

What is Claimed:

1. A transaction card having opposite finished surfaces and a periphery, the transaction card comprising:
 - a metal layer having opposite surfaces and at least two openings, each opening
5 extending through one or both of the opposite finished surfaces;
 - a transponder module disposed in one of the at least two openings in the metal layer, the transponder module comprising a component in a transaction circuit configured to communicate wirelessly with a card reader that is configured to emit radio frequency (RF) waves having energy, the transaction circuit configured to receive
10 an incoming RF signal from the card reader, to respond with an outgoing RF signal, and to power the transaction circuit by harvesting energy from the RF waves; and
 - an LED module disposed in another of the at least two openings in the metal layer and having a planar illuminated area visible from a finished surface of the transaction card, the LED module comprising: one or more LEDs configured to emit
15 light, the LED module comprising a component in an illumination circuit configured to harvest energy from the RF waves for powering the one or more LEDs.
2. The transaction card of claim 1, wherein the illumination circuit is configured to illuminate independent of status of a payment transaction performed by the transaction circuit.
- 20 3. The transaction card of claim 1, wherein the illumination circuit and the transaction circuit comprise components in a unified circuit in which the illumination circuit is configured to illuminate in a manner indicative of a status of a payment transaction performed by the transaction circuit.
4. The transaction card of claim 1, wherein the metal layer has at
25 least one discontinuity extending from the periphery of the card to at least one of the at least two openings in the metal layer.
5. The transaction card of claim 4, further comprising at least one discontinuity connected to and extending between the at least two openings.
6. The transaction card of claim 4, wherein the metal layer has a
30 first discontinuity extending from the periphery of the card to the opening containing the transponder module and a second discontinuity extending from the periphery of the card to the opening containing the LED module.
7. The transaction card of claim 1, further comprising at least one non-metal layer disposed on each of opposite surfaces of the metal layer.
- 35 8. The transaction card of claim 1, further comprising a printed pattern overlying the illuminated area of the LED module.

9. The transaction card of claim 1, wherein the illumination circuit is configured to have a variable illumination characteristic dependent upon a characteristic of the harvested energy.

10. The transaction card of claim 9, wherein the illumination circuit
5 comprises at least one LED having a variable intensity, wherein the LED is configured to illuminate with a first, relatively lower intensity in response to harvested energy in a first, relatively lower range and to illuminate with a second, relatively higher intensity in response to harvested energy in a second, relatively higher range.

11. The transaction card of claim 9, wherein the illumination circuit
10 has at least two LEDs and is configured to illuminate one of the at least two LEDs in response to harvested energy in a first, relatively lower range and to illuminate the other of the at least two LEDs in response to harvested energy in a second, relatively higher range.

12. The transaction card of claim 11, wherein the first range and the
15 second range are overlapping, such that the illumination circuit is configured to illuminate both of the at least two LEDs when the harvested energy is in the overlapping range.

13. The transaction card of claim 9, wherein the at least two LEDs are each configured to emit a same wavelength of light.

20 14. The transaction card of claim 11, wherein at least one of the at least two LEDs is configured to emit a different wavelength of light than the other of the at least two LEDs.

15. The transaction card of claim 14, wherein one of the at least two LEDs is configured to generate a wavelength in the green visible spectrum of light and
25 another of the at least two LEDs is configured to generate a wavelength in the red visible spectrum of light.

16. The transaction card of claim 15, wherein the illumination circuit is configured to illuminate the red in response to harvested energy in a first, relatively lower range, to illuminate the green LED in response to harvested energy in a second, relatively higher range, and to illuminate both the red LED and the green LED when the
30 harvested energy in response to harvested energy in a third, intermediate range between the first, relatively lower range and the second, relatively higher range.

17. The transaction card of claim 16, wherein one or both of the red LED and the green LED are configured to illuminate with variable intensity.

35 18. The transaction card of claim 1, wherein the LED module is located in the metal layer in a position that improves RF performance of the transponder module relative to a card without the LED module.

19. The transaction card of claim 1, wherein the LED module further comprises a light guide for distributing the light emitted by the one or more LEDs across the illuminated area.

20. The transaction card of claim 1, wherein the LED module is an
5 OLED module.

21. The transaction card of claim 1, wherein the illumination circuit includes a voltage increasing or voltage decreasing component.

22. The transaction card of claim 21, wherein the illumination circuit includes a charge pump.

10 23. A transaction card, comprising:

a metal layer having a visual appearance, a thickness, a metal layer front face, a metal layer back face, and one or more windows or pockets extending through at least the front face;

a transponder module and an insert respectively disposed in the one or more
15 windows or pockets, the insert having an insert front-face visible through the window, the insert front face having a different visual appearance than the metal layer;

one or more non-functional features visible from a front surface of the card in contrast to the visual appearance of the insert front-facing surface disposed beneath the non-functional features, wherein the insert is one of:

- 20 (a) non-transparent and non-translucent; or
(b) transparent or translucent, and configured to transmit backlighting to the non-functional features through a back surface of the card;

the insert located in the metal layer in a position that improves RF performance
25 of the transponder module relative to a card with an absence of the insert.

24. The transaction card of claim 23, wherein the non-functional features comprise printed features.

25. The transaction card of claim 23, wherein the insert is non-transparent and non-translucent, but has an illuminable front-facing surface.

30 26. The transaction card of claim 23, wherein the insert comprises an illuminable LED display.

27. The transaction card of claim 26, wherein the illuminable LED display is powered by energy harvested from RF waves.

35 28. The transaction card of claim 26, wherein the metal layer has at least two openings, with a transponder module disposed in one of the at least two openings and the insert disposed in another of the at least two openings.

29. The transaction card of claim 28, wherein the transponder module includes a transaction circuit configured to couple the transponder module inductively to a card reader using RFID technology.

30. The transaction card of claim 26, wherein the illuminable LED
5 display is configured to illuminate as an indicator of card operability.

31. The transaction card of claim 26, wherein the illuminable LED display is configured to illuminate independent of status of a payment transaction performed by the transaction circuit.

32. The transaction card of claim 23, wherein the insert is translucent
10 or transparent and the window extends from a front surface of the metal layer to a back surface of the metal layer, such that non-collimated light passes through the insert to provide the contrast with the one or more non-functional features visible from a front surface of the card.

33. The transaction card of claim 23, wherein the non-functional
15 features comprise at least one of printed features, engraved features, etched features, or cut features.

34. The transaction card of claim 23, wherein the window or pocket comprises a plurality of openings in the front face of the metal layer that define the one or more non-functional features disposed within a first area, at least one opening in the
20 back face of the body aligned with the first area, and the insert disposed in the at least one opening in the back face of the body positioned with the front-facing surface of the insert recessed relative to the metal layer front face such that the front-facing surface of the insert is visible through the plurality of openings in the front face of the metal layer.

35. The transaction card of claim 23, further comprising a backing
25 layer laminated to the back face of the body.

36. The transaction card of claim 23, wherein a portion of the insert or the opening containing the insert are partially obscured by printed or decorative content.

37. The transaction card of claim 23, further comprising a first
30 discontinuity extending from the periphery of the card to the opening containing the transponder module and a second discontinuity extending from the periphery of the card to the opening containing the LED module.

38. The transaction card of claim 26, wherein the illuminable LED
35 display comprises one or more LEDs configured to emit light, and a light guide for distributing the light emitted by the one or more LEDs across an illuminated area of the front-facing surface of the insert.

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39. The transaction card of claim 27, wherein the illuminable LED display has a variable illumination characteristic dependent upon an amount of energy harvested.