CLAIMS

WHAT IS CLAIMED IS:

1. A battery powered device comprising:

a battery;

one or more processors electrically coupled to the battery;

memory storing instructions executable by the one or more processors to perform operations comprising:

determining a first battery level of the battery at a first time;

selecting one or more data fields, from a plurality of data fields, to include within a message based, at least in part, on the first battery level;

generating the message that includes the one or more data fields, wherein the one or more data fields includes a protocol identifier that provides an indication of the one or more data fields included within the message and a device identifier that identifies the battery powered device; and

transmitting the message.

2. The battery powered device of claim 1, further comprising:

determining a second battery level of the battery at a second time;

selecting a subset of the one or more data fields to include within a second message based, at least in part, on the second battery level;

generating the second message that includes the subset of the one or more data fields, wherein the subset of the one or more data fields includes a second protocol identifier that provides an indication of the subset of the one or

more data fields included within the second message and the device identifier that identifies the battery powered device; and

transmitting the second message.

3. The battery powered device of claim 1, wherein selecting the one or more data fields is further based, at least in part, on one or more of a request received from an external device, or a length of time the battery powered device has been in service.

4. The battery powered device of claim 1, further comprising adjusting a transmission rate to an updated transmission rate based, at least in part, on the first battery level and transmitting a second message according to the updated transmission rate.

5. The battery powered device of claim 4, wherein adjusting the transmission rate to the updated transmission rate includes reducing the transmission rate at least partly in response to one or more of the first battery level, an age of the battery powered device, a time since activation of the battery powered device, or receipt of an acknowledgement message.

6. The battery powered device of claim 2, wherein the one or more data fields includes a preamble data field, a protocol identifier data field, an endpoint type and subtype data field, an endpoint serial number data field, a current consumption data field, a tamper/flags data field, and a CRC-16 data field, and wherein the subset of the one or more data fields includes the preamble data field, the protocol identifier data

field, the endpoint serial number data field, the CRC-16 data field, and a subset of the endpoint type and subtype data field, the current consumption data field, and the tamper/flags data field.

7. The battery powered device of claim 1, wherein selecting the one or more data fields includes selecting a consumption data field in response to determining that the first battery level is within a first range of battery levels.

8. The battery powered device of claim 1, wherein selecting the one or more data fields includes selecting a tamper data field in response to determining that the battery powered device has been tampered with.

9. A method, comprising:

receiving at a first time, at a first device, first data associated with a battery powered device, wherein the first data includes a device identifier that identifies the battery powered device and a protocol identifier that identifies first data fields included within the first data;

decoding the first data to identify at least one of the first data fields based, at least in part, on the protocol identifier;

receiving at a second time, at a second device, second data associated with the battery powered device, wherein the second data includes the device identifier and a second protocol identifier that identifies second data fields that are included in the second data, wherein the second data fields is a subset of the first data fields; and

decoding the second data to identify at least one of the second data fields based, at least in part, on the second protocol identifier.

10. The method of claim 9, further comprising causing a performance of one or more of: using at least a portion of the first data or the second data for generating a bill, causing at least a portion of one or more of the first data or the second data to be stored; transmitting a consumption value obtained from one or more of the first data or the second data; triggering an alarm condition associated with the battery powered device; transmitting at least a portion of the first data; transmitting at least a portion of the second data; or transmitting third data to the battery powered device.

11. The method of claim 9, wherein the first device and the second device are the same device, and wherein the first data is a first bubble up message transmitted by the battery powered device, and the second data is a second bubble up message transmitted by the battery powered device.

12. The method of claim 9, wherein the second data fields of the second data exclude a consumption data field that indicates a consumption of the battery powered device.

13. The method of claim 9, wherein the first data fields include a tamper data field that indicates a tampering of the battery powered device, and the second data fields of the second data excludes the tamper data field.

14. The method of claim 9, further comprising transmitting third data, the third data indicating that the first device has received the first data.

15. The method of claim 9, further comprising transmitting third data, the third data including a request that the battery powered device transmit additional data.

16. The method of claim 9, further comprising receiving third data associated with the battery powered device, wherein the third data incudes a consumption data field and wherein the third data is generated based, at least in part, on a change in a value associated with the consumption data field.

