Substantially Identical Portions of Petition pages 24-31 and 44-45 and Ex. 1008 pages 48-56 and 69-70

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of a stored hearing aid profile from the plurality of hearing aid profiles. The selection of a hearing aid profile could be, for example, in response to the current sound environment of the hearing aid user, as taught by Mangold. Mangold, Ex. 1007 at 1:40-49 (disclosing "environmentally selected events, such as selection of settings, parameters, or algorithms, where such selection is based on an automatic computation in response to the current sound environment of the wearer"), 3:49-66, Fig. 3. Providing a plurality of hearing aid profiles would allow, for example, a profile to be selected based on the hearing aid user's current sound environment to better compensate for hearing loss in that environment. *See id.* at 1:45-49. Atlas Decl., Ex. 1008, ¶ 116. **G. [1.5.2] "apply a first one of a sequence of incremental hearing correction filters to the modulated electrical signals to produce a modulated output signal to reduce the amplitude of the modulated electrical signals produced by the selected hearing aid profile to a first level that is less than a level to compensate for the hearing impairment of the user"** Fichtl discloses this limitation. Fichtl's controller is programmed to execute an acclimatization algorithm where the amount of compensation for the user's hearing loss increases over time. Fichtl, Ex. 1003 at Abstract ("The intensity of the hearing device is increased in the long term"), 3:32-34 ("controller 6 is adapted to execute an acclimatization algorithm . . ."), 4:25-26 ("acclimatization process is controlled by software being executed on the controller 6"). As represented by the curve marked "X" plotted on the graph depicted in Fig. 2, the acclimatization Petition – IPR of U.S. Patent No. 8,654,999 Page 24 ActiveUS 160673479v.1	**E. [Claim 1.5.2] "apply a first one of a sequence of incremental hearing correction filters to the modulated electrical signals to produce a modulated output signal to reduce the amplitude of the modulated electrical signals produced by the selected hearing aid** 48 **profile to a first level that is less than a level to compensate for the hearing impairment of the user"** 117. Fichtl discloses a hearing aid with a processor that executes stored instructions to "apply a first one of a sequence of incremental hearing correction filters to the modulated electrical signals to produce a modulated output signal to reduce the amplitude of the modulated electrical signals produced by the selected hearing aid profile to a first level that is less than a level to compensate for the hearing impairment of the user." 118. Fichtl's controller is programmed to execute an acclimatization algorithm where the amount of compensation for the user's hearing loss increases automatically over time. Fichtl, Ex. 1003 at Abstract ("The intensity of the hearing device is increased in the long term"); 3:32-34 ("controller 6 is adapted to execute an acclimatization algorithm . . ."); 4:25-26 ("acclimatization process is controlled by software being executed on the controller 6"). As represented by the curve marked "X" on the graph depicted in Fig. 2, the acclimatization algorithm executed by controller 6 increases the value of an APP over time. *Id.* at Fig. 2, 3:35-36 ("FIG. 2 shows how an audio processing parameter APP is changed over time in a hearing device 1"); 3:42-4:15; 4:25-67. An intermediate value X is increased slowly while the hearing aid is on and held constant, stored in memory, while the hearing aid is off, such that each time the hearing aid is turned on the APP is set to 49

