CLAIMS

1. A hearing aid comprising:

    - first wireless link means configured to receive a first data signal using a first carrier frequency;
    - second wireless link means configured to receive a second data signal using a second carrier frequency; wherein the second wireless link means comprises frequency mixing means configured such that a frequency mixed signal with a down-mixed intermediate carrier frequency is provided, wherein the down-mixed intermediate carrier frequency corresponds to the first carrier frequency of the first wireless link means.

2. The hearing aid according to claim 1, wherein the second wireless link means comprises a first band pass filter that comprises an electrical antenna of the first wireless link means.

3. The hearing aid according to claim 2, wherein said first band pass filter is configured to pass said down-mixed intermediate carrier frequency of the frequency mixed signal.

4. The hearing aid according to ~~any one of the preceding claims~~claim 2 or claim 3, wherein the electrical antenna of the first wireless link means is adapted for receiving an inductive wireless signal.

5. The hearing aid according to ~~claim 5~~any one of the claims 2 to 4, wherein the electrical antenna of the first wireless link means is a coil.

6. The hearing aid according to any one of the claims 2 to 5, wherein the frequency mixed signal is coupled to the electrical antenna of the first wireless link means.

7. The hearing aid according to claim to any one of the preceding claims, wherein said second wireless link means comprises a second band pass filter positioned up stream of the first band pass filter.

8. The hearing aid according to claim 7, wherein said second band pass filter is positioned downstream of the frequency mixing means and configured to filter out an image of the frequency mixed signal.

9. The hearing aid according to claim 7, wherein said second band pass filter is positioned up stream of the frequency mixing means and configured to filter out noise signals picked up by an antenna of the second wireless link means.

10. The hearing aid according to any one of the preceding claims wherein said first data signal and said second data signal are demodulated using the same digital modulation means.

11. The hearing aid according to any one of the preceding claims wherein said first data signal and said second data signal are decoded using the same wireless protocol means.

12. The hearing aid according to any one of the preceding claims wherein said first carrier frequency is in the range between 0.5 and 30 MHz, preferably in the range between 3 and 12 MHz.

13. The hearing aid according to any one of the preceding claims wherein said second carrier frequency is in the range between 400 MHz and 5 GHz, preferably in the range between 850 and 950 MHz.

14. A hearing aid ~~comprising~~according to any one of the claims 2 to 13,~~:~~

~~• first wireless link means configured to receive a first data signal using a first carrier frequency;~~

~~• second wireless link means configured to receive a second data signal using a second carrier frequency;~~

wherein ~~a~~ the first electrical antenna of the first wireless link means also forms part of ~~a~~ the first band pass filter of the second wireless link means.

15. A binaural hearing aid system comprising a first hearing aid, according to any one of the preceding claims and a second hearing aid, wherein said first wireless link means is configured to exchange data between said first and said second hearing aid.

16. The binaural hearing aid system according to claim 15, wherein said second wireless link means is configured to exchange data with a hearing aid fitting system.

17. The binaural hearing aid system according to claim 15, wherein said second wireless link means is configured to receive data representing audio from an external source.

18. A method of receiving a first wireless signal and a second wireless signal in a hearing aid comprising the steps of

- ~~receving~~receiving a first wireless signal, having a first carrier frequency, using a first electrical antenna;
- receiving a second wireless signal, having a second carrier frequency, using a second electrical antenna;
- frequency mixing said second wireless signal, hereby providing a frequency mixed signal with a down-mixed intermediate carrier frequency, wherein the down-mixed intermediate carrier frequency corresponds to the first carrier frequency of the first wireless link means;
- band pass filtering said frequency mixed signal using a band pass filter, wherein said band pass filter comprises said first electrical antenna and is configured to pass said down-mixed intermediate carrier frequency, hereby providing a frequency down-mixed signal;
- demodulating and decoding said first wireless signal using first demodulating and decoding means; and
- demodulating and decoding said frequency down-mixed signal using said first demodulating and decoding means.