CLAIMS

1. A radiation imaging system, comprising:

a plurality of radiation imaging apparatuses, each radiation imaging apparatus comprising

a radiation detecting panel including a plurality of pixels arrayed in a two-dimensional matrix and configured to convert radiation into image signals, and

an enclosure enveloping the radiation detecting panel;

wherein the plurality of radiation imaging apparatuses are arrayed so that a part of each of the radiation imaging apparatuses spatially overlap as seen from a radiation irradiation side, and a radiation image is acquired based on image signals from each of the plurality of radiation imaging apparatuses,

and wherein the enclosure of at least one radiation imaging apparatus of the plurality of radiation imaging apparatuses is formed so that a radiation transmittance of the enclosure which defines the overlapping region is higher than a radiation transmittance of the enclosure which defines a different region.

2. The radiation imaging system according to Claim 1, wherein each of the plurality of radiation imaging

apparatus further comprises an integrated circuit electrically connected to the radiation detecting panel,

wherein the enclosure further envelops the integrated circuit,

and wherein, of the plurality of radiation imaging apparatuses, the enclosure of a first radiation imaging apparatus positioned on the radiation irradiation side from a second radiation imaging apparatus is formed such that the radiation transmittance of a first region of the first radiation imaging apparatus that spatially overlaps a second radiation imaging apparatus as seen from the radiation irradiation side is higher than the radiation transmittance of a second region of the first radiation imaging apparatus facing the integrated circuit of the first radiation imaging apparatus.

3. The radiation imaging system according to Claim 2,

wherein the thickness of the enclosure of the first radiation imaging apparatus in the first region is smaller than the thickness of the enclosure of the first radiation imaging apparatus in the second region.

4. The radiation imaging system according to Claim 3,

wherein the thickness of the first radiation imaging apparatus as defined by the enclosure becomes smaller toward

an outer edge of the first region.

5. The radiation imaging system according to Claim 2, wherein the enclosure of the first radiation imaging apparatus comprises

a first member arranged to form the first region, and

a second member arranged to form the second region, the second member having a higher rigidity and a lower radiation transmittance than the first member.

6. The radiation imaging system according to Claim 5, wherein the enclosure of the first radiation imaging apparatus is configured as a generally rectangular shape, with at least one side of the four sides of the generally rectangular shape formed of the first member and the remaining sides of the four sides formed of the second member.

7. The radiation imaging system according to Claim 6, wherein the first radiation imaging apparatus further includes a power switch, the power switch being provided on a portion of the enclosure which is formed of the second member.

8. The radiation imaging system according to Claim 6, wherein the first radiation imaging apparatus further includes a display unit configured to display a power state of the first radiation imaging apparatus, the display unit being provided on a portion of the enclosure which is formed of the second member.

9. The radiation imaging system according to Claim 6, wherein the first radiation imaging apparatus further includes a connection unit configured to receive a cable capable of providing the integrated circuit with at least one of power supply to and transmission/reception of signals, the connection unit being provided on a portion of the enclosure which is formed of the second member.

10. The radiation imaging system according to Claim 6, wherein the first member is formed of a material having radiation transmittance equivalent to 5 mm alumina or less.

11. The radiation imaging system according to Claim 2, wherein the plurality of radiation imaging apparatuses each further comprises

a flexible circuit board electrically connected to the radiation detecting panel,

a printed circuit board electrically connected to

the flexible circuit board, and

a base member configured to support the radiation detecting panel,

and wherein the printed circuit board is disposed to one side of the base member which is an opposite side to a side on which the radiation detecting panel is disposed, and the integrated circuit is mounted on the printed circuit board and/or the flexible circuit board.

12. The radiation imaging system according to Claim 1, further comprising:

an accommodation enclosure configured to accommodate the plurality of radiation imaging apparatuses, the accommodation enclosure including a protective plate configured to protect the plurality of radiation imaging apparatuses, the protective plate having a distribution in thickness so that artifacts in the radiation images are suppressed.

