WHAT IS CLAIMED IS:

1. A socket for use in a test system, the test system configured to align at least a portion of an electronic device with a plurality of aligned connectors, the socket comprising:

a metal structure having a plurality of openings, the plurality of openings spaced to accommodate the plurality of aligned connectors, at least one opening in the plurality of openings extending through a thickness of the metal structure, the at least one opening having an annular inner surface, the annular inner surface being proximal to at least a portion of a conductive outer surface of at least one aligned connector of the plurality of aligned connectors in the test system; and

an insulation layer provided on the annular inner surface.

2. The socket of claim 1, wherein the insulation layer is configured to insulate the conductive outer surface of the at least one aligned connector from the annular inner surface.

3. The socket of claim 1, wherein the at least one aligned connector is a spring probe.

4. The socket of claim 1, wherein the metal structure comprises an aluminum alloy material.

5. The socket of claim 1, wherein the metal structure comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

6. The socket of claim 1, wherein the insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

7. The socket of claim 6, wherein the anodized aluminum has a thickness greater than approximately 0.02 mm.

8. The socket of claim 6, wherein the polytetrafluoroethylene (PTFE) coating has a thickness greater than about 0.001 mm.

9. A socket assembly, comprising:

the socket of claim 1; and

a socket retainer comprising:

a metal retainer including a plurality of annular guide holes extending through the metal retainer and configured to accommodate the plurality of aligned connectors when the socket retainer is aligned with the socket, at least one of the annular guide holes of the plurality of annular guide holes having an annular retainer surface; and

a retainer insulation layer provided on the annular retainer surface, the retainer insulation layer configured to align with the insulation layer when the socket retainer is aligned with the socket.

10. The socket assembly of claim 9, wherein the at least one aligned connector is a spring probe.

11. The socket assembly of claim 9, wherein the metal structure comprises aluminum alloy material.

12. The socket assembly of claim 9, wherein the metal structure comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

13. The socket assembly of claim 9, wherein the insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

14. The socket assembly of claim 13, wherein the anodized aluminum in the insulation layer has a thickness greater than approximately 0.02 mm.

15. The socket assembly of claim 13, wherein the polytetrafluoroethylene (PTFE) coating in the insulation layer has a thickness greater than about 0.001 mm.

16. The socket assembly of claim 9, wherein the metal retainer comprises aluminum alloy material.

17. The socket assembly of claim 9, wherein the metal retainer comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

18. The socket assembly of claim 9, wherein the retainer insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

19. The socket assembly of claim 18, wherein the anodized aluminum in the retainer insulation layer has a thickness greater than approximately 0.02 mm.

20. The socket assembly of claim 18, wherein the polytetrafluoroethylene (PTFE) coating in the retainer insulation layer has a thickness greater than about 0.001 mm.

21. A coaxial socket for use in a test system, the test system configured to align at least a portion of an electronic device with a plurality of aligned connectors, the coaxial socket comprising:

a conductive structure having a plurality of openings, the plurality of openings spaced to accommodate the plurality of aligned connectors, at least one opening in the plurality of openings extending through a thickness of the conductive structure, the at least one opening having an annular inner surface, the annular inner surface being proximal to at least a portion of a conductive outer surface of at least one aligned connector of the plurality of aligned connectors in the test system; and

a socket retainer comprising:

a metal retainer including a plurality of annular guide holes extending through the metal retainer and configured to accommodate the plurality of aligned connectors when the socket retainer is aligned with the conductive structure, at least one of the annular guide holes of the plurality of annular guide holes having an annular retainer surface; and

a retainer insulation layer provided on the annular retainer surface, the retainer insulation layer configured to align with the annular inner surface when the socket retainer is aligned with the conductive structure, the socket retainer and the conductive structure configured to present a cavity interface to the at least one aligned connector;

wherein the socket retainer and the conductive structure are configured to present a substantially constant impedance across the cavity interface to an electrical signal provided across the at least one aligned connector.

22. The coaxial socket of claim 21, wherein the at least one aligned connector is a spring probe.

23. The coaxial socket of claim 21, wherein the metal retainer comprises aluminum alloy material.

24. The coaxial socket of claim 21, wherein the metal retainer comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

25. The coaxial socket of claim 21, wherein the retainer insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

26. The coaxial socket of claim 25, wherein the anodized aluminum has a thickness greater than approximately 0.02 mm.

27. The coaxial socket of claim 25, wherein the polytetrafluoroethylene (PTFE) coating has a thickness greater than about 0.001 mm.

