CLAIMS

1. A system for detecting the presence of a mobile device within a vehicle, the system comprising:

a control module to transmit a probing signal; and

a detection module to receive a signal indicating the presence of a mobile device within a predetermined detection zone of a vehicle.

2. The system of claim 1, wherein the detection module detects an echo signal in response to the probing signal, wherein the echo signal indicates the presence of the mobile device within the predetermined detection zone.

3. The system of claim 1, wherein the detection module detects a signal transmitted by the mobile device in response to the probing signal, wherein the signal indicates the presence of the mobile device within the predetermined detection zone.

4. The system of claim 1, wherein the predetermined detection zone is in proximity to the driver seat portion of the vehicle.

5. The system of claim 1, wherein the control module and the detection module are combined in one circuit.

6. A method of detecting the presence of a mobile device within a vehicle, the method comprising:

transmitting, by a control module, a probing signal; and

receiving, by a detection module, a signal indicating the presence of a mobile device within a predetermined detection zone of a vehicle.

7. The method of claim 6, comprising:

receiving, by the detection module, an echo signal in response to the probing signal, wherein the echo signal indicates the presence of the mobile device within the predetermined detection zone.

8. The method of claim 6, comprising:

receiving, by the detection module, a signal transmitted by the mobile device in response to the probing signal, wherein the signal indicates the presence of the mobile device within the predetermined detection zone.

CLAIMS

1. A system for detecting the presence of a mobile device located within a vehicle, the system comprising:

a control module configured to transmit a probing signal, the control module comprising an antenna to transmit, wherein the control module initiates the probing signal;

a detection module configured to receive a response signal following transmission of the probing signal by the control module, indicating the presence of a mobile device located within a predetermined detection zone of a vehicle, the detection module comprising a multi-band antenna to receive signal transmissions, wherein the detection module is configured to detect electromagnetic energy radiation transmitted by the mobile device; and

a scanner coupled to the detection module configured to sweep a plurality of frequency bands associated with the mobile device wherein the scanner is configured to periodically switch among a plurality of tuning elements to monitor various frequency bands associated with the mobile device located in the detection zone.

2. The system of claim 1, wherein the response signal is an echo signal, and wherein the detection module is configured to detect the echo signal in response to the transmitted probing signal, wherein the echo signal indicates the presence of the mobile device located within the predetermined detection zone.

3. The system of claim 1, wherein the detection module is configured to detect the response signal transmitted by the mobile device, wherein the response signal is transmitted in response to the transmitted probing signal, wherein the signal indicates the presence of the mobile device located within the predetermined detection zone.

4. The system of claim 1, wherein the predetermined detection zone is in proximity to the driver seat portion of the vehicle.

5. The system of claim 1, wherein the control module and the detection module are combined in one circuit.

6. The system of claim 1, wherein, upon reception of the response signal by the detection module, the control module is configured to transmit a control signal to disable an operation of the mobile device.

7. The system of claim 6, wherein the control signal is configured to cause the mobile device to reroute communications to a hands-free system.

8. The system of claim 1, wherein the detection module is configured to scan a predetermined cellular frequency band and lock onto a signal emitted by the mobile device within the predetermined cellular frequency band.

9. The system of claim 1, further comprising a power sensor circuit coupled to the scanner, the power sensor circuit operative to monitor a radiated power level of the response signal received by the detection module in each of the plurality frequency bands.

10. The system of claim 1, wherein the detection module is configured to determine that the response signal was transmitted by the mobile device located within the predetermined detection zone based on the detected electromagnetic energy radiation transmitted by the mobile device.

11. The system of claim 10, wherein the detection module is configured to determine that the response signal was transmitted by the mobile device located within the predetermined detection zone by comparing a power level of the electromagnetic energy radiation transmitted by the mobile device to a predetermined threshold power level value.

12. The system of claim 11, wherein the detection module is located within the vehicle.

13. A method of detecting the presence of a mobile device located within a vehicle, the method comprising:

transmitting, by a control module, a probing signal, the control module comprising an antenna to transmit, wherein the control module initiates the probing signal;

sweeping, by a scanner coupled to a detection module, a plurality of frequency bands associated with the mobile device, wherein the scanner is configured to periodically switch among a plurality of tuning elements to monitor various frequency bands associated with the mobile device located in a predetermined detection zone of a vehicle, and wherein the detection module comprises a multi-band antenna to receive signal transmissions and is configured to detect electromagnetic energy radiation transmitted by the mobile device; and

receiving, by the detection module, a response signal following transmission of the probing signal by the control module, wherein the response signal indicates the presence of the mobile device located within the predetermined detection zone.

14. The method of claim 13, wherein the response signal is an echo signal, the method further comprising:

receiving, by the detection module, the echo signal in response to the probing signal, wherein the echo signal indicates the presence of the mobile device located within the predetermined detection zone.

15. The method of claim 13, further comprising:

receiving, by the detection module, the response signal transmitted by the mobile device in response to the probing signal, wherein the response signal indicates the presence of the mobile device located within the predetermined detection zone.

16. The method of claim 13, further comprising, upon reception of the response signal by the detection module, transmitting, by the control module, a control signal to disable an operation of the mobile device.

17. The method of claim 16, wherein the control signal is configured to cause the mobile device to reroute communications to a hands-free system.

18. The method of claim 13, further comprising determining, by the detection module, that the response signal was transmitted by the mobile device located within the predetermined detection zone based on the detected electromagnetic energy radiation transmitted by the mobile device.

19. The method of claim 18, wherein determining that the response signal was transmitted by the mobile device located within the predetermined detection zone comprises comparing a power level of the electromagnetic energy radiation transmitted by the mobile device to a predetermined threshold power level value.