We Claim:

1. A can end capable of having (i) an unopened configuration in which the end is sealed and (ii) an opened configuration in which, after application of the end to a can body, the contents of the can are accessible, the can end comprising:

an end shell and a pull tab, the pull tab having an orientation that is approximately parallel to a center panel of the end shell in the unopened configuration, the pull tab being capable of being actuated to a part vertical position by lifting an end of the pull tab to rupture a score on the center panel and thereby achieve the opened configuration;

plural images located on a center panel of the end shell, each one of the images being machine-readable, the plural images being located on the center panel such that the pull tab in the unopened configuration obscures a portion of each one of the images regardless of the rotational position of the pull tab such that none of the plural images are readable when the beverage can is in its unopened configuration, whereby at least one of the images is fully exposed, intact, and capable of being read by a handheld, wireless communication device upon the tab being actuated to its part vertical position.

2. The end of claim 1 wherein the images are formed from ink jet printing.
3. The can end of claim 1 wherein the images are formed by laser etching.
4. The end of claim 1 wherein each one of the end shell comprises a metal and a coating, the coating comprising a lacquer and a photonically active component; and the images are formed by application of a laser that changes an appearance of at least a portion of the photonically active component substantially without burning, etching, or ablating the lacquer.
5. The end of claim 1 wherein the metal is an aluminum.
6. The end of claim 1 wherein the end is a beverage can end.
7. The end of claim 1 wherein the metal is a steel.
8. The end of claim 1 wherein each the images is a QR code.

9. The end of claim 1 wherein images are distributed about a rivet that couples the tab to the center panel.
10. The end of claim 1 further comprising a machine readable code on either one of a topside or an underside of the tab.
11. A method of providing information on a can end, comprising the steps of:

providing a metal can end including: an end shell, a pull tab, and plural images located on a center panel of the end shell, each one of the images being machine-readable, the plural images being located on the center panel such that the pull tab obscures a portion of each one of the images regardless of the rotational position of the pull tab such that none of the plural images are readable; and

lifting an end of the pull tab until the pull tab is part vertical to rupture a score on the center panel, whereby in the part vertical position at least one of the images is fully exposed, intact, and capable of being read by a handheld, wireless communication device.

12. The method of claim 11 further comprising the step of reading the image with a machine while the tab is in a part vertical position.
13. The method of claim 11 wherein the images are formed from ink jet printing.
14. The method of claim 11 wherein the images are formed from laser etching.
15. The method of claim 11 wherein each one of the end shell comprises a metal and a coating, the coating comprising a lacquer and a photonically active component; and the images are formed by application of a laser that changes an appearance of at least a portion of the photonically active component substantially without burning, etching, or ablating the lacquer.
16. The method of claim 11 wherein the metal is an aluminum
17. The method of claim 11 wherein the end is a beverage can end .
18. The method of claim 11 wherein the metal is a steel.
19. The method of claim 11 wherein each the images is a two dimensional barcode.
20. The method of claim 11 wherein images are distributed about a rivet that couples the tab to the center panel.

21. The method of claim 11 wherein the images are equidistantly spaced about a rivet that attaches the tab to the center panel.
22. The method of claim 21 wherein the plural images are four images.
23. The method of claim 21 wherein the plural images are three images.
24. The method of claim 11 further comprising a machine readable code on either one of a topside or an underside of the tab.
25. The method of claim 11 further comprising a machine readable code on the underside of the tab that is readable only upon actuation of the tab.
26. A can end capable of having (i) an unopened configuration in which the end is sealed and (ii) an opened configuration in which, after application of the end to a can body, the contents of the can are accessible, the can end comprising:

    an end shell and a pull tab, the pull tab having an orientation that is approximately parallel to a center panel of the end shell in the unopened configuration, the pull tab being capable of being actuated to a part vertical position by lifting an end of the pull tab to rupture a score on the center panel and thereby achieve the opened configuration;

    an two dimensional code capable of being read on a handheld wireless communication device located on either one of a topside and underside of the tab, the code having a size of no more than 6mm by 6mm.
27. The can end of claim 26 wherein the code has a size of at least 2mm by 2mm.
28. The can end of claim 26 wherein the code has a size of at least 3mm by 3mm.
29. The can end of claim 26 wherein the code has a size of at least 4mm by 4mm and no more than 5mm by 5mm.
30. The can end of claim 26 wherein the code is a matrix barcode having 14 by 14 modules.
31. The can end of claim 26 wherein the code is located on the underside of the tab.
32. The can end of claim 26 wherein the code is located on the topside of the tab.
33. The can end of claim 26 wherein the code is located on each one of the topside and the underside of the tab.
34. The can end of claim 26 wherein the code is one of a matrix barcode and a QR code.

