CLAIMS:

1. An examination unit for performing examination of a breast of a subject, and optionally an axilla of the subject, for identifying a tissue abnormality, comprising:

at least one attachable sheet configured for being attached to a first selected portion and, optionally a second selected portion, corresponding to at least one breast and one optionally axilla, respectively, wherein said attachable sheet comprises:

a plurality of measuring electrodes;

a plurality of first sensing spots, each sensing spot configured for sensing from a tissue portion associated therewith either (1) electrical profile by a respective measuring electrode from said plurality of measuring electrodes; (2) IR radiation profile or thermal profile; or (3) both (1) and (2), and generate a respective first sensed data based thereon;

a plurality of second sensing spots, each second sensing spot configured for sensing from a tissue portion associated therewith an IR radiation profile or thermal profile and generate a respective second sensed data based thereon;

at least one current electrode configured for applying electrical current to at least a tissue portion associated with a respective said first sensing spot;

the examination unit further comprising a processing circuitry; one or more memories coupled to the processing circuitry; and storing programming instructions for execution by the processing circuitry for:

(i) operating said first and second sensing spots and receiving each of said respective first and second sensed data;

(ii) controlling said at least one current electrode to execute a selected electrical current profile; and

(iii) transmitting each of said respective first and second sensed data;

wherein said plurality of measuring electrodes are clustered to a plurality of groups, each group comprises a plurality of measuring electrodes members; wherein said processing circuitry is configured to operate said plurality of measuring electrodes to measure an electrical profile between each measuring electrode member of a group to

any of other measuring electrode members at the same group; wherein said electrical profile is selected from one or more of impedance, voltage and current;

wherein some of the measuring electrodes are common to two or more groups.

2. The examination unit of claim 1, wherein said at least one attachable sheet comprises a skin facing face, said skin facing face comprises an adhesive layer for allowing attachment to said first and second selected portions;

wherein said skin facing face comprises a removable cover covering said adhesive layer and configured for removal prior to said attachment.

3. The examination unit of claim 1, wherein at least a portion of the measuring electrodes constitute said at least one current electrode.

4. The examination unit of claim 1, wherein said electrical profile is determined by any of impedance, conductivity, voltage, current, permittivity, or any combination thereof, of the at least said tissue portion being associated with a respective first sensing spot thereto.

5. The examination unit of claim 1, wherein each of the plurality of first sensing spots comprises a measuring electrode and a thermal sensor, and wherein said first sensing spot is configured for sensing both of (i) electrical profile; and (ii) IR radiation profile or thermal profile of the respective tissue portion associated therewith.

6. The examination unit of claim 1, comprising one or more optical sensors disposed on different portions of a periphery of the at least one attachable sheet and configured for sensing optical parameters indicative of light intensity of one or more selected wavelength ranges and generating optical sensed data based thereon;

wherein the processing circuitry is configured for analyzing said optical sensed data to identify insufficient level of adhesiveness or adherence of said at least one attachable sheet to the skin of the subject and outputting an alert if said insufficient level of adhesiveness is identified.

7. The examination unit of claim 1, wherein said plurality of first sensing spots comprise said plurality of second sensing spots.

8. The examination unit of claim 7, comprising a second sensing array having a plurality of said second sensing spots; each second sensing spot being positioned one with respect to the other along at least one second continuous line, wherein the processing circuitry is further configured to analyze said second sensing data and to

identify a heat signature of one or more anatomical landmarks for verifying a good placement of said attachable sheet, and if no heat signature is identified, the processing circuitry is configured to execute a misplacement alert.

9. The examination unit of claim 8, wherein said at least one second continuous line is lateral or medial to said first selected portion.

10. The examination unit of claim 1, comprising a plurality of first pressure applicators associated with the at least one attachable sheet, each configured for controllably applying pressure on an area of the breast or the axilla associated therewith when said at least one attachable sheet is attached to the breast;

wherein said first sensing spots are further configured for sensing from a skin portion associated therewith at least one of deformation profile, pressure profile or pressure change profile in response to controlled pressure application and generate respective data that is comprised in said first sensed data; and

wherein the processing circuitry is further configured for controlling said first pressure applicators to execute a selected first pressure plan on the breast and/or axilla;

wherein the first sensing spots comprise a plurality of first pressure sensors;

wherein each first sensing spot that comprises a first pressure sensor is associated with a respective first pressure applicator, such that the respective first pressure applicator is configured for applying pressure on at least the breast area associated with the respective first sensing spot.

