the predetermined distance 550 to one another. For example, the first platform 530 could be rotated about a shared (e.g., central) axis 502, thereby maintaining the predetermined distance 550 to the second platform 540. The distance 550 could be any distance suitable for communication between the probe 536 mounted on the platform 530 and one of the probes 510, 512 mounted on the platform 540. In one embodiment, the radio frequency used by the probes 510, 512, and 536 is the range of 20-140GHz, and the predetermined distance 550 is in the range of 5 millimeters to 10 millimeters. However, other frequencies and distances are possible as well.

[00117] In line with the discussion above, signal conditioner 546 may be configured to select one of probes 510 or 512 on platform 540 for wireless communication with probe 536 of platform 530 based on the orientation of platform 530 relative to platform 540. For example, as shown in Figure 5A, signal conditioner 546 may select probe 510 for wireless communication with probe 536, as probe 536 is shown to be closer to probe 510 than probe 512. Further, as one or both of the platforms rotate, the conditioner 546 may select a different probe on platform 540 to wirelessly communicate with probe 536 of platform 530. Although not shown, in some examples, signal conditioner 546 may be electrically coupled to probes 510 and 512 using wired or wireless connections. In one example, signal conditioner 546 could be connected to probes 510, 512 via conducting paths inside second platform 540. Other examples are possible as well.

[00118] Figure 5B illustrates another side view of the device 500. The side view shown in Figure 5B may illustrate a scenario where the first platform 530 is rotated about axis 502 in a clockwise direction from the orientation shown in Figure 5A. Thus, in this scenario, probe 536 of platform 530 is shown to be closer to probe 512 than probe 510 of platform 540. In

line with the discussion above, the signal conditioner 546 could be configured to detect such change and responsively switch to or select probe 512 (instead of probe 510) for communication with the probe 536.

[00119] Figure 5C illustrates a cross section view of the device 500. In the cross section view shown in Figure 5C, the side 540a of the platform 540 is pointing out of the page. Similarly to Figures 5A and 5B, the device 500 in Figure 5C shows probes 510 and 512 mounted to the side 540a of the device 500. Further, as shown, probes 514 and 516 are also mounted to the side 540a of the platform 540. Thus, the plurality of probes 510, 512, 514, and 516 are shown as 4 probes arranged in a substantially circular arrangement in line with the discussion above. Thus, referring back to Figures 5A and 5B by way of example, as the platform 530 rotates about axis 502, the probe 536 may align with one of the probes 510, 512, 514 or 516. However, in some examples, the platform 540 could mount more or fewer probes than those shown.

[00120] As noted above, in some examples, the signal conditioner could select which probe to use for wireless communication between the two platforms based on signal strength measurements between the probe on platform 530 and the plurality of probes on the platform 540. However, in other examples, the present method provides for determining an indication of the orientation between the platforms 530 and 540 based on one or more orientation sensors. For instance, in the example shown in Figure 5C, sensors 520 and 522 could be mounted on the side 540a.

[00121] The sensors 520 and 522 may include any sensors suitable for measuring or estimating the orientation of the platform 530 and/or 540. Thus the sensors 520 and 522 may include any orientation sensor, such as encoder disks, photodetectors, magnetic sensors, range

Claims

1. A device comprising:

a first platform having a first side;

a second platform having a second side positioned within a predetermined distance to the first side of the first platform;

a first probe mounted to the first platform and configured to emit a wireless signal for propagation toward the second side of the second platform;

a plurality of probes mounted to the second platform in a substantially circular arrangement; and

a signal conditioner that selects, based on a current position of the first platform relative to the second platform, a single probe from the plurality of probes for wireless communications with the first probe, wherein the current position is determined based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform.

2. The device of claim 1, further comprising:

an actuator configured to rotate the first platform relative to the second platform, wherein the first side of the first platform remains within the predetermined distance to the second side of the second platform in response to the actuator rotating the first platform.

3. The device of claim 1, wherein the wireless signal is a radio-frequency (RF) signal having one or more frequencies greater than 3 Gigahertz.

