

CLAIMS

1. A method of generating an output power, the method comprising:
selectively varying a setpoint for an output parameter during successive time intervals;
during a first time interval of the successive time intervals, generating a closed-loop signal based on the setpoint and a measurement of the output parameter during the first time interval of the successive time intervals, respectively;
during the first time interval, generating an adjustment signal based on the setpoint during a prior time interval and the output parameter during the prior time interval, respectively; and
applying, using a power amplifier, output power to a load in accordance with the closed-loop signal and the adjustment signal.
2. The method of claim 1 wherein the time intervals are equally spaced.
3. The method of claim 1 wherein the time intervals are not equally spaced.
4. The method of claim 1 wherein generating the closed-loop signal comprises generating the closed-loop signal using proportional-integral (PI) control.
5. The method of claim 1 wherein generating the adjustment signal comprises generating the adjustment signal using proportional-integral (PI) control.

6. The method of claim 1 further comprising:
generating the adjustment signal further based on a mixing ratio; and
selectively varying the mixing ratio.
7. The method of claim 1 further comprising selectively adjusting a
fundamental frequency of the power amplifier.
8. The method of claim 7 further comprising selectively adjusting the
fundamental frequency of the power amplifier based on a reflected power.
9. The method of claim 7 further comprising selectively adjusting the
fundamental frequency of the power amplifier based on a reflection coefficient.
10. The method of claim 1 further comprising applying, using the power
amplifier, the output power to a plasma electrode.
11. The method of claim 1 further comprising:
determining a distortion of the output power; and
selectively adjusting a fundamental frequency of the power amplifier based on the
distortion.

12. The method of claim 11 further comprising:
determining a first frequency adjustment based on the distortion and at least one previous amount of distortion of the output power;
determining a second frequency adjustment based on at least one previous amount of distortion of the output power; and
setting the fundamental frequency of the power amplifier based on a previous fundamental frequency of the power amplifier, the first frequency adjustment, and the second frequency adjustment.

13. The method of claim 12 further comprising determining the second frequency adjustment based on at least one previous value of the second frequency adjustment.

14. A method of generating an output power, the method comprising:

selectively varying a setpoint for an output parameter during successive time intervals;
during a first time interval, generating an adjustment signal based on the setpoint during a prior time interval and the output parameter during the prior time interval;
generating an output signal based on a closed-loop signal and the adjustment signal, respectively; and
controlling power input to a power amplifier based on the output signal.

15. The method of claim 14 further comprising during the prior time interval, generating the closed-loop signal based on the setpoint and of the output parameter during a first of the successive time intervals, respectively.

16. The method of claim 15 further comprising applying, using the power amplifier, the output power to a load.

17. The method of claim 14 further comprising applying, using the power amplifier, the output power to the load.

18. The method of claim 14 wherein the intervals are equally spaced.

19. The method of claim 14 wherein the intervals are not equally spaced.

20. The method of claim 14 wherein generating the closed-loop signal comprises generates the adjustment signal using at least one of proportional, integral, or derivative control.

21. The method of claim 14 further comprising:
generating the adjustment signal further based on a mixing ratio; and
selectively varying the mixing ratio.

22. The method of claim 14 further comprising selectively adjusting a fundamental frequency of the output power.

23. The method of claim 22 further comprising selectively adjusting the fundamental frequency of the output power based on a reflected power.

24. The method of claim 22 further comprising selectively adjusting the fundamental frequency of the output power based on a reflection coefficient.

25. The method of claim 14 further comprising applying, using a power amplifier, the output power to a plasma electrode.

26. The method of claim 14 further comprising:
determining a distortion of the output power; and
selectively adjusting a fundamental frequency of the power amplifier based on the distortion.

27. The method of claim 26 further comprising:
determining a first frequency adjustment based on the distortion and at least one previous amount of distortion of the output power;
determining a second frequency adjustment based on at least one previous amount of distortion of the output power; and
setting the fundamental frequency of the power amplifier based on a previous fundamental frequency of the power amplifier, the first frequency adjustment, and the second frequency adjustment.

28. The method of claim 27 further comprising determining the second frequency adjustment based on at least one previous value of the second frequency adjustment.