WHAT IS CLAIMED IS:

1. A device configured to process one or more audio streams, the device comprising:

a memory configured to store the one or more audio streams; and

one or more processors coupled to the memory, and configured to:

receive the one or more audio streams from audio elements represented in an acoustic environment that comprises one or more sub-acoustic spaces, each of the one or more audio streams representative of a respective soundfield;

determine unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams;

determine restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams;

generate the corresponding respective soundfields of the unrestricted audio streams; and

restrict playback of the corresponding respective soundfields of the restricted audio streams.

2. The device of claim 1, wherein the privacy restriction associated with the one or more audio streams are embedded in the one or more audio streams, and wherein the one or more processors are further configured to:

extract the privacy restrictions from the one or more audio streams.

3. The device of claim 1, wherein the one or more processors are configured to:

receive metadata that includes the privacy restrictions associated with the one or more audio streams.

4. The device of claim 1, wherein to restrict playback of the corresponding respective soundfields of the restricted audio streams, the one or more processors are further configured to:

toggle off the restricted audio streams.

~~5. The device of claim 1, wherein to restrict playback of the corresponding respective soundfields of the restricted audio streams, the one or more processors are further configured to:~~

~~mask the restricted audio streams.~~

~~6. The device of claim 1, wherein to restrict playback of the corresponding respective soundfields of the restricted audio streams, the one or more processors are further configured to:~~

~~null the restricted audio streams.~~

~~7. The device of claim 1, wherein to restrict playback of the corresponding respective soundfields of the restricted audio streams, the one or more processors are further configured to:~~

~~apply an acoustic occluder to the restricted audio streams.~~

~~8. The device of claim 1, wherein the privacy restrictions indicate if one or more of the one or more audio streams are restricted or unrestricted for each of a plurality of privacy settings ranks, and wherein the one or more processors are further configured to:~~

~~determine a privacy setting rank from the plurality of privacy setting ranks;~~

~~determine unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams and the privacy setting rank; and~~

~~determine restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams and the privacy setting rank.~~

~~9. The device of claim 1, wherein the privacy restrictions indicate if a single audio stream of the one or more audio streams is restricted or unrestricted.~~

~~10. The device of claim 1, wherein the privacy restrictions indicate if a cluster of audio stream of the one or more audio streams is restricted or unrestricted, wherein the cluster of audio streams are associated with a sub-acoustic space of the one or more sub-acoustic spaces.~~

~~11. The device of claim 10, wherein the privacy restrictions indicate if respective audio streams from a first cluster of audio elements are restricted or unrestricted, and wherein the privacy instructions further indicate if respective audio streams from a second cluster of audio elements share the same privacy restrictions as the first cluster of audio elements.~~

~~12. The device of claim 1, wherein the audio elements include one or more of a single microphone, an array of microphones, a mobile device, or a synthesized audio source.~~

~~13. The device of claim 1, wherein the device comprises an extended reality headset.~~

~~14. The device of claim 1, further comprising a head-mounted display configured to present a displayed world, wherein the privacy restrictions further include respective audio element location information representative of a respective location in the displayed world at which a respective audio stream of the one or more audio streams was generated, and wherein the one or more processors are configured to:~~

~~determine device location information representative of a location of the device in the displayed world;~~

~~select, based on the device location information and the audio element location information, a subset of the one or more audio streams, the subset of the one or more audio streams excluding at least one of one or more audio streams; and~~

~~generate, based on the subset of the one or more audio streams, the corresponding soundfields.~~

~~15. The device of claim 1, further comprising a modem, the modem configured to receive the one or more audio streams via a wireless link.~~

~~16. The device of claim 15, wherein the wireless link is one or more of 5G, WiFI, or Bluetooth.~~

~~17. A method of processing one or more audio streams, the method comprising:~~

~~receiving the one or more audio streams from audio elements represented in an acoustic environment that comprises one or more sub-acoustic spaces, each of the one or more audio streams representative of a respective soundfield;~~

~~determining unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams;~~

~~determining restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams;~~

~~generating the corresponding respective soundfields of the unrestricted audio streams; and~~

~~restricting playback of the corresponding respective soundfields of the restricted audio streams.~~

~~18. The method of claim 17, wherein the privacy restriction associated with the one or more audio streams are embedded in the one or more audio streams, the method further comprising:~~

~~extracting the privacy restrictions from the one or more audio streams.~~

~~19. The method of claim 17, further comprising:~~

~~receiving metadata that includes the privacy restrictions associated with the one or more audio streams.~~

~~20. The method of claim 17, wherein restricting playback of the corresponding respective soundfields of the restricted audio streams comprises:~~

~~toggling off the restricted audio streams.~~

~~21. The method of claim 17, wherein restricting playback of the corresponding respective soundfields of the restricted audio streams comprises:~~

~~masking the restricted audio streams.~~

~~22. The method of claim 17, wherein restricting playback of the corresponding respective soundfields of the restricted audio streams comprises:~~

~~nulling the restricted audio streams.~~

~~23. The method of claim 17, wherein restricting playback of the corresponding respective soundfields of the restricted audio streams comprises:~~

~~applying an acoustic occluder to the restricted audio streams.~~

~~24. The method of claim 17, wherein the privacy restrictions indicate if one or more of the one or more audio streams are restricted or unrestricted for each of a plurality of privacy settings ranks, the method further comprising:~~

~~determining a privacy setting rank from the plurality of privacy setting ranks;~~

~~determining unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams and the privacy setting rank; and~~

~~determining restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams and the privacy setting rank.~~

~~25. The method of claim 17, wherein the privacy restrictions indicate if a single audio stream of the one or more audio streams is restricted or unrestricted.~~

~~26. The method of claim 17, wherein the privacy restrictions indicate if a cluster of audio stream of the one or more audio streams is restricted or unrestricted, wherein the cluster of audio streams are associated with a sub-acoustic space of the one or more sub-acoustic spaces.~~

~~27. The method of claim 17, wherein the method is performed by an extended reality headset.~~

28. The method of claim 17, further comprising:

displaying, with a head-mounted display, a displayed world, wherein the privacy restrictions further include respective audio element location information representative of a respective location in the displayed world at which a respective audio stream of the one or more audio streams was generated;

determining device location information representative of a location of the device in the displayed world;

selecting, based on the device location information and the audio element location information, a subset of the one or more audio streams, the subset of the one or more audio streams excluding at least one of one or more audio streams; and

generating, based on the subset of the one or more audio streams, the corresponding soundfields.

29. A non-transitory computer-readable medium storing instructions that, when executed, causes one or more processors of a device configured to process one or more audio streams to:

receive the one or more audio streams from audio elements represented in an acoustic environment that comprises one or more sub-acoustic spaces, each of the one or more audio streams representative of a respective soundfield;

determine unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams;

determine restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams;

generate the corresponding respective soundfields of the unrestricted audio streams; and

restrict playback of the corresponding respective soundfields of the restricted audio streams.

~~30. An apparatus configured to process one or more audio streams, the apparatus comprising:~~

~~means for receiving the one or more audio streams from audio elements represented in an acoustic environment that comprises one or more sub-acoustic spaces, each of the one or more audio streams representative of a respective soundfield;~~

~~means for determining unrestricted audio streams of the one or more audio streams based on privacy restrictions associated with the one or more audio streams;~~

~~means for determining restricted audio streams of the one or more audio streams based on the privacy restrictions associated with the one or more audio streams;~~

~~means for generating the corresponding respective soundfields of the unrestricted audio streams; and~~

~~means for restricting playback of the corresponding respective soundfields of the restricted audio streams.~~

1. An invention not claimed in any divisional application.