4. The device of claim 1, further comprising one or more sensors configured to provide an indication of the orientation of the first platform relative to the second platform.

5. The device of claim 1, wherein the signal conditioner is configured to determine wireless signal strengths associated with the plurality of probes of the second platform, and wherein the signal conditioner is configured to determine an indication of an orientation of the first platform relative to the second platform based on the determined wireless signal strengths.

6. The device of claim 1, wherein the signal conditioner is configured to use the selected probe to emit another wireless signal toward the first side of the first platform, and wherein the first probe of the first platform is configured to receive the other wireless signal emitted by the selected probe.

7. The device of claim 1, further comprising:

a sensor;

a first controller electrically coupled to the sensor and the first probe of the first platform, wherein the first controller is configured to receive data from the sensor and to cause the first probe of the first platform to modulate the emitted wireless signal based on the received data; and

a second controller electrically coupled to the signal conditioner, wherein the second controller is configured to receive an indication of the modulated wireless signal from the

selected probe via the signal conditioner, and wherein the second controller is configured to determine the data from the sensor based on the received indication.

8. The device of claim 1, further comprising:

a second probe mounted to the first platform, wherein the second probe is configured to emit another wireless signal toward the second side of the second platform, wherein the signal conditioner is further configured to select another one of the plurality of probes of the second platform based on the current position of the first platform relative to the second platform, and wherein the signal conditioner is configured to use the other selected probe of the second platform to receive the other wireless signal emitted by the second probe of the first platform.

9. A method comprising:

transmitting a wireless signal using a first probe mounted to a first platform having a first side, wherein transmitting the wireless signal is toward a second side of a second platform positioned within a predetermined distance to the first side of the first platform, and wherein a plurality of probes are mounted to the second platform;

determining a current position of the first platform relative to the second platform based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform;

selecting a single probe from the plurality of probes on the second platform based on the current position of the first platform relative to the second platform; and

using the selected probe to receive the wireless signal transmitted by the first probe on the first platform.

10. The method of claim 9, further comprising:

rotating the first platform relative to the second platform, wherein the first side of the first platform remains within the predetermined distance to the second side of the second platform in response to the rotating.

11. The method of claim 9, further comprising:

receiving data from a sensor; and

modulating the wireless signal to indicate the data from the sensor.

12. The method of claim 9, further comprising:

receiving operation instructions for a device coupled to the second platform; and

modulating the wireless signal to indicate the operation instructions.

13. The method of claim 9, further comprising:

using the selected probe of the second platform to transmit a second wireless signal toward the first side of the first platform; and

receiving the second wireless signal using the first probe of the first platform.

14. The method of claim 13, further comprising:

receiving operation instructions for a device coupled to the first platform; and

modulating the second wireless signal to indicate the operation instructions.

15. The method of claim 9, further comprising:

determining wireless signal strengths associated with the plurality of probes on the second platform; and

determining an indication of an orientation of the first platform relative to the second platform based on the determined wireless signal strengths.

16. The method of claim 9, further comprising:

operating one or more sensors to determine an indication of an orientation of the first platform relative to the second platform.

17. The method of claim 9, further comprising:

transmitting a second wireless signal using a second probe mounted to the first platform, wherein transmitting the second wireless signal is toward the second side of the second platform;

selecting another one of the plurality of probes on the second platform based on the current position of the first platform relative to the second platform; and

using the other selected probe to receive the second wireless signal.

18. A device comprising:

a first platform having a first side;

a second platform having a second side positioned within a predetermined distance to the first side of the first platform;

a first probe mounted to the first platform;

a plurality of probes mounted to the second platform in a substantially circular arrangement; and

a signal conditioner that selects, based on a current position of the first platform relative to the second platform, a single probe from the plurality of probes for wireless communications with the first probe, wherein the current position is determined based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform.

19. The device of claim 18, further comprising:

an actuator configured to cause a relative rotation between the first platform and the second platform, wherein the first side of the first platform remains within the predetermined distance to the second side of the second platform in response to the actuator causing the relative rotation.