28. The coaxial socket of claim 21, wherein the conductive structure comprises a copper alloy.

29. The coaxial socket of claim 21, wherein the electrical signal is at a frequency greater than about 20 GHz.

30. The coaxial socket of claim 21, wherein the electrical signal is at a frequency greater than about 25 GHz.

31. The coaxial socket of claim 21, wherein the electrical signal is at a frequency greater than about 30 GHz.

32. A coaxial socket assembly comprising:

the socket of claim 1; and

a socket retainer comprising:

a metal retainer including a plurality of annular guide holes extending through the metal retainer and configured to accommodate the plurality of aligned connectors when the socket retainer is aligned with the socket, at least one of the annular guide holes of the plurality of annular guide holes having an annular retainer surface; and

a retainer insulation layer provided on the annular retainer surface, the retainer insulation layer configured to align with the insulation layer provided on the annular inner surface when the socket retainer is aligned with the socket, the socket retainer and the socket configured to present a cavity interface to the at least one aligned connector;

wherein the socket retainer and the socket are configured to present a substantially constant impedance across the cavity interface to an electrical signal provided across the at least one aligned connector.

33. The coaxial socket assembly of claim 32, wherein the at least one aligned connector is a spring probe.

34. The coaxial socket assembly of claim 32, wherein the metal structure comprises aluminum alloy material.

35. The coaxial socket assembly of claim 32, wherein the metal structure comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

36. The coaxial socket assembly of claim 32, wherein the insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

37. The coaxial socket assembly of claim 36, wherein the anodized aluminum in the insulation layer has a thickness greater than approximately 0.02 mm.

38. The coaxial socket assembly of claim 36, wherein the polytetrafluoroethylene (PTFE) coating in the insulation layer has a thickness greater than about 0.001 mm.

39. The coaxial socket assembly of claim 32, wherein the metal retainer comprises aluminum alloy material.

40. The coaxial socket assembly of claim 32, wherein the metal retainer comprises at least one of the set of materials: Mg, Ti, Zr, Cu, and Fe.

41. The coaxial socket assembly of claim 32, wherein the retainer insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

42. The coaxial socket assembly of claim 41, wherein the anodized aluminum in the retainer insulation layer has a thickness greater than approximately 0.02 mm.

43. The coaxial socket assembly of claim 41, wherein the polytetrafluoroethylene (PTFE) coating in the retainer insulation layer has a thickness greater than about 0.001 mm.

44. The coaxial socket assembly of claim 32, wherein the electrical signal is at a frequency greater than 20 GHz.

45. The coaxial socket assembly of claim 32, wherein the electrical signal is at a frequency greater than 25 GHz.

46. The coaxial socket assembly of claim 32, wherein the electrical signal is at a frequency greater than 30 GHz.

CLAIMS

1. A coaxial socket assembly for use in a test system, the test system configured to align at least a portion of an electronic device with a plurality of aligned connectors, the coaxial socket assembly comprising:

a socket comprising:

a metal structure having a plurality of openings, the plurality of openings spaced to accommodate the plurality of aligned connectors, at least one opening in the plurality of openings extending through a thickness of the metal structure, the at least one opening having an annular inner surface, the annular inner surface being proximal to at least a portion of a conductive outer surface of at least one aligned connector of the plurality of aligned connectors in the test system; and

an insulation layer provided on the annular inner surface; and

a socket retainer comprising:

a metal retainer including a plurality of annular guide holes extending through the metal retainer and configured to accommodate the plurality of aligned connectors when the socket retainer is aligned with the socket, at least one of the annular guide holes of the plurality of annular guide holes having an annular retainer surface; and

a retainer insulation layer provided on the annular retainer surface, the retainer insulation layer configured to align with the insulation layer provided on the annular inner surface when the socket retainer is aligned with the socket, the socket retainer and the socket configured to present a cavity interface to the at least one aligned connector;

wherein the socket retainer and the socket are configured to present a substantially constant impedance across the cavity interface to an electrical signal provided across the at least one aligned connector.

2. The coaxial socket assembly of claim 1, wherein the insulation layer is configured to insulate the conductive outer surface of the at least one aligned connector from the annular inner surface.

3. The coaxial socket assembly of claim 1, wherein the metal structure comprises an aluminum alloy material.

4. The coaxial socket assembly of claim 1, wherein the metal structure comprises at least one of a set of materials including: Mg, Ti, Zr, Cu, and Fe.

