CLAIMS

1. An audio device comprising:

a first earbud configured to:

establish a first wireless link with an audio source; and

receive, from the audio source, audio information over the first wireless link;

a second earbud configured to:

establish a second wireless link with the audio source; and

receive, from the audio source, audio information over the second wireless link,

wherein the first earbud and the second earbud are further configured to communicate with one another over a third wireless link;

wherein at least one of the first earbud and the second earbud comprises:

a measurement circuit configured to measure respective signal strengths of the first, second and third wireless links;

a computation circuit configured to compute a difference in signal strengths of the first and second wireless links; and

a determination circuit configured to determine an operating environment of the audio device is an open field environment which is void of any reflectors for Radio Frequency signals based on the computed difference and further based on the signal strength of the third wireless link.

2. The audio device of claim 1, wherein the determination circuit is further configured to determine that the operating environment is the open field environment, based on determining that the computed difference exceeds a first threshold and further based on determining that the signal strength of the third wireless link is less than a second threshold;

determine that the operating environment is an indoor environment which comprises at least one reflector for Radio Frequency signals based on determining that the computed difference does not exceed the first threshold or determining that the computed difference exceeds the first threshold and the signal strength of the third wireless link is not less than then second threshold.

3. The audio device of claim 2, wherein the first threshold is in a range of 6dB to 10dB.

4. The audio device of claim 2 or 3, wherein the second threshold is equal to, or lower than -85dB.

5. The audio device of any one of claims 1 to 4, wherein both the first earbud and the second earbuds comprise:

a respective measurement circuit;

a respective computation circuit; and

a respective determination circuit.

6. The audio device of any one of claims 1 to 5, wherein at least one of the first earbud and the second earbud comprises:

a controller circuit configured to control the first earbud to operate in a slave mode and to control the second earbud to operate in a master mode, based on the determination circuit determining that the signal strength of the first wireless link is lower than the signal strength of the second wireless link and the operating environment of the audio device is the open field environment.

7. The audio device of claim 6,

wherein the first earbud, when operating in the slave mode, is configured to transmit link information about the first wireless link to the second earbud operating in the master mode over the third wireless link, and

wherein the second earbud, when operating in the master mode, is configured to receive the link information about the first wireless link from the first earbud operating in the slave mode and is further configured to transmit status information that includes the received link information, to the audio source over the second wireless link.

8. The audio device of claim 6,

wherein the first earbud, when operating in the slave mode, is configured to stop receiving audio information over the first wireless link, and

wherein the second earbud, when operating in the master mode, is configured to relay the audio information received from the audio source, to the first earbud over the third wireless link.

9. The audio device of any one of claims 1 to 8, wherein the determination circuit is further configured to determine that the audio source is playing an audio-visual media, based on determining that the signal strengths of each the first and second wireless links exceed a first media threshold and further based on determining that the computed difference is less than a second media threshold.

10. The audio device of claim 9, wherein the first media threshold is -70dB.

11. The audio device of claim 9 or 10, wherein the second media threshold is -85dB.

12. The audio device of any one of claims 1 to 11, wherein the determination circuit is further configured to determine that the audio source is playing an audio-only media, based on determining that the signal strengths of each of the first and second wireless links are equal to, or below a first media threshold.

13. The audio device of claim 12, wherein at least one of the first and second earbuds comprises:

a buffer controller configured to increase a buffer size of the audio device based on the determined operating environment and further based on determining that the audio source is playing an audio-only media.

14. The audio device of any one of claims 1 to 13, wherein at least one of the first and second earbuds comprises:

an operation mode controller configured to switch the audio device to operate in a sleep mode, based on the determination circuit determining that the signal strength of the third wireless link is larger than a sleep mode threshold continuously during a predefined duration,

wherein in the sleep mode, the first and second wireless links are disconnected.

15. The audio device of claim 14,

wherein the measurement circuit is configured to measure the signal strength of the third wireless link in the sleep mode,

wherein the operation mode controller is further configured to switch the audio device to operate in an active mode, based on the determination circuit determining that the signal strength of the third wireless link in the sleep mode is lower than an active mode threshold, and

wherein in the active mode, the first and second wireless links are established with the audio source.

16. The audio device of claim 15, wherein the active mode threshold is 10dB lower than the sleep mode threshold.

17. The audio device of claim 14, wherein the sleep mode threshold is -50dB.

18. The audio device of claim 14, wherein the predefined duration is 20 to 30 seconds.