20. The device of claim 18, further comprising:

a second probe mounted to the first platform, wherein the signal conditioner is configured to select another one of the plurality of probes on the second platform based on the current position of the first platform relative to the second platform, and wherein the signal conditioner is configured to use the other selected probe for wireless communication with the second probe on the first platform.

21. A device comprising:

a first platform;

a second platform within a predefined distance to the first platform;

a first probe mounted to the first platform;

a plurality of probes mounted to the second platform; and

a signal conditioner that selects, based on a current position of the first platform relative to the second platform, a single probe from the plurality of probes for wireless communication with the first probe, wherein the current position is determined based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform.

22. The device of claim 21, further comprising:

an actuator that rotates the first platform or the second platform, wherein the first platform remains within the predefined distance to the second platform in response to the actuator rotating the first platform or the second platform.

23. The device of claim 21, further comprising:

a second probe mounted to the first platform, wherein the signal conditioner selects, based on the current position of the first platform relative to the second platform, another one of the plurality of probes on the second platform for wireless communication with the second probe of the first platform.

24. The device of claim 23, wherein the second probe is configured to emit a wireless signal toward the second platform, and wherein the signal conditioner is configured to use the

other selected probe of the second platform to receive the wireless signal emitted by the second probe of the first platform.

25. The device of claim 21, wherein a first side of the first platform is within the predefined distance to a second side of the second platform opposite to the first side of the first platform.

26. The device of claim 21, wherein the plurality of probes of the second platform are arranged around an axis of rotation of the first platform or the second platform.

27. The device of claim 26, wherein the plurality of probes are within a particular distance to the axis of rotation.

28. The device of claim 27, wherein the first probe of the first platform is within the particular distance to the axis of rotation.

29. The device of claim 21, wherein the first probe of the first platform wirelessly communicates with the selected probe of the second platform using a radio-frequency (RF) signal in an extremely high frequency (EHF) band.

30. The device of claim 21, wherein the first probe of the first platform wirelessly communicates with the selected probe of the second platform using a radio-frequency (RF) signal having at least one frequency greater than 3 Gigahertz.

31. The device of claim 21, further comprising one or more sensors that provide an indication of an orientation of the first platform relative to the second platform.

32. The device of claim 21, wherein the signal conditioner determines wireless signal strengths associated with the plurality of probes of the second platform, and wherein the signal conditioner determines an indication of an orientation of the first platform relative to the second platform based on the determined wireless signal strengths.

33. The device of claim 21, further comprising:

a sensor;

a first controller electrically coupled to the sensor and the first probe of the first platform, wherein the first controller receives data from the sensor and causes the first probe of the first platform to emit a modulated wireless signal based on the received data; and

a second controller electrically coupled to the signal conditioner, wherein the second controller receives an indication of the modulated wireless signal from the selected probe via the signal conditioner, and wherein the second controller determines the data from the sensor based on the received indication.

34. A method comprising:

transmitting, via a first probe mounted to a first platform, a wireless signal toward a second platform, wherein a plurality of probes are mounted to the second platform;

determining a current position of the first platform relative to the second platform based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform;

selecting a single probe from the plurality of probes on the second platform based on the current position of the first platform relative to the second platform; and

using the selected probe to receive the wireless signal transmitted by the first probe on the first platform.

35. The method of claim 34, further comprising:

transmitting, via a second probe mounted to the first platform, a second wireless signal toward the second platform;

selecting another one of the plurality of probes on the second platform based on the current position of the first platform relative to the second platform; and

using the other selected probe to receive the second wireless signal.

36. The method of claim 34, further comprising:

receiving data from a sensor; and

modulating the wireless signal to indicate the data from the sensor.

37. The method of claim 34, further comprising:

transmitting, via the selected probe of the second platform, a second wireless signal toward the first platform; and

receiving the second wireless signal using the first probe of the first platform.

38. The method of claim 37, further comprising:

receiving operation instructions for a device coupled to the first platform; and

modulating the second wireless signal to indicate the operation instructions.

