Appendices
Appendix A

PubMed:
#1 Hearing aid (technology)
OR “hearing impairment”[tiab]

#2 Listening effort
“Speech Perception”[Mesh] OR “Reflex, Pupillary”[Mesh] OR “listening effort”[tiab]
OR “perceptual effort”[tiab] OR “speech perception”[tiab] OR “speech discrimination”[tiab]
OR “speech understanding”[tiab] OR “auditory stress”[tiab] OR “auditory fatigue”[tiab]
OR “listening fatigue”[tiab] OR “cognitive load”[tiab] OR “Speech Acoustics”[tiab]
OR “Speech Intelligibility”[tiab] OR “Pupillary reflex”[tiab] OR “ease of listening”[tiab]
OR “Memory”[Mesh:NoExp] OR memory[tiab]

EMBASE.com:
#1 Hearing aid (technology)
‘hearing aid'/de OR ‘background noise’:ti,ab OR ‘noise reduction’:ti,ab OR ‘hearing aid’:ti,ab
OR ‘hearing aids’:ti,ab OR ‘hearing loss’:ti,ab OR ‘hearing impaired’:ti,ab

#2 Listening effort
‘speech perception'/exp OR ‘pupil reflex'/exp OR ‘listening effort’:ti,ab OR ‘perceptual effort’:ti,ab
OR ‘speech perception’:ti,ab OR ‘speech discrimination’:ti,ab OR ‘speech understanding’:ti,ab
OR ‘auditory stress’:ti,ab OR ‘auditory fatigue’:ti,ab OR ‘listening fatigue’:ti,ab
OR ‘cognitive load’:ti,ab OR ‘Speech Acoustics’:ti,ab OR ‘Speech Intelligibility’:ti,ab
OR ‘Pupillary reflex’:ti,ab OR ‘ease of listening’:ti,ab OR ‘memory’:ti,ab

Cinahl:
#1 Hearing aid (technology)
(MH “Hearing Aids”) OR (MH “Auditory Brain Stem Implants”) OR TI (“background noise”
OR “noise reduction” OR “hearing aid” OR “hearing aids” OR “hearing loss” OR “hearing impaired”
OR “hearing impairment”) OR AB (“background noise” OR “noise reduction”
OR “hearing aid” OR “hearing aids” OR “hearing loss” OR “hearing impaired”)

#2 Listening effort
(MH “Speech Perception”) OR (MH “Reflex, Pupillary”) OR (MH “Memory”) OR TI (“listening effort”
OR “perceptual effort” OR “speech perception” OR “speech discrimination”
OR “speech understanding” OR “auditory stress” OR “auditory fatigue” OR “listening fatigue”
OR “cognitive load” OR “Speech Acoustics” OR “Speech Intelligibility” OR “Pupillary reflex” OR
“ease of listening” OR memory) OR AB (“listening effort” OR “perceptual effort” OR “speech perception”
OR “speech discrimination” OR “speech understanding” OR “auditory stress”
OR “auditory fatigue” OR “listening fatigue” OR “cognitive load” OR “Speech Acoustics” OR “Speech Intelligibility”
OR “Pupillary reflex” OR “ease of listening” OR memory)
#1 Hearing aid (technology)
DE “Hearing Aids” OR TI (“background noise” OR “noise reduction” OR “hearing aid” OR “hearing aids” OR “hearing loss” OR “hearing impaired” OR “hearing impairment”) OR AB (“background noise” OR “noise reduction” OR “hearing aid” OR “hearing aids” OR “hearing loss” OR “hearing impaired” OR “hearing impairment”)

#2 Listening effort
(DE “Speech Perception”) OR (DE “Memory”) OR TI (“pupillary reflex” OR “listening effort” OR “perceptual effort” OR “speech perception” OR “speech discrimination” OR “speech understanding” OR “auditory stress” OR “auditory fatigue” OR “listening fatigue” OR “cognitive load” OR “Speech Acoustics” OR “Speech Intelligibility” OR “Pupillary reflex” OR “ease of listening” OR memory) OR AB (“pupillary reflex” OR “listening effort” OR “perceptual effort” OR “speech perception” OR “speech discrimination” OR “speech understanding” OR “auditory stress” OR “auditory fatigue” OR “listening fatigue” OR “cognitive load” OR “Speech Acoustics” OR “Speech Intelligibility” OR “Pupillary reflex” OR “ease of listening” OR memory)