11. The examination unit of claim 10, wherein said selected first pressure plan comprises applying pressure simultaneously on selected mammary peripheral portions of the breast for a selected duration, followed by a coordinated relief of the pressure from said mammary peripheral portions; and

wherein said processing circuitry is configured for operating said first sensing units to at least sense the temperature profile in response to said selected first pressure plan;

wherein said coordinated relief comprises relieving the pressure simultaneously from said mammary peripheral portions;

wherein said mammary peripheral portions form a continuum;

wherein said application of pressure on said selected peripheral portions results in a continuous pressure application along a force application line;

wherein said selected first pressure plan comprises:

applying pressure with at least one first early pressure applicator and relieving the pressure application of said at least one first early pressure applicator,

following the relief of pressure of the at least one first early pressure applicator, applying a pressure with at least one first subsequent pressure applicator and relieving the pressure application of said at least one first subsequent pressure applicator,

wherein said at least one first subsequent pressure applicator is arranged spatially consecutively to said at least one first early pressure applicator; and

wherein said processing circuitry is configured for operating said first sensing spots to at least sense the deformation profile, pressure profile or pressure change profile in response to said selected first pressure plan.

12. The examination unit of claim 1, wherein each of said plurality of measuring electrodes functions also as a current electrode.

13. The examination unit of claim 1, wherein each measuring electrode is also a current electrode capable of applying an electric current to the tissue it is associated with; wherein the processing circuitry is configured to control each measuring electrode such that for each measurement of electrical profile between each measuring electrode member of a group to any of other measuring electrode members, a selected profile of electric current is applied from one member participating in the measurement to another measurement participating in the measurement.

14. The examination unit of claim 13, wherein the electrical profile between each measuring electrode member of a group to any of other measuring electrode members of the group is measured without application of electrical current to measure the natural electrical profile of the breast.

15. The examination unit of claim 1, wherein said at least one attachable sheet comprises a first portion, a second portion and a third portion; the first portion and the second portion are shaped to fit over the shoulder of the subject, each from a different side of shoulder, so as to ensure a right placement of the at least one attachable sheet over the axilla and the breast of the subject; the third portion provides a degree of freedom with respect to the first and second portions to allow adjustment of the at least one attachable sheet to different sizes and shapes of breasts.

16. The examination unit of claim 15, wherein each of the portions extends peripherally from a central portion of the at least one attachable sheet.

17. The examination unit of claim 16, wherein the at least one attachable sheet defines a varying periphery length from a central point of the at least one attachable sheet to any point along the periphery of the at least one attachable sheet; wherein the peripheral length between two adjacent portions decrease to a certain minimum defining the border of the two adjacent portions.

18. The examination unit of claim 1, wherein the at least one attachable sheet comprises two similar sides, each side is intended to be attached to a different breast of the subject.

19. The examination unit of claim 1, wherein said plurality of measuring electrodes are clustered to a plurality of circular groups, such that each measuring electrode in the circular group is at the same level as at least one other measuring electrode in the same group; wherein the at least one processing circuitry is configured for operating the measuring electrodes to measure electrical profile between one measuring electrode of the circular group and at least one other measuring electrode in the group.

20. The examination unit of claim 19, wherein the at least one processing circuitry is configured for operating the measuring electrodes to measure electrical profile between one measuring electrode of the circular group and an opposite measuring electrode of the group positioned at an opposite side of a circle defining the arrangement of the circular group.

21. A system for performing examination of at least one breast of a subject and at least one axilla for identifying a tissue abnormality, comprising:

the examination unit of claim 1;

an analyzing module configured for receiving and analyzing said at least first sensed data and identifying therein signatures indicative of abnormality in at least one of said selected first portion and said selected second portion of the subject and generating abnormality data based thereon;

an output module configured for outputting said abnormality data.

22. The system of claim 21, wherein said analyzing module is further configured for receiving one or more user-related parameters indicative of at least one of: medical-related data of the subject; demographic data of the subject; age; Body Mass Index (BMI); genetic data of the subject; family history of the subject indicative of

abnormalities of the breast, ovaries, and/or uterus; family history or personal history of the subject indicative of cancer and/or cancer-related pathologies; ethnicity; objective data of the subject, and; subjective data of the subject; and wherein said identifying is further based on said one or more user-related parameters.

23. The system of claim 21, wherein said analyzing comprises generating a sensing map of at least one of (i) an electrical profile, including any of impedance, permittivity, or conductance, or any combination thereof, and (ii) IR profile or thermal profile, or (i) and (ii) based on said respective first sensed data.

24. The system of claim 21, wherein said analyzing comprises to analyze said second sensing data to identify a heat signature of one or more anatomical landmarks for verifying a good placement of said attachable sheet, and if no heat signature is identified, the processing circuitry is configured to execute a misplacement alert.

25. The system of claim 24, wherein said analyzing further comprises generating a sensing map of at least one of deformation profile, pressure profile or pressure change profile in response to controlled pressure application based on said respective first data.

26. The system of claim 21, wherein said analyzing comprises comparing each of said respective first sensed data to a baseline data for identifying a variation from said baseline being indicative of an abnormality.

27. The system of claim 26, wherein said baseline is selected from any one of: a respective sensed data of the contralateral breast and/or axilla, subjective tissue density of the examined breast, a pre-obtained sensed data of a subject having a certain degree of similarity to one or more said user-related parameters, other subjective and/or objective medical-related data adjusted to demographic data, such as age and ethnicity.