17. One or more computer-readable media storing instructions executable by one or more processors of a device that when executed cause the one or more processors to perform actions, including:

determining, at a first time, one or more criteria associated with the device, wherein the one or more criteria include one or more of a battery level associated with a battery of the device or a length of time the device has been in service;

selecting one or more data fields, from a plurality of data fields, to include within a message based, at least in part, on the one or more criteria;

generating the message that includes the one or more data fields, wherein the one or more data fields includes a protocol identifier field that provides an indication of the one or more data fields included within the message and a device identifier field that identifies the device; and

causing the message to be transmitted to one or more collection devices.

18. The one or more computer-readable media of claim 17, further comprising:

determining, at a second time, one or more criteria associated with the device, wherein the one or more criteria include one or more of a second battery level of the battery or a second length of time the device has been in service;

selecting a subset of the one or more data fields to include within a second message based, at least in part, on the second battery level;

generating the second message that includes the subset of the one or more data fields, wherein the subset of the one or more data fields includes a second protocol identifier that provides an indication of the subset of the one or more data fields included within the second message and the device identifier field that identifies the device; and

causing the second message to be transmitted to the one or more collection devices.

19. The one or more computer-readable media of claim 18, wherein the one or more data fields includes a preamble data field, a protocol identifier data field, an endpoint type and subtype data field, an endpoint serial number data field, a current consumption data field, a tamper/flags data field, and a CRC-16 data field, and wherein the subset of the one or more data fields includes the preamble data field, the protocol identifier data field, the endpoint serial number data field, the CRC-16 data field, and a subset of the endpoint type and subtype data field, the current consumption data field, and the tamper/flags data field.

20. The one or more computer-readable media of claim 17, wherein selecting the one or more data fields includes selecting one or more of a consumption data field or a tamper data field in response to determining that the battery level is within a first range of battery levels.

CLAIMS

What is claimed is:

1. A battery powered device comprising:

a battery;

one or more processors electrically coupled to the battery;

memory storing instructions executable by the one or more processors to perform operations comprising:

determining a first battery level of the battery at a first time;

selecting one or more data fields, from a plurality of data fields, to include within a first message based, at least in part, on the first battery level;

generating the first message that includes the one or more data fields, wherein the one or more data fields includes a protocol identifier that provides an indication of the one or more data fields included within the first message and a device identifier that identifies the battery powered device;

transmitting the first message; and

adjusting a transmission rate to an updated transmission rate based, at least in part, on the first battery level and transmitting a second message according to the updated transmission rate.

2. The battery powered device of claim 1, further comprising:

determining a second battery level of the battery at a second time;

selecting a subset of the one or more data fields to include within the second message based, at least in part, on the second battery level;

generating the second message that includes the subset of the one or more data fields, wherein the subset of the one or more data fields includes a second protocol identifier that provides an indication of the subset of the one or more data fields included within the second message and the device identifier that identifies the battery powered device; and

transmitting the second message.

3. The battery powered device of claim 1, wherein selecting the one or more data fields is further based, at least in part, on one or more of a request received from an external device, or a length of time the battery powered device has been in service.

4. The battery powered device of claim 1, wherein adjusting the transmission rate to the updated transmission rate includes reducing the transmission rate at least partly in response to one or more of the first battery level, an age of the battery powered device, a time since activation of the battery powered device, or receipt of an acknowledgement message.

5. The battery powered device of claim 2, wherein the one or more data fields includes a preamble data field, a protocol identifier data field, an endpoint type and subtype data field, an endpoint serial number data field, a current consumption data field, a tamper/flags data field, and a CRC-16 data field, and wherein the subset of the one or more data fields includes the preamble data field, the protocol identifier data field, the endpoint serial number data field, the CRC-16 data field, and a subset of the endpoint type and subtype data field, the current consumption data field, and the tamper/flags data field.

6. The battery powered device of claim 1, wherein selecting the one or more data fields includes selecting a consumption data field in response to determining that the first battery level is within a first range of battery levels.

7. The battery powered device of claim 1, wherein selecting the one or more data fields includes selecting a tamper data field in response to determining that the battery powered device has been tampered with.

