Cancellation path

1 Purpose

The purpose of the experiment is to determine the impulse response of of the cancellation path, i.e. the transfer-function between the 'source-loudspeaker' and the 'error-microphone (ear)'.

1.1 AAU number list

Item	Description	AAU-no.
1	"Valdemar"	2150-00
2	Sennheiser HD 200	33379
3	Roland Edirol UA-25EX Audio Capture	64696
4	Computer	NaN
5	Measurement Microphone	TBA

Table 1: Table over equipment used in test

1.2 Diagram

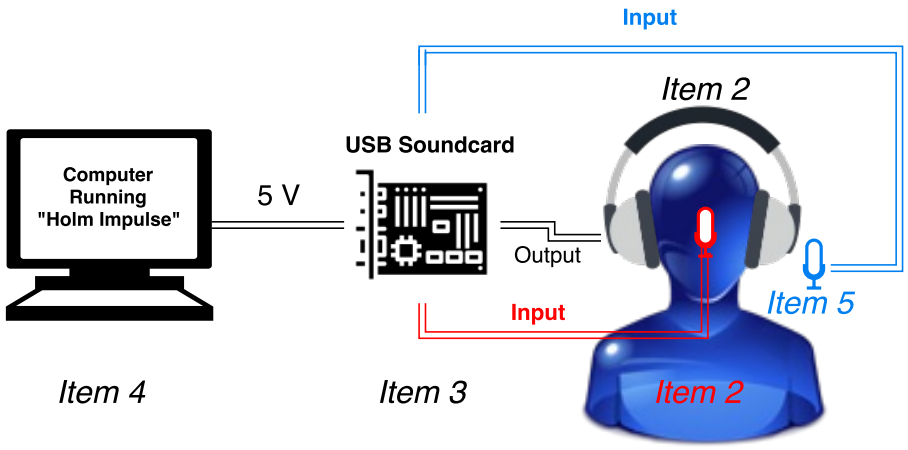

Figure 1: Preliminary Schematic of the Setup

1.3 Settings/Description

No instrument settings are required to be set at this moment.

1.4 Picture

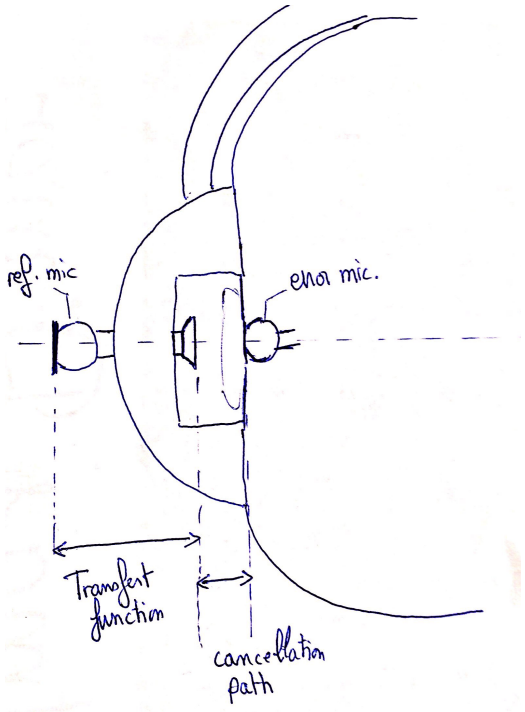

Figure 2: Preliminary Drawing (Picture) of the Setup

2 Procedure

1. Place item 2 onto "Valdemar's" (Item 1) ears
2. Insert item 1's phantom-connector into input of item 3
3. Insert item 2's jack-connector into output of item 3
4. Play "Test_Sound_1.wav" from computer through item 3
5. Record and save, and name "Cancellation_Path_1.wav" from item 3

3 Data Extraction

In MATLAB® run script: "Cancellation_Path_TF.m" and load file "Cancellation_Path_1.wav". This should yield the resulting transfer-function and other information about the cancellation-path in this set-up.

4 Analysis

This experiment determined the transfer-function of the cancellation-path.