28. The system of claim 21, wherein said analyzing comprises analysis of fat percentage of said first selected portion for determining said subjective tissue density.

29. The system of claim 21, wherein the analyzing module is configured to compare between first sensed data of two identical groups of first sensing spots, each measured in a different breast of the subject.

30. A method for performing examination of a breast of a subject, and optionally an axilla of the subject, comprising:

attaching a plurality of first sensing spots, a plurality of measuring electrodes and at least one current electrode to a first selected portion and, optionally a second selected portion, corresponding to at least one breast and one optionally axilla, respectively;

wherein each first sensing spot is configured for sensing from a tissue portion associated therewith either an (1) electrical profile by a respective measuring electrode from said plurality of measuring electrodes; (2) IR radiation profile or thermal profile; or (3) both (1) and (2), and generate a respective first sensed data based thereon;

wherein the at least one current electrode is configured for applying electrical current to at least a tissue portion associated with a respective said first sensing spot;

wherein the method further comprising controlling said at least one current electrode to execute a selected electrical current profile;

operating said plurality of first and second sensing spots and receiving each of said respective first and second sensed data; and

transmitting each of said respective first sensed data;

wherein said plurality of measuring electrodes are clustered to a plurality of groups, each group comprises a plurality of measuring electrodes members; wherein the method further comprises measuring an electrical profile between each measuring electrode member of a group to any of other measuring electrode members at the same group; wherein said electrical profile is selected from one or more of impedance, voltage and current;

wherein some of the measuring electrodes are common to two or more groups.

31. The method of claim 30, wherein at least a portion of the measuring electrodes constitute said at least one current electrode.

32. The method of claim 30, wherein said electrical profile is determined by any of impedance, conductivity, permittivity, current, voltage or any combination thereof, of the at least said tissue portion being associated with a respective first sensing spot thereto.

33. The method of claim 30, wherein each of the plurality of first sensing spots comprises a measuring electrode and a thermal sensor, and wherein said first sensing spot is configured for sensing both of (i) electrical profile; and (ii) IR radiation profile or thermal profile of the respective tissue portion associated therewith.

34. The method of claim 30, comprising attaching a plurality of second sensing spots to a first selected portion and, optionally a second selected portion, corresponding to at least one breast and one optionally axilla, respectively; wherein each second sensing spot configured for sensing from a tissue portion associated therewith an IR radiation profile or thermal profile and generate a respective second sensed data based thereon.

35. The method of claim 34, comprising optically sensing optical parameters indicative of light intensity of one or more wavelength ranges between either (1) the plurality of first sensing spots, (2) the plurality of second sensing spots, or (3) the plurality of first sensing spots and the plurality of second sensing spots, and the skin of the subject and generating optical sensed data; and

identifying in said sensed data an inadequate adhesiveness or adherence of the plurality of first sensing spots or the plurality of second sensing spots to the skin and outputting an alert if inadequate adhesiveness or adherence is identified.

36. The method of claim 34, comprising arranging said second sensing sports in a second array; each second sensing spot being positioned one with respect to the other along at least one second continuous line; wherein the method further comprising analyzing said second sensing data to identify a heat signature of one or more anatomical landmarks for verifying a good placement of said first sensing spots, and if no heat signature is identified, the method further comprising outputting a misplacement alert.

37. The method of claim 30, comprising analyzing said at least first sensed data and identifying therein signatures indicative of abnormality in at least one of said selected first portion and said selected second portion of the subject and generating abnormality data based thereon; and

outputting said abnormality data.

38. The method of claim 30, comprising applying a selected current profile between one or more pairs of current electrodes that are positioned in opposite sides of the breast, each member of said one or more pairs of electrodes is associated with a respective fat measuring electrode that is comprised in said plurality of measuring electrodes;

wherein the method further comprises measuring electrical profile by the respective fat measuring electrodes, wherein said electrical profile measured by the fat measuring electrodes is indicative of the fat percentage in the tissue.

39. The method of claim 30, wherein each measuring electrode is also a current electrode capable of applying an electric current to the tissue it is associated with; wherein for each measurement of electrical profile between each measuring electrode member of a group to any of other measuring electrode members, a selected profile of electric current is applied from one member participating in the measurement to another measurement participating in the measurement.

40. The method of claim 30, wherein said plurality of measuring electrodes are

clustered to a plurality of circular groups, such that each measuring electrode in the circular group is at the same level as at least one other measuring electrode in the same group; wherein the method further comprises measuring electrical profile between one measuring electrode of the circular group and at least one other measuring electrode in the group.

41. The method of claim 40, wherein the method further comprises measuring electrical profile between one measuring electrode of the circular group and an opposite measuring electrode of the group positioned at an opposite side of a circle defining the arrangement of the circular group.