We claim:

1. A can end for use on a beverage can, the can end capable of having (i) an unopened configuration in which the end is sealed and (ii) an opened configuration in which, after application of the end to a can body, the contents of the can are accessible, the can end comprising:

an end shell and a pull tab, the pull tab having an orientation that is approximately parallel to a center panel of the end shell in the unopened configuration, the pull tab being capable of being actuated to a part vertical position by lifting an end of the pull tab to rupture a score on the center panel and thereby achieve the opened configuration;

plural images located on a center panel of the end shell, each one of the images being machine-readable, the plural images being located on the center panel such that the pull tab in the unopened configuration obscures a portion of each one of the images regardless of the pull tab's rotational position such that none of the plural images are readable when the beverage can is in its unopened configuration, whereby at least one of the images is fully exposed, intact, and capable of being read by a handheld, wireless communication device upon the tab being actuated to its part vertical position.

2. The end of claim 1 wherein the images are formed from ink jet printing.

3. The can end of claim 1 wherein the images are formed by laser etching.

4. The end of claim 1 wherein each one of the end shell comprises a metal and a coating, the coating comprising a lacquer and a photonically active component; and the images are formed by application of a laser that changes an appearance of at least a portion of the photonically active component substantially without burning, etching, or ablating the lacquer.

5. The end of claim 1 wherein the end is formed of a metal that is an aluminum.

6. The end of claim 1 wherein the end is a beverage can end.

7. The end of claim 1 wherein the end is formed of a metal that is a steel.

8. The end of any of the preceding claims wherein each the images is a QR code.

9. The end of claim 1 wherein images are distributed about a rivet that couples the tab to the center panel.

10. The end of claim 1 further comprising a machine readable code on either one of a topside or an underside of the tab.

11. A method of providing information on a can end, comprising the steps of:

providing a metal can end including: an end shell, a pull tab, and plural images located on a center panel of the end shell, each one of the images being machine-readable, the plural images being located on the center panel such that the pull tab obscures a portion of each one of the images regardless of the rotational position of the pull tab such that none of the plural images are readable; and

lifting an end of the pull tab until the pull tab is part vertical to rupture a score on the center panel, whereby in the part vertical position at least one of the images is fully exposed, intact, and capable of being read by a handheld, wireless communication device.

12. The method of claim 11 further comprising the step of reading the image with a machine while the tab is in a part vertical position.

13. The method of claim 11 wherein the images are formed from ink jet printing.

14. The method of claim 11 wherein the images are formed from laser etching.

15. The method of claim 11 wherein each one of the end shell comprises a metal and a coating, the coating comprising a lacquer and a photonically active component; and the images are formed by application of a laser that changes an appearance of at least a portion of the photonically active component substantially without burning, etching, or ablating the lacquer.

16. The method of claim 11 wherein the metal is an aluminum.

17. The method of claim 11 wherein the end is a beverage can end.

18. The method of claim 11 wherein the metal is a steel.

19. The method of claim 11 wherein each the images is a two dimensional barcode.

20. The method of claim 11 wherein images are distributed about a rivet that couples the tab to the center panel.

21. The method of claim 11 wherein the images are equidistantly spaced about a rivet that attaches the tab to the center panel.

22. The method of claim 21 wherein the plural images are four images.

23. The method of claim 21 wherein the plural images are three images.

24. The method of claim 11 further comprising a machine readable code on either one of a topside or an underside of the tab.

25. The method of claim 11 further comprising a machine readable code on the underside of the tab that readable only upon actuation of the tab.

26. A can end capable of having (i) an unopened configuration in which the end is sealed and (ii) an opened configuration in which, after application of the end to a can body, the contents of the can are accessible, the can end comprising:

an end shell and a pull tab, the pull tab including a recess, the pull tab having an orientation that is approximately parallel to a center panel of the end shell in the unopened configuration, the pull tab being capable of being actuated to a part vertical position by lifting an end of the pull tab to rupture a score on the center panel and thereby achieve the opened configuration;

a two dimensional code located on an underside of a structural body of the tab on the recess, wherein the two dimensional code is capable of being read on a handheld wireless communication device when the end is in the opened configuration, the code having a size of no more than 5 mm by 5 mm.

27. The can end of claim 26 wherein the code has a size of at least 2 mm by 2 mm.

28. The can end of claim 26 wherein the code has a size of at least 3 mm by 3 mm.

29. The can end of claim 26 wherein the code has a size of at least 4 mm by 4 mm.

30. The can end of claim 26 wherein the code is a matrix barcode having 14 by 14 modules.

31. The can end of claim 26 wherein the code is one of a matrix barcode and a QR code.

32. The can end of claim 26 wherein the tab consists essentially of the structural body and a hinged portion that is connected to the center panel.

33. The can end of claim 26 wherein the underside of the structural body of the tab is uncovered, thereby enabling the two dimensional code located on the underside of the structural portion to be read when the end is in the opened configuration.