39. A non-transitory computer readable medium storing instructions that, when executed by one or more processers of a computing device, cause the computing device to perform operations comprising:

transmitting, via a first probe mounted to a rotor platform, a wireless signal toward a stator platform that mounts a plurality of probes;

determining a current position of the rotor platform relative to the stator platform based on at least one detection region sensor mounted on one of the rotor platform and the stator platform detecting a detection region of the other of the rotorplatform and the stator platform;

selecting a single probe from the plurality of probes in the stator platform based on the current position of the rotor platform relative to the stator platform; and

using the selected probe to receive the wireless signal transmitted by the first probe in the rotor platform.

40. The non-transitory computer readable medium of claim 39, wherein the operations further comprise:

selecting another one of the plurality of probes in the stator platform based on the current position of the first platform relative to the second platform;

while transmitting the wireless signal via the first probe of the rotor platform, using the other selected probe in the stator platform to transmit a second wireless signal toward the rotor platform; and

receiving, via a second probe mounted to the rotor platform, the second wireless signal.

41. A device comprising:

a first platform;

a second platform;

a first probe mounted to the first platform;

a plurality of probes mounted to the second platform; and

a signal conditioner that selects, based on a current position of the first platform relative to the second platform, a single probe from the plurality of probes for wireless communication with the first probe, wherein the current position is determined based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform..

42. The device of claim 41, wherein the plurality of probes are mounted to the second platform in a circular arrangement.

43. The device of claim 41, wherein the first platform is configured to move the first probe relative to the plurality of probes.

44. The device of claim 43, wherein the first platform is configured to rotate about an axis to move the first probe.

45. The device of claim 44, wherein the first probe remains within a given distance to the second platform during the rotation of the first platform.

46. The device of claim 43, wherein the signal conditioner selects, in response to at least the first platform moving the first probe after the signal conditioner selects the one probe, a different probe from the plurality of probes for the wireless communication with the first probe.

47. The device of claim 41, wherein the first probe comprises a first antenna, and wherein the selected single probe comprises a second antenna.

48. The device of claim 47, wherein the signal conditioner uses the second antenna to receive wireless radio-frequency (RF) signals transmitted by the first antenna based on the signal conditioner selecting the selected single probe for the wireless communication with the first probe.

49. The device of claim 47, wherein the signal conditioner uses the second antenna to transmit wireless radio-frequency (RF) signals to the first antenna based on the signal conditioner selecting the selected single probe for the wireless communication with the first probe.

50. The device of claim 41, further comprising:

a second probe mounted to the first platform, wherein the signal conditioner also selects another probe from the plurality of probes for wireless communication with the second probe.

51. The device of claim 41, wherein the second platform is configured to move the plurality of probes relative to the first probe.

52. The device of claim 51, wherein the second platform is configured to move about an axis to move the plurality of probes.

53. A method comprising:

transmitting, via a first probe mounted to a first platform, a first wireless signal toward a second platform, wherein a plurality of probes are mounted to the second platform;

determining a current position of the first platform relative to the second platform based on at least one detection region sensor mounted on one of the first platform and the second platform detecting a detection region of the other of the first platform and the second platform;

selecting a single probe from the plurality of probes of the second platform based on the current position of the first platform relative to the second platform; and

using the selected probe to receive the first wireless signal.

54. The method of claim 53, further comprising:

transmitting, via a second probe mounted to the first platform, a second wireless signal toward the second platform;

selecting another one of the plurality of probes of the second platform; and

using the selected another probe to receive the second wireless signal.

55. A method comprising:

selecting a single probe from a plurality of probes mounted to a platform;

transmitting, via the selected probe, a first wireless signal toward another platform, wherein a first probe is mounted to the another platform; and

receiving, via the first probe, the first wireless signal; wherein the single probe is selected based on a current position of the platform relative to the another platform and the current position is determined based on at least one detection region sensor mounted on one of the platform and the another platform detecting a detection region of the other of the platform or the another platform.

56. The method of claim 55, further comprising:

selecting another probe from the plurality of probes mounted to the platform;

transmitting, via the selected another probe, a second wireless signal toward the another platform, wherein a second probe is mounted to the another platform; and

receiving, via the second probe, the second wireless signal.