THE INVENTION CLAIMED IS

1. A method of transferring an electrically conductive material to a substrate, the method comprising:

a) contacting at least a portion of the substrate with the electrically conductive material disposed on a carrier film; and

b) applying heat and pressure to the substrate and carrier film for a period of time ranging from 1 to 40 seconds, at a temperature ranging from 93.3°C to 232.2°C (200°F to 450°F), and at a pressure ranging from 2.07 x 10^5 Pa to 10.34 x 10^5 Pa (30 to 150 psi), such that the electrically conductive material adheres to the substrate;

wherein the electrically conductive material comprises electrically conductive particles comprising nickel, iron, copper, zinc, chromium, cobalt, aluminum, silver, gold, iridium, platinum, palladium, zirconium, tin, carbon, or mixtures thereof.

2. The method of claim 1, further comprising c) removing the carrier film from the substrate after step b).

3. The method of claim 1, wherein the electrically conductive material is applied in a pattern over at least a portion of the carrier film.

4. The method of claim 1, wherein the carrier film further comprises a release coat, a dielectric material and/or an adhesive, each of which may be applied over the electrically conductive material, under the electrically conductive material, or both.

5. The method of claim 1, wherein a release coat is applied to at least a portion of the carrier film, and a dielectric material is applied to at least a portion of the release coat.

6. The method of claim 1, wherein the electrically conductive material is applied to the carrier film after application of a dielectric material and a release coat, and the electrically conductive material is applied in a pattern on top of at least a portion of the dielectric material, on top of at least a portion of the release coat, or both.

7. The method of claim 1, wherein the carrier film further comprises (i) an adhesive and (ii) a release coat and/or a dielectric material, and wherein the adhesive is applied over at least a portion of the release coat, the dielectric material, and/or the electrically conductive material.

8. The method of claim 1, wherein the carrier film further comprises a release coat, an adhesive, and/or a dielectric material, and wherein a decorative material is applied over at least a portion of one or more of the electrically conductive material, the release coat, the adhesive, the dielectric material, and the carrier film.

9. The method of claim 1, wherein the carrier film further comprises a release coat, a dielectric material and/or an adhesive, and one or more of the release coat, the dielectric material, the electrically conductive material, and the adhesive is completely free of halogenated organic compounds.

10. The method of claim 1, wherein the electrically conductive material further comprises a binder.

11. The method of claim 10, wherein the binder is thermoplastic.

12. The method of claim 1, wherein the electrically conductive material is completely free of silver-silver chloride.

13. The method of claim 1, wherein the electrically conductive material forms an antenna on the substrate.

14. The method of claim 1, wherein the substrate is non-planar.

15. The method of claim 1, wherein the substrate has a glass transition temperature of less than 150°C.

16. The method of claim 1, wherein the electrically conductive material adhered to the substrate has a resistivity of less than 20 milliohms per square per mil, as determined by the resistivity measurement.

17. The method of claim 1, wherein conductivity of the electrically conductive material increases after applying heat and pressure.

18. The method of claim 1, wherein heat and pressure are applied to the substrate and carrier film for a period of time ranging from 1 to 20 seconds, at a temperature ranging from 148.9°C to 232.2°C (300°F to 450°F), and at a pressure ranging from 2.76×10^5 Pa to 8.27×10^5 Pa (40 to 120 psi), such that the electrically conductive material adheres to the substrate.

19. The method of claim 1, wherein step a) of claim 1 comprises contacting a portion of the substrate with a layered structure, the layered structure formed by a method comprising:

a) applying a release coat to at least a portion of a carrier film;

b) applying an electrically conductive material in a pattern to the carrier film after application of the release coat, wherein the electrically conductive material is applied on top of at least a portion of the release coat;

c) drying the electrically conductive material for a period of time ranging from 1 to 180 seconds;

d) applying a dielectric material over at least a portion of the electrically conductive material, the release coat, or both;

e) drying the dielectric material for a period of time ranging from 1 to 120 seconds;

f) applying an adhesive over at least a portion of one or more of the dielectric material, the electrically conductive material, and the release coat; and

g) drying the adhesive for a period of time ranging from 1 to 120 seconds.

20. The method of claim 19, further comprising applying a decorative material over at least a portion of one or more of the carrier film, release coat, dielectric material and electrically conductive material, and drying the decorative material for a period of time ranging from 1 to 120 seconds.

21. The method of claim 19, wherein the layered structure is rolled after step g).

22. A method of transferring an electrically conductive material to a substrate, the method comprising:

a) forming a layered structure from a method comprising:

i) applying a release coat to at least a portion of a carrier film;

ii) applying an electrically conductive material in a pattern to the carrier film after application of the release coat, wherein the electrically conductive material is applied on top of at least a portion of the release coat;

iii) drying the electrically conductive material;

iv) applying an adhesive over at least a portion of the electrically conductive material, release coat, or both; and

v) drying the adhesive;

b) contacting at least a portion of the substrate with the layered structure; and

c) applying heat and pressure to the substrate and layered structure for a period of time ranging from 1 to 40 seconds, at a temperature ranging from 93.3°C to 232.2°C (200°F to 450°F), and at a pressure ranging from 2.07 x 10^5 Pa to 10.34 x 10^5 Pa (30 to 150 psi), such that the electrically conductive material adheres to the substrate;

wherein conductivity of the electrically conductive material increases after applying heat and pressure; and

wherein the electrically conductive material comprises electrically conductive particles comprising nickel, iron, copper, zinc, chromium, cobalt, aluminum, silver, gold, iridium, platinum, palladium, zirconium, tin, carbon, or mixtures thereof.

23. The method of claim 22, further comprising d) removing the carrier film from the substrate after step c).

24. The method of claim 22, wherein the electrically conductive material adhered to the substrate has a resistivity of less than 20 milliohms per square per mil, as determined by the resistivity measurement.

25. The method of claim 22, further comprising applying a dielectric material over at least a portion of one or more of the carrier film, release coat, and electrically conductive material, and then drying the dielectric material,

wherein the electrically conductive material, adhesive, and dielectric material are dried for a period of time ranging from 1 to 180 seconds.