8. A method, comprising:

receiving at a first time, at a first device, first data associated with a battery powered device, wherein the first data includes a device identifier that identifies the battery powered device and a protocol identifier that identifies first data fields included within the first data;

decoding the first data to identify at least one of the first data fields based, at least in part, on the protocol identifier;

receiving at a second time, at a second device, second data associated with the battery powered device, wherein the second data includes the device identifier and a second protocol

identifier that identifies second data fields that are included in the second data, wherein the second data fields is a subset of the first data fields;

decoding the second data to identify at least one of the second data fields based, at least in part, on the second protocol identifier; and

causing a performance of one or more of:

using at least a portion of the first data or the second data for generating a bill;

causing at least a portion of one or more of the first data or the second data to be stored;

transmitting a consumption value obtained from one or more of the first data or the second data;

triggering an alarm condition associated with the battery powered device;

transmitting at least a portion of the first data;

transmitting at least a portion of the second data; or

transmitting third data to the battery powered device.

9. The method of claim 8, wherein the first device and the second device are the same device, and wherein the first data is a first bubble-up message transmitted by the battery powered device, and the second data is a second bubble-up message transmitted by the battery powered device.

10. The method of claim 8, wherein the second data fields of the second data exclude a consumption data field that indicates a consumption of the battery powered device.

11. The method of claim 8, wherein the first data fields include a tamper data field that indicates a tampering of the battery powered device, and the second data fields of the second data excludes the tamper data field.

12. The method of claim 8, further comprising transmitting third data, the third data indicating that the first device has received the first data.

13. The method of claim 8, further comprising transmitting third data, the third data including a request that the battery powered device transmit additional data.

14. The method of claim 8, further comprising receiving third data associated with the battery powered device, wherein the third data incudes a consumption data field and wherein the third data is generated based, at least in part, on a change in a value associated with the consumption data field.

15. One or more computer-readable media storing instructions executable by one or more processors of a device that when executed cause the one or more processors to perform actions, including:

determining, at a first time, one or more criteria associated with the device, wherein the one or more criteria include one or more of a battery level associated with a battery of the device or a length of time the device has been in service;

selecting one or more data fields, from a plurality of data fields, to include within a first message based, at least in part, on the one or more criteria;

generating the first message that includes the one or more data fields, wherein the one or more data fields includes a protocol identifier field that provides an indication of the one or more data fields included within the first message and a device identifier field that identifies the device;

causing the first message to be transmitted to one or more collection devices; and

adjusting a transmission rate to an updated transmission rate based, at least in part, on the battery level and transmitting a second message according to the updated transmission rate.

16. The one or more computer-readable media of claim 15, further comprising:

determining, at a second time, one or more criteria associated with the device, wherein the one or more criteria include one or more of a second battery level of the battery or a second length of time the device has been in service;

selecting a subset of the one or more data fields to include within the second message based, at least in part, on the second battery level;

generating the second message that includes the subset of the one or more data fields, wherein the subset of the one or more data fields includes a second protocol identifier that provides an indication of the subset of the one or more data fields included within the second message and the device identifier field that identifies the device; and

causing the second message to be transmitted to the one or more collection devices.

17. The one or more computer-readable media of claim 16, wherein the one or more data fields includes a preamble data field, a protocol identifier data field, an endpoint type and subtype data field, an endpoint serial number data field, a current consumption data field, a tamper/flags data field, and a CRC-16 data field, and wherein the subset of the one or more data fields includes the preamble data field, the protocol identifier data field, the endpoint serial number data field, the CRC-16 data field, and a subset of the endpoint type and subtype data field, the current consumption data field, and the tamper/flags data field.

18. The one or more computer-readable media of claim 15, wherein selecting the one or more data fields includes selecting one or more of a consumption data field or a tamper data field in response to determining that the battery level is within a first range of battery levels.

19. The one or more computer-readable media of claim 15, wherein selecting the one or more data fields is further based, at least in part, on one or more of a request received from an external device, or a length of time the device has been in service.

20. The one or more computer-readable media of claim 15, wherein adjusting the transmission rate to the updated transmission rate includes reducing the transmission rate at least partly in response to one or more of the battery level, an age of the device, a time since activation of the device, or receipt of an acknowledgement message.