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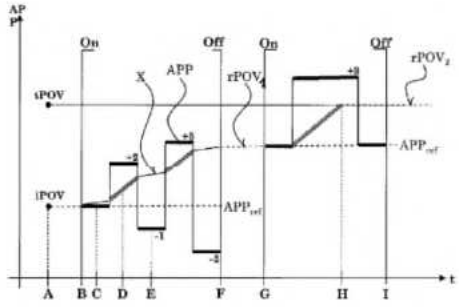
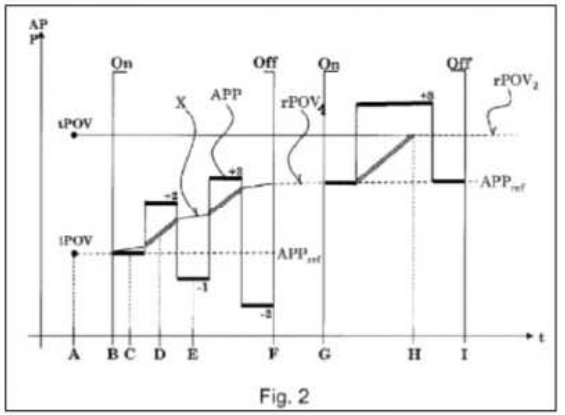
algorithm executed by controller 6 increases the value of an APP over time. *Id.* at Fig. 2, 3:35-36 ("FIG. 2 shows how an audio processing parameter APP is changed over time in a hearing device 1"), 3:42-4:15, 4:25-67. In particular, an intermediate value X is slowly increased while the hearing aid is on and held constant in memory while the hearing aid is off, such that each time the hearing aid is turned on, the APP is set to the last value for X as stored in memory. *Id.* at Fig. 2, 3:55-57, 3:66-4:7, 4:31-36, 4:41-53.  Fig. 2 Fichtl, Ex. 1003 Fig. 2	U.S. Patent 8,654,999 Declaration of Les Atlas, Ph.D. the last value for X as stored in memory. *Id.* at Fig. 2, 3:55-57, 3:66-4:7, 4:31-36, 4:41-53.  Fig. 2 **Fichtl, Ex. 1003, Figure 2**
As shown in Fig. 2, the APP starts at an initial power-on value (iPOV) selected to provide a smaller degree of compensation than the target power-on value (tPOV), which is the value for the APP corresponding to the selected hearing aid profile	119. As shown in Fig. 2, the APP starts at an initial power-on value (iPOV) selected to provide a smaller degree of compensation as compared to the target power-on value (tPOV) for the APP, which is the value for the APP corresponding to the selected hearing aid profile that compensates for the user's hearing impairment, and the compensation increases over time to a replacement power-on value (rPOV) each time the hearing aid us turned on until it reaches tPOV. Fichtl, Ex. 1003 at Fig. 2, 3:42-48 ("At time 'A,' a fitter programs an initial power-on
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that compensates for the user's hearing impairment. *Id.* at Fig. 2, 3:42-48 ("At time 'A,' a fitter programs an initial power-on value iPOV for the audio processing parameter as well as a target power-on value tPOV…The target power-on value tPOV is, for example, 10 dB higher than the initial power-on value iPOV"), Abstract ("An initial power-on value (iPOV) and a target power-on value (tPOV), which is to be reached at the end (H) of the acclimatization phase, may be programmed by an audiologist."), 3:49-4:24, 4:25-67. The compensation increases over time to a replacement power-on-value (rPOV) each time the hearing aid is turned on until it reaches tPOV. *Id.* Processor 9 uses APP values provided by controller 6, including the reduced values iPOV and rPOV relative to tPOV generated by the acclimatization algorithm, to process sounds for the hearing device user. *Id.* at Fig. 2, 3:23-34. Thus, Fichtl's acclimatization algorithm corresponds to adjustments applied by controller 6 to the collection of APPs of processor 9 to reduce the level of correction provided to the hearing device user by application of the hearing aid profile. In other words, Fichtl's acclimatization algorithm as executed by controller 6 comprises a sequence of "hearing correction filters." Atlas Decl., Ex. 1008, ¶¶ 117-120. The APP adjusted by the acclimatization algorithm may correspond to, for example, volume or treble. Fichtl, Ex. 1003 at 3:42-47. A volume APP corresponds to the loudness, or amplitude, of the output signal. *Id.* at 3:25-26 Petition – IPR of U.S. Patent No. 8,654,999 Page 26 ActiveUS 160673479v.1	U.S. Patent 8,654,999 Declaration of Les Atlas, Ph.D. value iPOV for the audio processing parameter as well as a target power-on value tPOV…The target power-on value tPOV is, for example, 10 dB higher than the initial power-on value iPOV"), Abstract ("An initial power-on value (iPOV) and a target power-on value (tPOV), which is to be reached at the end (H) of the acclimatization phase, may be programmed by an audiologist."), 3:49-4:24, 4:25-67. Processor 9 uses APP values provided by controller 6, including the reduced values iPOV and rPOV relative to tPOV generated by the acclimatization algorithm, to process sounds for the hearing device user. *Id.* at Fig. 2; 3:23-34. 120. Fichtl's acclimatization algorithm corresponds to adjustments applied by controller 6 to the collection of APPs of processor 9 to reduce the level of correction provided to the hearing device user by application of the hearing aid profile. In other words, Fichtl's acclimatization algorithm as executed by controller 6 comprises a sequence of "hearing correction filters." Fichtl, Ex. 1003 at Fig. 2; 3:23-34. 121. The APP adjusted by the acclimatization algorithm may correspond to, for example, volume or treble. Fichtl, Ex. 1003 at 3:42-47. A volume APP corresponds to the loudness, or amplitude, of the output signal. *Id.* at 3:25-26 ("The magnitude of the amplification can be controlled by a volume control 4."), 3:44-48 ("The audio processing parameter APP is typically volume . . . . The target power-on value tPOV is, for example, 10 dB higher than the initial power-on value 51

