CLAIMS

1. A device for signal processing comprising: a receiver configured to receive an encoded audio signal, wherein the encoded audio signal comprises a parameter; a memory configured to store the parameter associated with a bandwidth-extended audio stream; and a processor configured to: select a plurality of non-linear processing functions based at least in part on a value of the parameter, wherein the plurality of non-linear processing functions comprise a first non-linear processing function and a second non-linear processing function, wherein the first non-linear processing function is different from the second non-linear processing function; generate a first excitation signal based on the first non-linear processing function; generate a second excitation signal based on the second non-linear processing function; and generate a high-band excitation signal based on the first excitation signal and the second excitation signal, wherein the first excitation signal corresponds to a first high-band frequency sub-range that is between approximately 8 kilohertz and 12 kilohertz, and wherein the second excitation signal corresponds to a second high-band frequency sub-range that is between approximately 12 kilohertz and 16 kilohertz.

2. The device of claim 1, wherein the processor is further configured to generate a resampled signal based on a low-band excitation signal, wherein the high-band excitation signal is based at least in part on the resampled signal.

3. The device of claim 1, wherein the processor is further configured to: generate a first filtered signal by applying a low-pass filter to the first excitation signal; and generate a second filtered signal by applying a high-pass filter to the second excitation signal, wherein the high-band excitation signal is generated by combining the first filtered signal and the second filtered signal.

4. The device of claim 1, wherein the processor is further configured to: generate the first excitation signal based on application of the first non-linear processing function of the plurality of non-linear processing functions to a resampled signal, and generate the second excitation signal based on application of the second non-linear processing function of the plurality of non-linear functions to the resampled signal, wherein the high-band excitation signal is based on the first excitation signal and the second excitation signal.

5. The device of claim 4, wherein the processor is further configured to generate at least one additional excitation signal, wherein the at least one additional excitation signal is generated based on application of at least one additional function to the resampled signal, wherein the high-band excitation signal is generated further based on the at least one additional excitation signal, and wherein the first excitation signal corresponds to a first high-band frequency sub-range, the second excitation signal corresponds to a second high-band frequency sub-range, and the at least one additional excitation signal corresponds to at least one additional high-band frequency sub-range.

6. The device of claim 4, wherein the first function includes a square function, and wherein the second function includes an absolute value function.

7. The device of claim 1, wherein the parameter includes a non-linear configuration mode.

8. The device of claim 1, wherein the first non-linear processing function corresponds to an absolute value function and the second non-linear processing function corresponds to a square function, and wherein the processor is configured to: select the absolute value function in response to determining that the parameter has a first value, and select a square function or the plurality of non-linear processing functions in response to determining that the parameter has a second value.

9. The device of claim 1, wherein the processor is configured to select the plurality of non-linear processing functions in response to determining that the parameter has a second value and that a second parameter associated with the bandwidth-extended audio stream has a particular value.

10. The device of claim 9, wherein the second parameter includes a mix configuration mode.

11. The device of claim 1, further comprising: an antenna coupled to the receiver.

12. The device of claim 11, further comprising a demodulator coupled to the receiver, the demodulator configured to demodulate the encoded audio signal.

13. The device of claim 12, further comprising a decoder coupled to the processor, the decoder configured to decode the encoded audio signal, wherein the encoded audio signal corresponds to the bandwidth-extended audio stream, and wherein the processor is coupled to the demodulator.

14. The device of claim 13, wherein the receiver, the demodulator, the processor, and the decoder are integrated into a mobile communication device.

15. The device of claim 13, wherein the receiver, the demodulator, the processor, and the decoder are integrated into a base station, the base station further comprising a transcoder that includes the decoder.

16. The device of claim 1, wherein the processor and the memory are integrated into a media playback device or a media broadcast device.

17. A signal processing method comprising: receiving, at a device, an encoded audio signal, wherein the encoded audio signal comprises a parameter; selecting, at the device, a plurality of non-linear processing functions based at least in part on a value of the parameter, wherein the plurality of non-linear processing functions comprise a first non-linear processing function and a second non-linear processing function, wherein the first non-linear processing function is different from the second non-linear processing function; generating, at the device, a first excitation signal based on the first non-linear processing function; generating, at the device, a second excitation signal based on the second non-linear processing function; and generating, at the device, a high-band excitation signal based on the first excitation signal and the second excitation signal, wherein the first excitation signal corresponds to a first high-band frequency sub-range that is between approximately 8 kilohertz and 12 kilohertz, and wherein the second

excitation signal corresponds to a second high-band frequency sub-range that is between approximately 12 kilohertz and 16 kilohertz.

18. The method of claim 17, wherein the device comprises a media playback device or a media broadcast device.

19. The method of claim 17, wherein the device comprises a mobile communication device.

20. The method of claim 17, wherein the device comprises a base station.

21. A computer-readable storage device storing instructions that, when executed by a processor, cause the processor to perform operations comprising: selecting a plurality of non-linear processing functions based at least in part on a value of a parameter, wherein the plurality of non-linear processing functions comprise a first non-linear processing function and a second non-linear processing function, wherein the first non-linear processing function is different from the second non-linear processing function, wherein the parameter received from an encoder in an encoded audio signal; generating a first excitation signal based on the first non-linear processing function; generating a second excitation signal based on the second non-linear processing function; and generating a high-band excitation signal based on the first excitation signal and the second excitation signal, wherein the first excitation signal corresponds to a first high-band frequency sub-range that is between approximately 8 kilohertz and 12 kilohertz, and wherein the second excitation signal corresponds to a second high-band frequency sub-range that is between approximately 12 kilohertz and 16 kilohertz.

22. The computer-readable storage device of claim 21, wherein the plurality of non-linear processing functions is selected in response to determining that the parameter has a first particular value and that a second parameter associated with the bandwidth-extended audio stream has a second particular value.

23. An apparatus comprising: means for receiving an encoded audio signal, wherein the encoded audio signal comprises a parameter; means for storing the parameter associated with a bandwidth-extended audio stream; and means for generating a first excitation signal based on the first non-linear processing function, wherein the first non-linear processing function selected based at least in part on a value of the parameter; means for generating a second excitation signal based on the second non-linear processing function, wherein the second non-linear processing function selected based at least in part on a value of the parameter, wherein the first non-linear processing function is different from the second non-linear processing function; and means for generating a high-band excitation signal based on the first excitation signal and the second excitation signal, wherein the first excitation signal corresponds to a first high-band frequency sub-range that is between approximately 8 kilohertz and 12 kilohertz, and wherein the second excitation signal corresponds to a second high-band frequency sub-range that is between approximately 12 kilohertz and 16 kilohertz.

24. The method of claim 17, further comprising: generating a first excitation signal based on application of a first function of the plurality of non-linear processing functions to a resampled signal, and generating a second excitation signal based on application of a second function of the

plurality of non-linear functions to the resampled signal, wherein the high-band excitation signal is based on the first excitation signal and the second excitation signal.

25. The method of claim 17, wherein the first non-linear processing function corresponds to an absolute value function and the second non-linear processing function corresponds to a square function.

26. The method of claim 17, wherein the parameter includes a non-linear configuration mode.