5. The coaxial socket assembly of claim 1, wherein the metal retainer comprises aluminum alloy material.

6. The coaxial socket assembly of claim 1, wherein the metal retainer comprises at least one of a set of materials including: Mg, Ti, Zr, Cu, and Fe.

7. The coaxial socket assembly of claim 1, wherein the electrical signal is at a frequency greater than 20 GHz.

8. The coaxial socket assembly of claim 1, wherein the electrical signal is at a frequency greater than 25 GHz.

9. The coaxial socket assembly of claim 1, wherein the electrical signal is at a frequency greater than 30 GHz.

10. The coaxial socket assembly of claim 1, wherein the insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

11. The coaxial socket assembly of claim 10, wherein the anodized aluminum has a thickness greater than approximately 0.02 mm.

12. The coaxial socket assembly of claim 10, wherein the polytetrafluoroethylene (PTFE) coating has a thickness greater than about 0.001 mm.

13. The coaxial socket assembly of claim 1, wherein the retainer insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

14. The coaxial socket assembly of claim 13, wherein the anodized aluminum in the retainer insulation layer has a thickness greater than approximately 0.02 mm.

15. The coaxial socket assembly of claim 13, wherein the polytetrafluoroethylene (PTFE) coating in the retainer insulation layer has a thickness greater than about 0.001 mm.

16. The coaxial socket assembly of claim 1, wherein the at least one aligned connector is a spring probe.

17. The coaxial socket assembly of claim 16, wherein the metal structure comprises aluminum alloy material.

18. The coaxial socket assembly of claim 16, wherein the metal structure comprises at least one of a set of materials including: Mg, Ti, Zr, Cu, and Fe.

19. The coaxial socket assembly of claim 16, wherein the insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

20. The coaxial socket assembly of claim 19, wherein the anodized aluminum in the insulation layer has a thickness greater than approximately 0.02 mm.

21. The coaxial socket assembly of claim 19, wherein the polytetrafluoroethylene (PTFE) coating in the insulation layer has a thickness greater than about 0.001 mm.

22. A coaxial socket for use in a test system, the test system configured to align at least a portion of an electronic device with a plurality of aligned connectors, the coaxial socket comprising:

a conductive structure having a plurality of openings, the plurality of openings spaced to accommodate the plurality of aligned connectors, at least one opening in the plurality of openings extending through a thickness of the conductive structure, the at least one opening having an annular inner surface, the annular inner surface being proximal to at least a portion of a conductive outer surface of at least one aligned connector of the plurality of aligned connectors in the test system; and

a socket retainer comprising:

a metal retainer including a plurality of annular guide holes extending through the metal retainer and configured to accommodate the plurality of aligned connectors when the socket retainer is aligned with the conductive structure, at least one of the annular guide holes of the plurality of annular guide holes having an annular retainer surface; and

a retainer insulation layer provided on the annular retainer surface, the retainer insulation layer configured to align with the annular inner surface when the socket retainer is aligned with the conductive structure, the socket retainer and the

conductive structure configured to present a cavity interface to the at least one aligned connector;

wherein the socket retainer and the conductive structure are configured to present a substantially constant impedance across the cavity interface to an electrical signal provided across the at least one aligned connector.

23. The coaxial socket of claim 22, wherein the at least one aligned connector is a spring probe.

24. The coaxial socket of claim 22, wherein the metal retainer comprises aluminum alloy material.

25. The coaxial socket of claim 22, wherein the metal retainer comprises at least one of a set of materials including: Mg, Ti, Zr, Cu, and Fe.

26. The coaxial socket of claim 22, wherein the conductive structure comprises a copper alloy.

27. The coaxial socket of claim 22, wherein the electrical signal is at a frequency greater than about 20 GHz.

28. The coaxial socket of claim 22, wherein the electrical signal is at a frequency greater than about 25 GHz.

29. The coaxial socket of claim 22, wherein the electrical signal is at a frequency greater than about 30 GHz.

30. The coaxial socket of claim 22, wherein the retainer insulation layer comprises anodized aluminum and a polytetrafluoroethylene (PTFE) coating.

31. The coaxial socket of claim 30, wherein the anodized aluminum has a thickness greater than approximately 0.02 mm.

32. The coaxial socket of claim 30, wherein the polytetrafluoroethylene (PTFE) coating has a thickness greater than about 0.001 mm.