CLAIMS

We claim:

1. A geared turbomachine assembly, comprising:
an acoustic treatment that is in an unducted area of a geared turbomachine.

2. The geared turbomachine assembly of claim 1, wherein a portion of the acoustic treatment is axially aft a fan cowl of the geared turbomachine.

3. The geared turbomachine assembly of claim 1, wherein a portion of the acoustic treatment is axially aligned with a low-pressure turbine section of the geared turbomachine.

4. The geared turbomachine assembly of claim 3, wherein the acoustic treatment extends continuously from the ducted area to the portion that is axially aligned with the low-pressure turbine section of the geared turbomachine.

5. The geared turbomachine assembly of claim 1, wherein the acoustic treatment forms a portion of a core engine cowl.

6. The geared turbomachine assembly of claim 5, wherein the acoustic treatment extends axially to an aftmost end of the core engine cowl.

7. The geared turbomachine assembly of claim 6, wherein the acoustic treatment extends continuously from the ducted area to the aftmost end.

8. The geared turbomachine assembly of claim 1, wherein the acoustic treatment comprises a perforated face sheet having an open area density that is from 4% to 30%.

9. The geared turbomachine assembly of claim 1, wherein the acoustic treatment comprises a microperforated face sheet having apertures with a diameter that is less than 25 percent of a thickness of the microperforated face sheet.

10. The geared turbomachine assembly of claim 1, wherein the geared turbomachine assembly has a fan pressure ratio less than 1.45.

11. A geared turbomachine assembly, comprising:

a fan cowl housing a fan that is driven by a geared architecture;

a core cowl housing a core engine; and

an acoustic treatment establishing a portion of the core cowl aft the fan cowl.

12. The geared turbomachine assembly of claim 11, wherein a portion of the acoustic treatment is axially aft a fan cowl of the geared turbomachine.

13. The geared turbomachine assembly of claim 11, wherein a portion of the acoustic treatment is axially aligned with a low-pressure turbine section of the geared turbomachine.

14. The geared turbomachine assembly of claim 11, wherein the acoustic treatment forms a portion of the core cowl.

15. The geared turbomachine assembly of claim 14, wherein the acoustic treatment extends axially to an aftmost end of the core cowl.

16. The geared turbomachine assembly of claim 11, wherein the acoustic treatment comprises a perforated face sheet having an open area density that is from 4% to 30%.

17. The geared turbomachine assembly of claim 11, wherein the acoustic treatment comprises a microperforated face sheet having apertures with a diameter that is less than 25 percent of a thickness of the microperforated face sheet.

18. The geared turbomachine assembly of claim 11, wherein the geared turbomachine assembly has fan pressure ratio less than 1.45.

19. A method of attenuating noise in a geared turbomachine, comprising:

attenuating noise axially aft of a fan cowl using an acoustic treatment that provides a portion of an engine core, wherein the fan cowl houses a fan driven by a geared architecture.

20. The method of claim 19, wherein the acoustic treatment extends axially past a high-pressure turbine section.

CLAIMS

We claim:

1. A geared turbomachine assembly, comprising:
an acoustic treatment that is in an unducted area of a geared turbomachine.

2. The geared turbomachine assembly of claim 1, wherein a portion of the acoustic treatment is axially aft a fan cowl of the geared turbomachine.

3. The geared turbomachine assembly of claim 1, wherein a portion of the acoustic treatment is axially aligned with a low-pressure turbine section of the geared turbomachine.

4. The geared turbomachine assembly of claim 3, wherein the acoustic treatment extends continuously from within a ducted area to the portion that is axially aligned with the low-pressure turbine section of the geared turbomachine.

5. The geared turbomachine assembly of claim 1, wherein the acoustic treatment forms a portion of a core engine cowl.

6. The geared turbomachine assembly of claim 5, wherein the acoustic treatment extends axially to an aftmost end of the core engine cowl.

7. The geared turbomachine assembly of claim 6, wherein the acoustic treatment extends continuously from the ducted area to the aftmost end.

8. The geared turbomachine assembly of claim 1, wherein the acoustic treatment comprises a perforated face sheet having an open area density that is from 4% to 30%.

9. The geared turbomachine assembly of claim 1, wherein the acoustic treatment comprises a microperforated face sheet having apertures with a diameter that is less than 25 percent of a thickness of the microperforated face sheet.

10. The geared turbomachine assembly of claim 1, wherein the geared turbomachine assembly has a fan pressure ratio less than 1.45.

11. A geared turbomachine assembly, comprising:

a fan cowl housing a fan that is driven by a geared architecture;

a core cowl housing a core engine; and

an acoustic treatment establishing a portion of the core cowl aft the fan cowl.

12. The geared turbomachine assembly of claim 11, wherein a portion of the acoustic treatment is axially aft a fan cowl of the geared turbomachine.

13. The geared turbomachine assembly of claim 11, wherein a portion of the acoustic treatment is axially aligned with a low-pressure turbine section of the geared turbomachine.

14. The geared turbomachine assembly of claim 11, wherein the acoustic treatment forms a portion of the core cowl.

15. The geared turbomachine assembly of claim 14, wherein the acoustic treatment extends axially to an aftmost end of the core cowl.

16. The geared turbomachine assembly of claim 11, wherein the acoustic treatment comprises a perforated face sheet having an open area density that is from 4% to 30%.

17. The geared turbomachine assembly of claim 11, wherein the acoustic treatment comprises a microperforated face sheet having apertures with a diameter that is less than 25 percent of a thickness of the microperforated face sheet.

18. The geared turbomachine assembly of claim 11, wherein the geared turbomachine assembly has fan pressure ratio less than 1.45.

19. A method of attenuating noise in a geared turbomachine, comprising:

attenuating noise axially aft of a fan cowl using an acoustic treatment that provides a portion of an engine core, wherein the fan cowl houses a fan driven by a geared architecture.

20. The method of claim 19, wherein the acoustic treatment extends axially past a high-pressure turbine section.