Cochrane Library:
#1 Hearing aid (technology)
“background noise” OR “noise reduction” OR “hearing aid” OR “hearing aids” OR “hearing loss” OR “hearing impaired” OR “hearing impairment”

#2 Listening effort
“Speech Perception” OR “Pupillary reflex” OR “listening effort” OR “perceptual effort” OR “speech perception” OR “speech discrimination” OR “speech understanding” OR “auditory stress” OR “auditory fatigue” OR “listening fatigue” OR “cognitive load” OR “Speech Acoustics” OR “Speech Intelligibility” OR “ease of listening” OR memory

#4 excluded publication types
Appendix B

Beta estimates on the performance scores and PPD for each SNR show the mean differences between NH and HI listeners. The lowest SNR for each masker type was the corresponding reference SNR.

Beta estimates as provided by the LMM analysis for the stationary noise masker.

<table>
<thead>
<tr>
<th>SNRs [dB] compared to reference SNR</th>
<th>-12</th>
<th>-8</th>
<th>-4</th>
<th>0</th>
<th>+4</th>
<th>+8</th>
<th>+12</th>
<th>+16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta estimates on performance scores</td>
<td>3.45</td>
<td>22.54</td>
<td>23.20</td>
<td>8.99</td>
<td>1.67</td>
<td>0.79</td>
<td>-0.46</td>
<td></td>
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<tr>
<td>Beta estimates for PPD</td>
<td>-0.026</td>
<td>-0.019</td>
<td>-0.092</td>
<td>-0.079</td>
<td>-0.074</td>
<td>-0.061</td>
<td>-0.091</td>
<td></td>
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Beta estimates as provided by the LMM analysis for the single-talker masker.

<table>
<thead>
<tr>
<th>SNRs [dB] compared to reference SNR</th>
<th>-25</th>
<th>-20</th>
<th>-15</th>
<th>-10</th>
<th>-5</th>
<th>0</th>
<th>+5</th>
<th>+10</th>
<th>+15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta estimates on performance scores</td>
<td>3.55</td>
<td>23.24</td>
<td>42.67</td>
<td>48.57</td>
<td>30.31</td>
<td>15.81</td>
<td>1.01</td>
<td>1.95</td>
<td></td>
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<tr>
<td>Beta estimates for PPD</td>
<td>0.04</td>
<td>0.08</td>
<td>0.01</td>
<td>-0.04</td>
<td>-0.07</td>
<td>-0.08</td>
<td>-0.05</td>
<td>-0.05</td>
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Beta estimates as provided by the LMM analysis for both masker types: stationary versus single-talker masker.

<table>
<thead>
<tr>
<th>SNRs [dB] compared to reference SNR</th>
<th>-10</th>
<th>0</th>
<th>+5</th>
<th>+10</th>
<th>+15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta estimates on performance scores, single-talker masker</td>
<td>19.68</td>
<td>22.93</td>
<td>26.89</td>
<td>39.39</td>
<td>38.04</td>
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<tr>
<td>Beta estimates for PPD, single-talker masker</td>
<td>0.12</td>
<td>0.04</td>
<td>0.04</td>
<td>0.01</td>
<td>0.05</td>
</tr>
</tbody>
</table>
Appendix C

Beta estimates on the sentence recognition performance scores and PPD for each SNR level show the mean differences between inactive and active noise reduction scheme setting. The SNR levels are compared to the lowest SNR at -12 dB.

<table>
<thead>
<tr>
<th>SNRs [dB] compared to reference SNR -12 dB</th>
<th>-8</th>
<th>-4</th>
<th>0</th>
<th>+4</th>
<th>+8</th>
<th>+12</th>
<th>+16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beta estimates for performance in stationary noise masker</td>
<td>-33.68</td>
<td>-40.57</td>
<td>-5.68</td>
<td>7.92</td>
<td>11.03</td>
<td>11.67</td>
<td>11.40</td>
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<td>Beta estimates for performance in the 4-talker masker</td>
<td>-26.57</td>
<td>-46.05</td>
<td>-20.73</td>
<td>-4.07</td>
<td>4.57</td>
<td>4.40</td>
<td>5.97</td>
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<tr>
<td>Beta estimates for the PPD collapsed across stationary noise masker and the 4-talker masker</td>
<td>-0.03</td>
<td>0.04</td>
<td>0.08</td>
<td>0.05</td>
<td>0.03</td>
<td>0.01</td>
<td>0.03</td>
</tr>
</tbody>
</table>