CLAIMS

What is claimed is:

1. A testing device for testing a radar device, the testing device being configured to:

determine, based on a first distance value, a first frequency difference between a frequency of a first signal or a second signal and a frequency of a third signal ;

transmit to the radar device the first signal;

receive the second signal from the radar device;

transmit to the radar device the third signal at an offset relative to at least one of the first signal and the second signal, the offset being based on the first frequency difference; and

receive from the radar device a fourth signal for comparison with the first distance value or the first frequency difference, wherein the fourth signal indicates a second distance value determined by the radar device or a second frequency difference determined by the radar device between the frequency of the second signal and the frequency of the third signal.

2. The testing device of claim 1, wherein:

the first signal and the third signal are synchronized.

3. The testing device of claim 1, wherein:

the offset comprises a delay relative to at least one of transmitting to the radar device the first signal and receiving the second signal from the radar device.

4. The testing device of claim 1, wherein:

the offset comprises a frequency offset relative to the at least one of the first signal and the second signal.

5. The testing device of claim 1, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

6. The testing device of claim 1, wherein:

the first signal comprises a radio frequency signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

7. The testing device of claim 1, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a summation of an emulated echo signal and one or more emulated interfering signals.

8. The testing device of claim 7, wherein:

the one or more emulated interfering signals emulate a competing radar signal.

9. The testing device of claim 7, wherein:

the one or more emulated interfering signals emulate one or more electro-magnetic radiation sources unrelated to the radar device.

10. The testing device of claim 1, wherein:

the second signal comprises a first time-delayed or frequency-modulated signal and the third signal comprises a second time-delayed or frequency-modulated signal.

11. The testing device of claim 10, wherein:

the second signal comprises a first frequency-modulated continuous-wave signal and the third signal comprises a second frequency-modulated continuous-wave signal.

12. The testing device of claim 1, wherein:

the testing device is further configured to:

determine the second distance value based on the second frequency difference for comparison with the first distance value.

13. The testing device of claim 1, wherein:

the testing device includes:

a first signal source configured to produce the first signal; a second signal source configured to produce a fifth signal on which the third signal is based;

a receiver configured to receive the second signal from the radar device; and

a module configured to receive the fourth signal from the radar device and/or to determine the second distance value based on the second frequency difference for comparison with the first distance value.

14. A method of testing a radar device, the method comprising:

determining, based on a first distance value, a first frequency difference between a frequency of a first signal or a second signal and a frequency of a third signal;

transmitting to the radar device the first signal;

receiving the second signal from the radar device;

transmitting to the radar device the third signal at an offset relative to at least one of the first signal and the second signal, the offset being based on the first frequency difference; and

receiving from the radar device a fourth signal for comparison with the first distance value or the first frequency difference, wherein the fourth signal indicates a second distance value determined by the radar device or a second frequency difference determined by the radar device between the frequency of the second signal and the frequency of the third signal.

15. The method of claim 14, wherein:

the first signal and the third signal are synchronized.

16. The method of claim 14, wherein:

the offset comprises a delay relative to at least one of transmitting to the radar device the first signal and receiving the second signal from the radar device.

17. The method of claim 14, wherein:

the offset comprises a frequency offset relative to the at least one of the first signal and the second signal.

18. The method of claim 14, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

19. The method of claim 14, wherein:

the first signal comprises a radio frequency signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

20. The method of claim 14, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a summation of an emulated echo signal and one or more emulated interfering signals.

21. The method of claim 20, wherein:

the one or more emulated interfering signals emulate a competing radar signal.

22. The method of claim 20, wherein:

the one or more emulated interfering signals emulate one or more electro-magnetic radiation sources unrelated to the radar device.

23. The method of claim 14, wherein:

the second signal comprises a first time-delayed or frequency-modulated signal and the third signal comprises a second time-delayed or frequency-modulated signal.

24. The method of claim 23, wherein:

the second signal comprises a first frequency-modulated continuous-wave signal and the third signal comprises a second frequency-modulated continuous-wave signal.

25. The method of claim 14, further comprising:

determining the second distance value based on the second frequency difference for comparison with the first distance value.

26. The method of claim 25, wherein:

determining the second distance value based on the second frequency difference comprises determining the second distance value based on the second frequency difference, a bandwidth of the second signal and the third signal, and a duration of a ramp of the second signal and the third signal.

27. The method of claim 14, further comprising:

determining whether any tests of the radar device remain; and

in response to determining that no tests of the radar device remain, terminating the method

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28. A system configured for testing a radar device, the system comprising:

a testing device configured to:

determine, based on a first distance value, a first frequency difference between a frequency of a first signal or a second signal and a frequency of a third signal;

transmit to the radar device the first signal;

receive the second signal from the radar device;

transmit to the radar device the third signal at an offset relative to at least one of the first signal and the second signal, the offset being based on the first frequency difference; and

receive from the radar device a fourth signal for comparison with the first distance value or the first frequency difference, wherein the fourth signal indicates a second distance value determined by the radar device or a second frequency difference determined by the radar device between the frequency of the second signal and the frequency of the third signal; and

a radar device configured to:

receive the first signal from the testing device;

transmit to the testing device the second signal;

receive the third signal from the testing device; and

transmit to the testing device the fourth signal.

29. The system of claim 28, wherein:

the first signal and the third signal are synchronized.

30. The system of claim 28, wherein:

the offset comprises a delay relative to at least one of transmitting to the radar device the first signal and receiving the second signal from the radar device.

31. The system of claim 28, wherein:

the offset comprises a frequency offset relative to the at least one of the first signal and the second signal.

32. The system of claim 28, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

33. The system of claim 28, wherein:

the first signal comprises a radio frequency signal, the second signal comprises a radar signal, and the third signal comprises a delay signal of the radar signal.

34. The system of claim 28, wherein:

the first signal comprises a control signal, the second signal comprises a radar signal, and the third signal comprises a summation of an emulated echo signal and one or more emulated interfering signals.

35. The system of claim 34, wherein:

the one or more emulated interfering signals emulate a competing radar signal.

36. The system of claim 34, wherein:

the one or more emulated interfering signals emulate one or more electro-magnetic radiation sources unrelated to the radar device.

37. The system of claim 28, wherein:

the second signal comprises a first time-delayed or frequency-modulated signal and the third signal comprises a second time-delayed or frequency-modulated signal.

38. The system of claim 37, wherein:

the second signal comprises a first frequency-modulated continuous-wave signal and the third signal comprises a second frequency-modulated continuous-wave signal.

39. The system of claim 28, wherein:

the testing device is further configured to:

determine the second distance value based on the second frequency difference for comparison with the first distance value.

40. The system of claim 28, wherein:

the testing device includes:

a first signal source configured to produce the first signal;

a second signal source configured to produce a fifth signal on which the third signal is based;

a receiver configured to receive the second signal from the radar device; and

a module configured to receive the fourth signal from the radar device and/or to determine the second distance value based on the second frequency difference for comparison with the first distance value; and

the radar device includes:

a transmitter configured to transmit to the receiver the second signal.