5 Error Sources

- Placement of the instruments

- Instrument inaccuracies
- *TBA*

6 Conclusion

TBA

Headphone Transfer-Function

7 Purpose

The purpose of the experiment is to determine the impulse response of of the headphone, i.e. the transfer-function between the 'reference-microphone' and the 'source-loudspeaker'

7.1 AAU number list

Item	Description	AAU-no.
1	"Valdemar"	2150-00
2	Sennheiser HD 200	33379
3	Roland Edirol UA-25EX Audio Capture	64696
4	Computer	NaN
5	Measurement Microphone	TBA

Table 2: Table over equipment used in test

7.2 Diagram

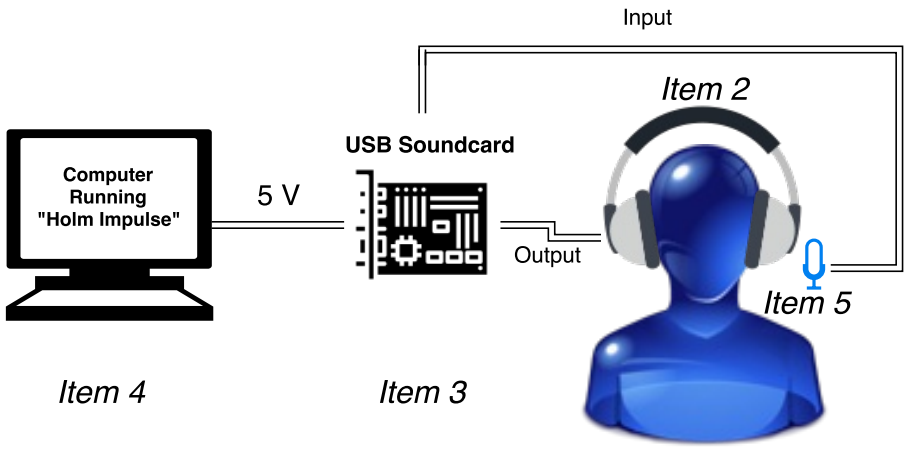

Figure 3: Schematic of the Setup

7.3 Settings/Description

No instrument settings are required to be set at this moment.

7.4 Picture

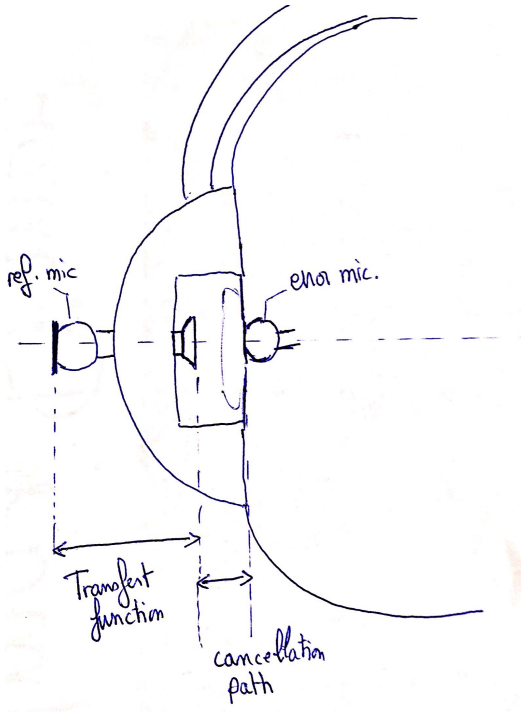

Figure 4: Preliminary Drawing (Picture) of the Setup

8 Procedure

1. Place item 5 onto item 2
2. Place item 2 onto "Valdemar's" (Item 1) ears
3. Insert item 2's jack-connector into output of item 3
4. Play "Test_File_2.wav" from computer through item 3
5. Record and save, and name "Headphone_Path_1.wav" from item 3

9 Data Extraction

In MATLAB® run script: "Headphone_TF.m" and load file "Headphone_Path_1.wav". This should yield the resulting transfer-function and other information about the headphones used in this set-up.

The script takes the sound played by the headphones (Item 2) , applies FFT, and takes the inverse of the result. This result is then convolved with the FFT of the sound picked up by the microphone (Item 5). This yields an impulse response, which is used to determine the transfer-function.

10 Analysis

This experiment determined the transfer-function of the headphones (Item 2).

11 Error Sources

- Placement of the instruments
- Instrument inaccuracies
- *TBA*

12 Conclusion

TBA