13. The radiation imaging system according to Claim 1,

wherein each of the plurality of radiation imaging apparatus further includes an integrated circuit electrically connected to the radiation detecting panel,

wherein the enclosure further envelops the integrated circuit,

and wherein, of the plurality of radiation imaging apparatuses, the enclosure of a first radiation imaging apparatus positioned on the radiation irradiation side from a second radiation imaging apparatus has a thickness at a first region that spatially overlaps the second radiation imaging apparatus as seen from the radiation irradiation side formed such that it is thinner than the thickness of the enclosure at a second region of the second radiation imagining apparatus which faces the integrated circuit of the first radiation imaging apparatus.

14. The radiation imaging system according to Claim 13, wherein the thickness of the enclosure of the first radiation imaging apparatus in the first region becomes thinner toward an outer edge of the first region.

15. The radiation imaging system according to Claim 13, wherein the enclosure of the first radiation imaging apparatus comprises

a first member arranged to form the first region, and a

second member arranged to form the second region, the second region having a higher rigidity and a lower radiation transmittance than the first member.

16. The radiation imaging system according to Claim 15, wherein the enclosure of the first radiation imaging apparatus is configured as a generally rectangular shape, with at least one side of the four sides of the generally rectangular shape formed of the first member and the remaining sides of the four sides formed of the second member.

17. The radiation imaging system according to Claim 13, wherein the plurality of radiation imaging apparatuses each further comprises

a flexible circuit board electrically connected to the radiation detecting panel,

a printed circuit board electrically connected to the flexible circuit board, and

a base member configured to support the radiation detecting panel,

wherein the printed circuit board is disposed to one side of the base member which is an opposite side to a side on which the radiation detecting panel is disposed, and the integrated circuit is mounted on the printed circuit board and/or the flexible circuit board.

18. The radiation imaging system according to Claim 13, wherein the enclosure of the first radiation imaging

apparatus has, in the first region, a slanted region slanted as to a direction parallel to a side face of the enclosure of the first radiation imaging apparatus.

19. The radiation imaging system according to Claim 18, wherein the slanted region includes a curved face.

CLAIMS

1. A radiation imaging system, comprising:

a plurality of radiation imaging apparatuses, each radiation imaging apparatus comprising

a radiation detecting panel including a plurality of pixels arrayed in a two-dimensional matrix and configured to convert radiation into image signals, and

an enclosure enveloping the radiation detecting panel;

wherein the plurality of radiation imaging apparatuses are arrayed so that a part of each of the radiation imaging apparatuses spatially overlap as seen from a radiation irradiation side, and a radiation image is acquired based on image signals from each of the plurality of radiation imaging apparatuses,

and wherein the enclosure of at least a radiation imaging apparatus, which is arrayed on a front side as seen from the radiation irradiation side, of the plurality of radiation imaging apparatuses is formed so that a radiation transmittance of the enclosure which defines the overlapping region is higher than a radiation transmittance of the enclosure which defines a different region and a connection unit for performing at least one of power supply to and signal transmission/reception with the radiation imaging apparatus is provided in the different region.

2. The radiation imaging system according to Claim 1, wherein each of the plurality of radiation imaging

apparatus further comprises an integrated circuit electrically connected to the radiation detecting panel,

wherein the enclosure further envelops the integrated circuit,

and wherein, of the plurality of radiation imaging apparatuses, the enclosure of a first radiation imaging apparatus positioned on the radiation irradiation side from a second radiation imaging apparatus is formed such that the radiation transmittance of a first region of the first radiation imaging apparatus that spatially overlaps a second radiation imaging apparatus as seen from the radiation irradiation side is higher than the radiation transmittance of a second region of the first radiation imaging apparatus facing the integrated circuit of the first radiation imaging apparatus.

3. The radiation imaging system according to Claim 2,

wherein the thickness of the enclosure of the first radiation imaging apparatus in the first region is smaller than the thickness of the enclosure of the first radiation imaging apparatus in the second region.

4. The radiation imaging system according to Claim 3,

wherein the thickness of the first radiation imaging apparatus as defined by the enclosure becomes smaller toward

an outer edge of the first region.

