WHAT IS CLAIMED IS:

1. A system for monitoring chain of custody of contents of a container, the system comprising:

a lock mechanism configured to lock at least one door of the container in a closed position;

a housing enclosing at least a portion of the lock mechanism; and

a lock circuit at least partially enclosed within the housing, the lock circuit comprising:

a memory,

a lock controller,

a wireless module configured to receive information from at least one sensor associated with the container, the information regarding at least one property of the contents of the container, wherein the wireless module is configured to store the information in memory, wherein at least one of the wireless module or the sensor is powered wirelessly, and

a lock controller configured to receive commands related to operation of the lock mechanism, to monitor the stored information to identify a change of state of the at least one sensor, and to generate chain of custody data to be transmitted to a remote location via the wireless module, the chain of custody data including at least two of:

sensor data,

an authentication code associated with the sensor, and/or

an authentication code associated with the lock mechanism.

2. The system for monitoring chain of custody of contents of a container of claim 1, wherein the lock circuit further comprises an inductive power supply coupled to the wireless module, the inductive power supply being configured to receive a wireless power signal and supply power to the wireless module.

3. The system for monitoring chain of custody of contents of a container of claim 2, wherein the wireless power signal is received from a wireless power transmitter associated with the sensor.

4. The system for monitoring chain of custody of contents of a container of claim 1, wherein the lock circuit further comprises a wireless power transmitter configured to generate a wireless power signal to supply power to the sensor.

5. The system for monitoring chain of custody of contents of a container of claim 1, wherein the lock controller is configured to authenticate that the stored information is associated with the sensor based on the authentication code associated with the sensor.

6. The system for monitoring chain of custody of contents of a container of claim 5, wherein the stored information includes a digital signature generated using a private key associated with the sensor and the lock controller authenticates the stored information by verifying the digital signature using a public key associated with the sensor.

7. The system for monitoring chain of custody of contents of a container of claim 1, wherein the lock controller is configured to generate a digital signature for the chain of custody data, the digital signature serving as the authentication code associated with the lock mechanism.

8. The system for monitoring chain of custody of contents of a container of claim 7, wherein the wireless module is further configured to transmit the chain of custody data and the digital signature toward the remote location.

9. A method of monitoring chain of custody of contents of a container, the method comprising:

locking at least one door of the container in a closed position with a lock mechanism, the lock mechanism comprising a lock circuit at least partially enclosed within a housing of the lock mechanism, the lock circuit comprising a memory, and a wireless module, wherein at least one of the wireless module or the sensor is powered wirelessly;

receiving information from at least one sensor associated with the container with the wireless module, the information regarding at least one property of the contents of the container;

storing the information in memory;

receiving commands related to operation of the lock mechanism;

monitoring the stored information to identify a change of state of the at least one sensor; and

generating chain of custody data to be transmitted to a remote location via the wireless module, the chain of custody data including at least two of:

sensor data,

an authentication code associated with the sensor, and/or

an authentication code associated with the lock mechanism.

10. The method of monitoring chain of custody of the contents of the container of claim 9, wherein the lock circuit further comprises an inductive power supply coupled to the wireless module, the method further comprising receiving a wireless power signal and supplying power to the wireless module with the inductive power supply.

11. The method of monitoring chain of custody of the contents of the container of claim 10, wherein the wireless power signal is received from a wireless power transmitter associated with the sensor.

12. The method of monitoring chain of custody of the contents of the container of claim 9, wherein the lock circuit further comprises a wireless power transmitter, the method further comprising generating a wireless power signal with the wireless power signal to supply power to the sensor.

13. The method of monitoring chain of custody of the contents of the container of claim 9, further comprising authenticating that the stored information is associated with the sensor based on the authentication code associated with the sensor.

14. The method of monitoring chain of custody of the contents of the container of claim 13, wherein the stored information includes a digital signature generated using a private key associated with the sensor, the method further comprising authenticating the stored information by verifying the digital signature using a public key associated with the sensor.

15. The method of monitoring chain of custody of the contents of the container of claim 9, further comprising generating a digital signature for the chain of custody

data with the lock circuit, the digital signature serving as the authentication code associated with the lock mechanism.

16. The method of monitoring chain of custody of the contents of the container of claim 15, further comprising transmitting the chain of custody data and the digital signature toward the remote location with the wireless module.

