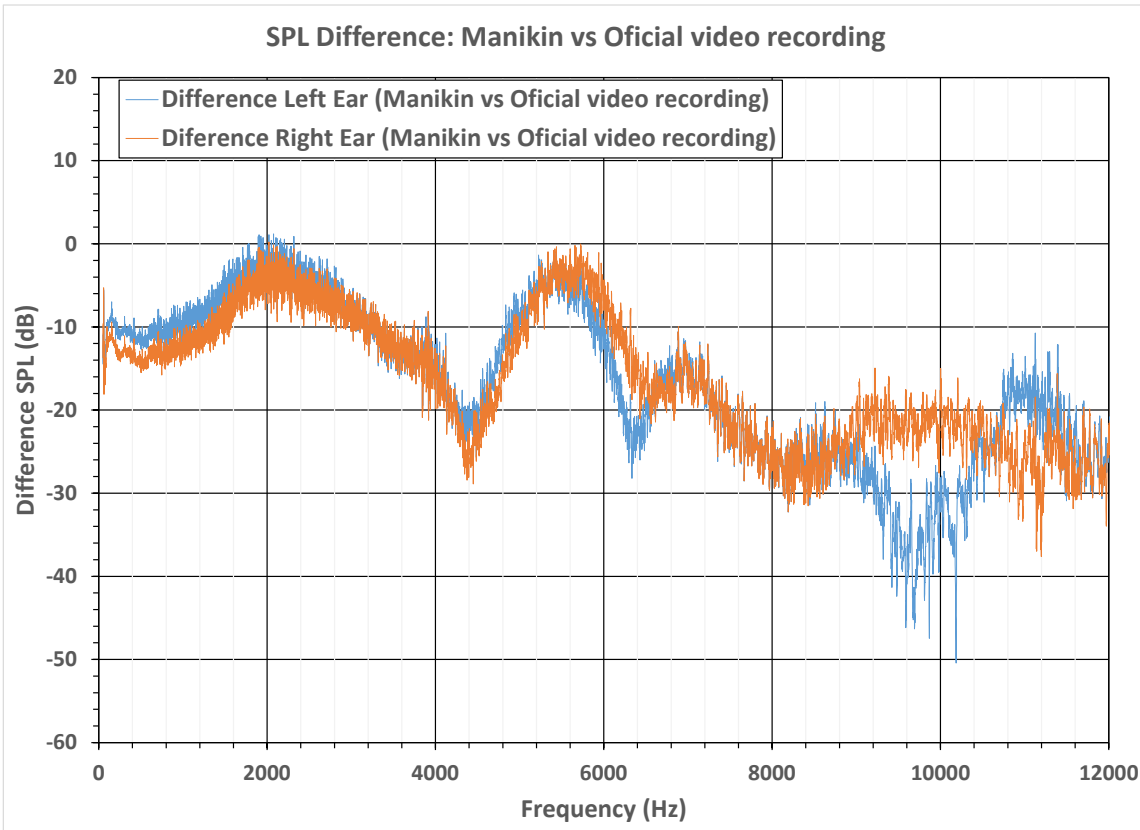


Manikin recording (translator audio signal)

Translator eardrum



SPL Difference: Manikin vs. the official video recording audio tracks (July 22nd, 2020)



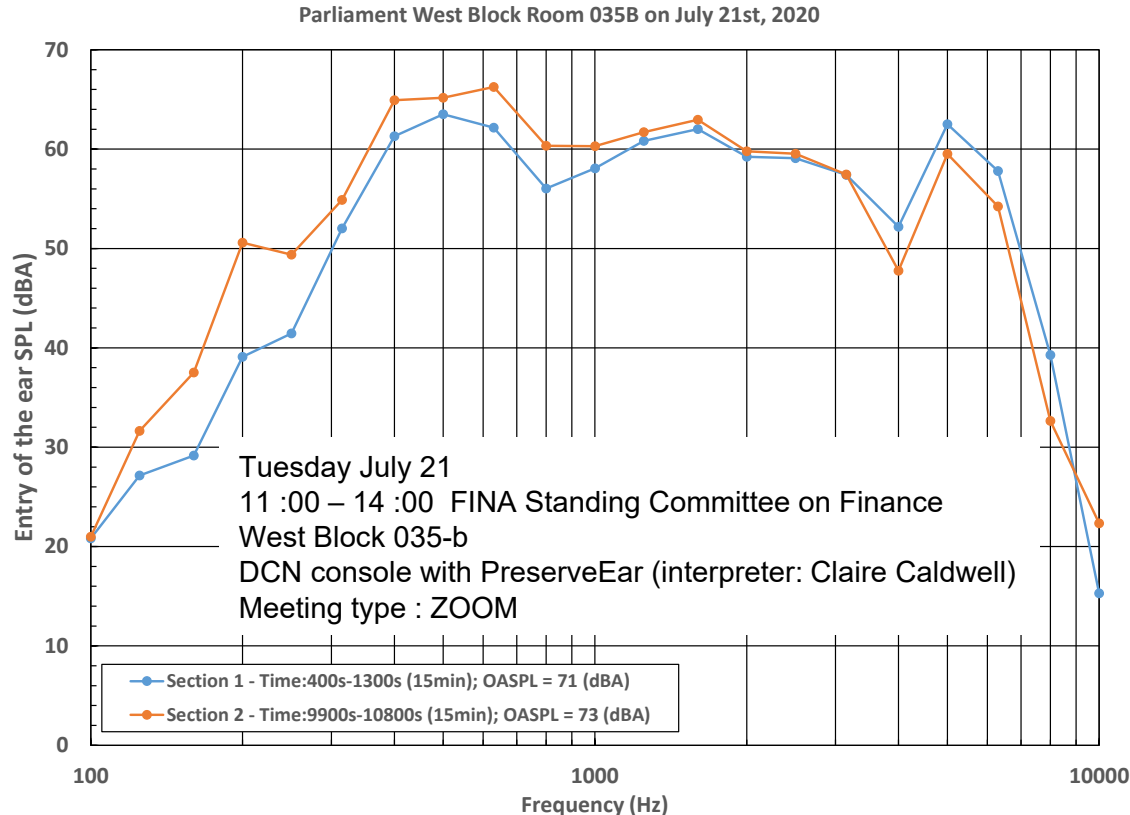
The SPL difference between the two audio tracks is consistent at almost all frequencies.