5. The radiation imaging system according to Claim 2, wherein the enclosure of the first radiation imaging apparatus comprises

a first member arranged to form the first region, and

a second member arranged to form the second region, the second member having a higher rigidity and a lower radiation transmittance than the first member.

6. The radiation imaging system according to Claim 5, wherein the enclosure of the first radiation imaging apparatus is configured as a generally rectangular shape, with at least one side of the four sides of the generally rectangular shape formed of the first member and the remaining sides of the four sides formed of the second member.

7. The radiation imaging system according to Claim 6, wherein the first radiation imaging apparatus further includes a power switch, the power switch being provided on a portion of the enclosure which is formed of the second member.

8. The radiation imaging system according to Claim 6,

wherein the first radiation imaging apparatus further includes a display unit configured to display a power state of the first radiation imaging apparatus, the display unit being provided on a portion of the enclosure which is formed of the second member.

9. The radiation imaging system according to Claim 6,

wherein the first radiation imaging apparatus further includes a connection unit configured to receive a cable capable of providing the integrated circuit with at least one of power supply to and transmission/reception of signals, the connection unit being provided on a portion of the enclosure which is formed of the second member.

10. The radiation imaging system according to Claim 6,

wherein the first member is formed of a material having radiation transmittance equivalent to 5 mm alumina or less.

11. The radiation imaging system according to Claim 2,

wherein the plurality of radiation imaging apparatuses each further comprises

a flexible circuit board electrically connected to the radiation detecting panel,

a printed circuit board electrically connected to

the flexible circuit board, and

a base member configured to support the radiation detecting panel,

and wherein the printed circuit board is disposed to one side of the base member which is an opposite side to a side on which the radiation detecting panel is disposed, and the integrated circuit is mounted on the printed circuit board and/or the flexible circuit board.

12. The radiation imaging system according to Claim 1, further comprising:

an accommodation enclosure configured to accommodate the plurality of radiation imaging apparatuses, the accommodation enclosure including a protective plate configured to protect the plurality of radiation imaging apparatuses, the protective plate having a distribution in thickness so that artifacts in the radiation images are suppressed.

13. The radiation imaging system according to Claim 1,

wherein each of the plurality of radiation imaging apparatus further includes an integrated circuit electrically connected to the radiation detecting panel,

wherein the enclosure further envelops the integrated circuit,

and wherein, of the plurality of radiation imaging apparatuses, the enclosure of a first radiation imaging apparatus positioned on the radiation irradiation side from a second radiation imaging apparatus has a thickness at a first region that spatially overlaps the second radiation imaging apparatus as seen from the radiation irradiation side formed such that it is thinner than the thickness of the enclosure at a second region of the second radiation imagining apparatus which faces the integrated circuit of the first radiation imaging apparatus.

14. The radiation imaging system according to Claim 13, wherein the thickness of the enclosure of the first radiation imaging apparatus in the first region becomes thinner toward an outer edge of the first region.

15. The radiation imaging system according to Claim 13, wherein the enclosure of the first radiation imaging apparatus comprises

a first member arranged to form the first region, and a

second member arranged to form the second region, the second region having a higher rigidity and a lower radiation transmittance than the first member.

16. The radiation imaging system according to Claim 15, wherein the enclosure of the first radiation imaging apparatus is configured as a generally rectangular shape, with at least one side of the four sides of the generally rectangular shape formed of the first member and the remaining sides of the four sides formed of the second member.

17. The radiation imaging system according to Claim 13, wherein the plurality of radiation imaging apparatuses each further comprises

a flexible circuit board electrically connected to the radiation detecting panel,

a printed circuit board electrically connected to the flexible circuit board, and

a base member configured to support the radiation detecting panel,

wherein the printed circuit board is disposed to one side of the base member which is an opposite side to a side on which the radiation detecting panel is disposed, and the integrated circuit is mounted on the printed circuit board and/or the flexible circuit board.

18. The radiation imaging system according to Claim 13, wherein the enclosure of the first radiation imaging

apparatus has, in the first region, a slanted region slanted as to a direction parallel to a side face of the enclosure of the first radiation imaging apparatus.

19. The radiation imaging system according to Claim 18, wherein the slanted region includes a curved face.