Claims:

1. A system for monitoring contents of a shipping container, the system comprising:

a lock mechanism configured to lock at least one door of the shipping container in a closed position by attaching to an outside of the door of the shipping container;

a housing enclosing at least a portion of the lock mechanism; and

a lock circuit at least partially enclosed within the housing, the lock circuit comprising:

a memory,

a wireless module electrically coupled with the memory, wherein:

the wireless module is configured to wirelessly receive information from at least one sensor associated with the shipping container,

the information includes manifest data of the contents of the shipping container,

the wireless module is configured to store in the memory:

the information from the at least one sensor,

a serial number associated with the shipping container,

a serial number associated with the lock mechanism, and

an identification number associated with at least one of the at least one sensor, and

at least one of the wireless module or the sensor is powered wirelessly,

a wireless power transmitter configured to generate a wireless power signal to supply power to a sensor on a second shipping container, without requiring the wireless module to receive information from the sensor; and

a lock controller electrically coupled with the memory and the wireless module configured:

to receive commands related to operation of the lock mechanism,

to monitor the stored information,

to identify a change of state of the at least one sensor, and

to generate data to be transmitted to a remote location via the wireless module, the data including at least two of:

sensor measurements,

a chain-of-custody record,

an authentication code that identifies the sensor, and/or

an authentication code that identifies the lock mechanism.

2. The system for monitoring of contents of a shipping container of claim 1, wherein the lock circuit further comprises an inductive power supply coupled to the wireless module, the inductive power supply being configured to receive a wireless power signal and supply power to the wireless module.

3. The system for monitoring of contents of a shipping container of claim 2, wherein the wireless power signal is received from a wireless power transmitter associated with the sensor.

4. The system for monitoring of contents of a shipping container of claim 1, wherein the lock controller is configured to authenticate that the stored information is associated with the sensor based on the authentication code associated with the sensor.

5. The system for monitoring of contents of a shipping container of claim 4, wherein the stored information includes a digital signature generated using a private key associated with the sensor and the lock controller authenticates the stored information by verifying the digital signature using a public key associated with the sensor.

6. The system for monitoring of contents of a shipping container of claim 1, wherein the lock controller is configured to generate a digital signature for the data, the digital signature serving as the authentication code associated with the lock mechanism.

7. The system for monitoring of contents of a shipping container of claim 6, wherein the wireless module is further configured to transmit the data and the digital signature toward the remote location.

8. A method of monitoring contents of a shipping container, the method comprising:

locking at least one door of the shipping container in a closed position with a lock mechanism by attaching to an outside of the door of the shipping container, the lock mechanism comprising a lock circuit at least partially enclosed within a housing of the lock mechanism, the lock circuit comprising a memory, a sensor, a wireless power transmitter, and a wireless module, wherein at least one of the wireless module-or-the sensor is powered wirelessly;

receiving information from at least one sensor associated with the shipping container with the wireless module, the information including manifest data of the contents of the shipping container;

generating a wireless power signal to supply power to a sensor on a second shipping container, wherein the sensor on the second shipping container sends sensor data to a second wireless module on the second shipping container;

storing the information, a serial number associated with the shipping container, a serial number associated with the lock mechanism, and an identification number associated with at least one of the at least one sensor in the memory;

receiving commands related to operation of the lock mechanism;

monitoring the stored information to identify a change of state of the at least one sensor; and

generating data to be transmitted to a remote location via the wireless module, the data including at least two of:

sensor measurements,

a chain-of-custody record,

an authentication code that identifies the sensor, and/or

an authentication code that identifies the lock mechanism.

9. The method of monitoring of the contents of the shipping container of claim 8, wherein the lock circuit further comprises an inductive power supply coupled to the wireless module, the method further comprising receiving a wireless power signal and supplying power to the wireless module with the inductive power supply.

10. The method of monitoring of the contents of the shipping container of claim 9, wherein the wireless power signal is received from a wireless power transmitter associated with the sensor.

11. The method of monitoring of the contents of the shipping container of claim 8, wherein the lock circuit further comprises a wireless power transmitter, the method urther comprising generating a wireless power signal with the wireless power signal to supply power to the sensor.

12. The method of monitoring of the contents of the shipping container of claim 8, further comprising authenticating that the stored information is associated with the sensor based on the authentication code associated with the sensor.

13. The method of monitoring of the contents of the shipping container of claim 12, wherein the stored information includes a digital signature generated using a private key associated with the sensor, the method further comprising authenticating the stored information by verifying the digital signature using a public key associated with the sensor.

14. The method of monitoring of the contents of the shipping container of claim 8, further comprising generating a digital signature for the data with the lock circuit, the digital signature serving as the authentication code associated with the lock mechanism.

15. The method of monitoring of the contents of the shipping container of claim 14, further comprising transmitting the data and the digital signature toward the remote location with the wireless module.