Some leaks (due to the imperfect headphone fitting) are observed at some frequencies.

The trends are showing that the audio signal reaching translator's ear is degraded by 10-20dB at some frequencies (probably due to room background noise). Therefore, further a thorough investigation of this issue is required.

This could affect the speech intelligibility and probably result in acoustic fatigue due to a more pronounced listening effort

Parliament West Block Room 035B on July 21st, 2020



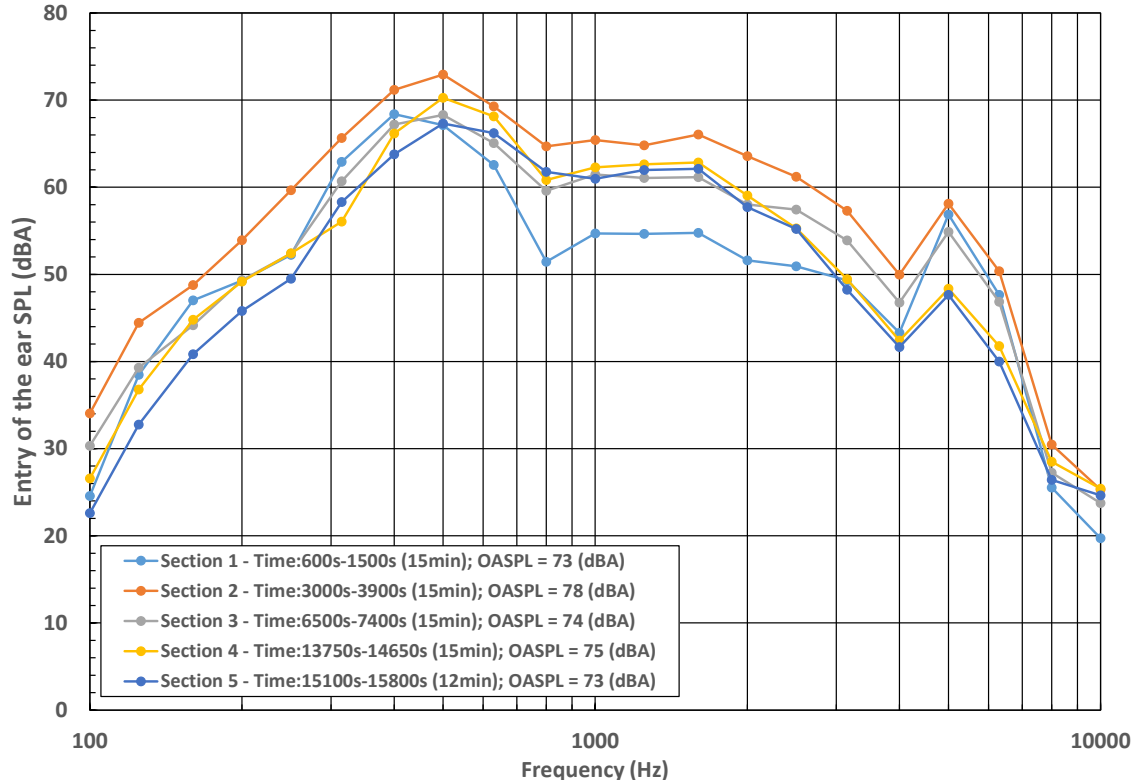
The Sound Pressure Spectra measured on July 21st 2020 didn't raise any concerns.