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("The magnitude of the amplification can be controlled by a volume control 4."), 3:44-48 ("The audio processing parameter APP is typically volume . . . . The target power-on value tPOV is, for example, 10 dB higher than the initial power-on value iPOV."), 6:42-48 ("The adjustments in the first adjustment direction are implemented by applying a faster learning speed . . . . If the audio processing parameter APP is volume, the first adjustment direction is louder . . ."). A treble APP corresponds to the loudness, or amplitude, specifically of the higher frequencies. Atlas Decl., Ex. 1008, ¶ 121. By applying an intermediate value that is lower than a target value, tPOV, for the volume or treble APP, Fichtl provides a modulated output signal having a level that is within a range between an uncompensated output level and the desired output level. Thus, Fichtl's hearing correction filters are "incremental hearing correction filters" and are created as in the '999 Patent. Atlas Decl., Ex. 1008, ¶ 121; *see also* '999 Patent, Ex. 1001 at 3:32-41. Furthermore, the resulting output signal, corresponding to the lower, intermediate APP value, has a reduced amplitude relative to that which would have been produced with the target APP value tPOV corresponding to the selected hearing aid profile. Fichtl, Ex. 1003 at 3:35-4:24, Fig. 2. Thus, applying the intermediate APP value reduces the amplitude of the modulated signals to a level Petition – IPR of U.S. Patent No. 8,654,999 Page 27 ActiveUS 160673479v.1	U.S. Patent 8,654,999 Declaration of Les Atlas, Ph.D. iPOV."), 6:42-48 ("The adjustments in the first adjustment direction are implemented by applying a faster learning speed . . . . If the audio processing parameter APP is volume, the first adjustment direction is louder . . ."). A treble APP corresponds to the loudness, or amplitude, of the higher frequencies. By applying an intermediate value that is lower than a target value, tPOV, for the volume or treble APP, Fichtl provides a modulated output signal having a level that is within a range between an uncompensated output level and the desired output level. Therefore, due to the produced modulated output signal, Fichtl's hearing correction filters are "incremental hearing correction filters," and the modulated output signal is produced as in the '999 patent. *See* '999 patent, Ex. 1001 at 3:32-41. 122. Fichtl's hearing correction filters, corresponding to intermediate APP values, provide a modulated output signal with a reduced amplitude relative to the output signal that would be provided by Fichtl's hearing aid profile, corresponding to the target APP value tPOV. Fichtl, Ex. 1003 at 3:35-4:24, Fig. 2. Applying the intermediate APP value serves to reduce the amplitude of the modulated signals to a level less than a level to fully compensate for the hearing impairment of the user, as recited in this claim 1 limitation. *Id.* 123. To the extent this limitation is interpreted contrary to the proper construction of the term "hearing correction filter" so it requires applying a 52

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less than a level to compensate for the hearing impairment of the user, as recited in this limitation. Atlas Decl., Ex. 1008, ¶ 122. To the extent this limitation is interpreted contrary to the proper construction of the term "hearing correction filter" so it requires applying a hearing correction filter to electrical signals already modulated by a hearing aid profile, rather than to a hearing aid profile as properly construed, a POSA would have understood that achieving a reduced APP, such as volume or treble, could be implemented in a number of equivalent ways to obtain an output signal corresponding to any of the intermediate values for the APP. Atlas Decl., Ex. 1008, ¶ 123. The acclimatization takes an input signal I, and applies a target correction T reduced by R1, to obtain an output signal O. The acclimatization could be applied as an adjustment to the target power-on value that is applied either before or after applying the target correction (that is, apply R1 to the input signal and then T, or apply T to the input signal and then R1). Or, the acclimatization could be applied by adjusting the target correction by the reduction amount, and applying that result to the input signal. In simple terms: O = (I*R1)*T [apply reduction first] O = (I*T)*R1 [apply reduction second, alternative claim interpretation] O = I*(T*R1) [create adjustment value as in Fichtl and proper claim interpretation] Petition – IPR of U.S. Patent No. 8,654,999 Page 28 ActiveUS 160673479v.1	U.S. Patent 8,654,999 Declaration of Les Atlas, Ph.D. hearing correction filter to electrical signals already modulated by a hearing aid profile, rather than to a hearing aid profile as properly construed, a POSA would have understood that achieving a reduced APP, such as volume or treble, could be implemented in a number of equivalent ways to obtain an output signal corresponding to any of the intermediate values for the APP. The acclimatization takes an input signal I, and applies a target correction T reduced by R1, to obtain an output signal O. The acclimatization could be applied as an adjustment to the target power-on value that is applied either before or after applying the target correction (that is, apply R1 to the input signal and then T, or apply T to the input signal and then R1). Alternatively, the acclimatization could be applied by adjusting the target correction by the reduction amount, and applying that result to the input signal. In simple terms: O = (I*R1)*T [apply reduction first] O = (I*T)*R1 [apply reduction second, alternative claim interpretation] O = I*(T*R1) [create adjustment value as in Fichtl and proper claim interpretation] The key is that the output signal O can be achieved by any of the three possible applications. 124. A POSA would have understood that the same resulting modulated output signal O could be achieved regardless of the order of application of incremental hearing correction filter, hearing correction filter, or hearing aid 53

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