CLAIMS

1. A probe for a probe system, the probe comprising:

a retroreflector defined by a retroreflector body that includes:

(i) a first side;

(ii) an opposed second side;

(iii) a tapered region that extends from the first side of the retroreflector body; and

(iv) a light-receiving region that is defined on the opposed second side of the retroreflector body; and

a probe tip configured to at least one of provide a test signal to a device under test (DUT) and receive a resultant signal from the DUT; and

wherein the retroreflector is configured to receive light, via the light-receiving region, at a light angle of incidence and to emit at least an emitted fraction of the light, from the retroreflector body and via the light-receiving region, at a light angle of emission that is at least substantially equal to the light angle of incidence.

2. The probe of claim 1, wherein the retroreflector body is a single retroreflector body that defines the first side, the second side, the tapered region, and the light-receiving region.

3. The probe of any of claims 1-2, wherein the retroreflector body is an at least partially optically transparent retroreflector body.

4. The probe of any of claims 1-3, wherein the probe tip is configured to communicate with the DUT.

5. The probe of claim 4, wherein the probe tip is configured to physically contact a contact pad of the DUT, and further wherein the probe tip includes an electrical conduit configured to at least one of convey an electric test signal to the DUT and receive an electric resultant signal from the DUT.

6. The probe of claim 4, wherein the probe tip is configured for non-contact communication with a coupling structure of the DUT, and further wherein the probe tip includes an optical conduit configured to at least one of convey an optical test signal to the coupling structure of the DUT and receive an optical resultant signal from the coupling structure of the DUT.

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7. The probe of claim 4, wherein the probe tip includes an antenna configured to at least one of convey an electromagnetic test signal to a coupling structure of the DUT and receive an electromagnetic resultant signal from the coupling structure of the DUT.

8. The probe of any of claims 1-7, wherein the light-receiving region is an at least substantially planar light-receiving region.

9. The probe of any of claims 1-8, wherein the light-receiving region is configured to convey the light into the retroreflector body such that the light reflects within the retroreflector body.

10. The probe of any of claims 1-9, wherein the light-receiving region is at least partially circular.

11. The probe of any of claims 1-10, wherein the retroreflector is at least one of:

(i) spaced apart from the probe tip; and

(ii) distinct from the probe tip.

12. The probe of any of claims 1-11, wherein the retroreflector is at least partially defined by an internal surface of the retroreflector body.

13. The probe of any of claims 1-12, wherein the retroreflector is configured such that the light reflects, within the retroreflector body, from an internal surface of the retroreflector body and exits the light-receiving region as the emitted fraction of the light.

14. The probe of any of claims 1-13, wherein the tapered region is an at least partially pyramidal tapered region.

15. The probe of any of claims 1-14, wherein the retroreflector is shaped such that the emitted fraction of the light defines a predetermined light pattern.

16. The probe of claim 15, wherein the predetermined light pattern includes a circular shape.

17. The probe of claim 15, wherein the predetermined light pattern includes at least one of:

(i) a polygonal shape;

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(ii) a segmented polygonal shape;

(iii) a hexagonal shape; and

(iv) a segmented hexagonal shape.

18. The probe of any of claims 1-17, wherein the probe further includes a background offset region configured to convey light, which is incident thereon at the light angle of incidence, away from the retroreflector body at an offset region angle that differs from the light angle of incidence.

19. The probe of claim 18, wherein the background offset region at least partially surrounds the light-receiving region.

20. The probe of any of claims 18-19, wherein the background offset region includes a projecting region that extends away from the light-receiving region within a plane defined by the light-receiving region, wherein the projecting region includes a projecting tip.

21. The probe of any of claims 18-20, wherein the background offset region is defined on the opposed second side of the retroreflector body, and further wherein the background offset region extends away from the light-receiving region and tapers toward the first side of the retroreflector body.

22. The probe of any of claims 18-21, wherein the background offset region is a second side background offset region, and further wherein the probe includes a first side background offset region that faces away from the second side background offset region and is configured to convey light, which is incident thereon, away from the retroreflector body at a first side offset region angle that differs from the light angle of incidence.

23. The probe of claim 22, wherein at least one of:

(i) the first side background offset region extends at a skew angle relative to the light-receiving region; and

(ii) the first side background offset region at least partially defines a recessed region within which the tapered region extends.

24. A probe system for testing a device under test (DUT) that is formed on a substrate, the probe system comprising:

a chuck configured to support the substrate;

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the probe of any of claims 1-23;

a light source configured to direct the light toward the light-receiving region at the light angle of incidence; and

an imaging device configured to receive the emitted fraction of the light from the retroreflector at least substantially at the light angle of emission.

25. A method of utilizing the probe of any of claims 1-23, the method comprising:

directing light toward the retroreflector such that the light is incident upon the light-receiving region at the light angle of incidence;

internally reflecting at least a reflected fraction of the light within the retroreflector body;

emitting the emitted fraction of the reflected fraction of the light from the retroreflector body and via the light-receiving region at the light angle of emission; and

scattering a remainder of light such that the remainder of the light propagates from the retroreflector at an angle other than the light angle of emission.

26. The method of claim 25, wherein the method further includes aligning the probe with the DUT, wherein the aligning includes aligning a probe tip of the probe with a corresponding test location on the DUT, wherein the method further includes receiving the emitted fraction of the light with an imaging device, and further wherein the aligning is based, at least in part, on the receiving.

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