Section 1: The maximum 1/3rd octave band SPL was 63.5dB(A) at 500Hz. **OASPL = 71 dB(A).**

Section 2: The maximum 1/3rd octave band SPL was 66 dB(A) at 630Hz. **OASPL = 73 dB(A).**

Parliament West Block Room 218B-1 on July 22nd, 2020

Parliament West Block, Room 218B-1 - on July 22nd, 2020



Wednesday July 22

12 :00 – 16 :30 House of Commons sitting
West Block – House of Commons

Televic ISO compliant console without PreserveEar
(interpreter: Emilie Vachon)

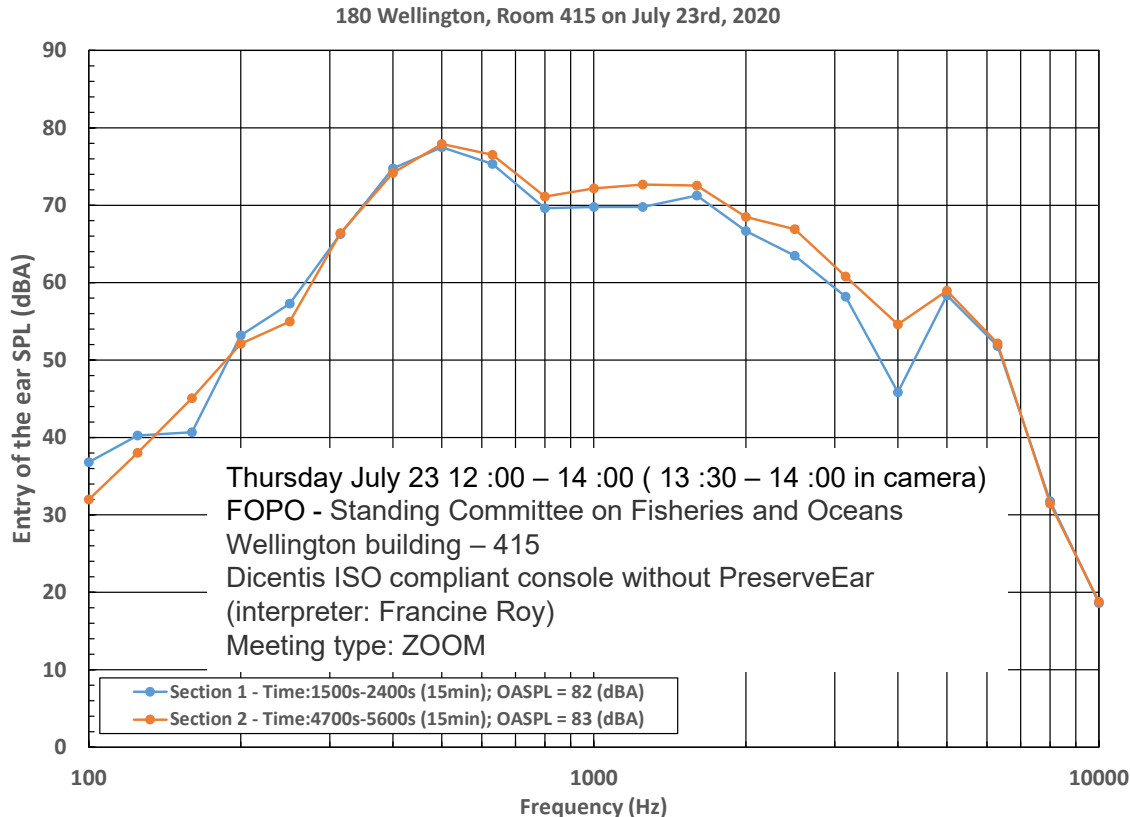
Meeting type: hybrid – ZOOM and in-person

The Sound Pressure Spectra measured on July 22nd 2020 didn't raise any concerns.

Section 2: The maximum 1/3rd octave band SPL was 73dB(A) at 500Hz. **OASPL = 78 dB(A).**

Section 4: The maximum 1/3rd octave band SPL was 70 dB(A) at 500Hz. **OASPL = 75 dB(A).**

180 Wellington, Room 415 on July 23rd, 2020



The Sound Pressure Spectra measured on July 21st 2020 didn't raise any concerns.

Section 1: The maximum 1/3rd octave band SPL was 77.5dB(A) at 500Hz. **OASPL = 82 dB(A).**

Section 2: The maximum 1/3rd octave band SPL was 78 dB(A) at 630Hz. **OASPL = 83 dB(A).**

Conclusions

The sound pressure level spectra measured during normal sessions had not raised any concerns with regard to the maximum levels that the translators are exposed to.

This indicated that the translators adopted a responsible approach and take very seriously care of their hearing health.

Future work

Further data acquisition within different Translation Bureau (TB) and Parliament translation booths would be required for a thorough characterization.

The transfer functions of the different audio systems will be measured to more precisely assess the audio signal degradation.

For the assessment of the teleconferencing situations, NRC will deploy a mobile data acquisition system: SCADAS XS with GPS time synchronization. It has to be discussed with the TB team how GPS time synchronization can be achieved on the Hill during teleconferencing.

Larsen effect events and sine amplitude jump tests will be conducted in all rooms to assess the system compliance with ISO 20109 and ISO DIS 20108.

Thank you!

