What is claimed is:

1. An inspection system for an aviation pallet cargo, comprising:

a ray source configured to emit X-rays, wherein the ray source comprises a separate housing to define a vacuum space and comprises a plurality of target spots enclosed within the housing;

a detector assembly configured to receive X-rays emitted from the ray source and passing through an inspection region of the inspection system; and

a conveying device configured to carry an aviation pallet cargo to be inspected,

wherein the ray source and the detector assembly are movable in a traveling direction relative to the conveying device so that the aviation pallet cargo to be inspected enters the inspection region, and when viewed along a central axis of the inspection region, the ray source is translatable between a plurality of scanning positions, wherein a translation distance of the ray source between two adjacent scanning positions is greater than a spacing between adjacent target spots of the ray source, and the traveling direction is parallel to the central axis, and

wherein the inspection system is configured such that: the ray source and the detector assembly move in the traveling direction relative to the conveying device and the ray source emits X-rays, when the ray source is located at one of the plurality of scanning positions; and the ray source translates to another one of the plurality of scanning positions when the ray source and the detector assembly move a predetermined distance in the traveling direction relative to the conveying device.

2. The inspection system according to claim 1, wherein the conveying device is configured to transport the aviation pallet cargo to be inspected in the traveling direction, and

wherein the ray source is always located above the conveying device during a translation process.

~~3. The inspection system according to claim 1 or 2, wherein the ray source is always located above the conveying device during a translation process.~~

34. The inspection system according to claim 1 or 2, wherein the ray source is configured to translate between different scanning positions so that a combined scanning angle

of the ray source is greater than 180 degrees.

45. The inspection system according to claim 1 or 2, wherein the inspection system is configured such that the ray source and the detector assembly do not move in the traveling direction relative to the conveying device when the ray source translates between different scanning positions.

56. The inspection system according to claim 1 or 2, wherein the translation distance of the ray source between two adjacent scanning positions is less than a length of the ray source in a translation direction.

67. The inspection system according to claim 1 or 2, wherein the ray source is further arranged to be movable between at least two target spot positions, and a rotation angle of the ray source between two adjacent target spot positions is less than an angle of two adjacent target spots of the ray source relative to the central axis, or a movement distance of the ray source between two adjacent target spot positions is less than a spacing between two adjacent target spots of the ray source.

78. The inspection system according to claim 7, wherein a rotation angle of the ray source between two farthest target spot positions is less than the angle of two adjacent target spots of the ray source relative to the central axis, or a movement distance of the ray source between two farthest target spot positions is less than the spacing between two adjacent target spots of the ray source.

~~9. The inspection system according to claim 1 or 2, wherein the inspection system is further configured to reconstruct a three-dimensional scanning image of the aviation pallet cargo to be inspected based on detection data of the detector assembly.~~

810. The inspection system according to claim 1 or 2, wherein the inspection system comprises a plurality of ray sources, and vacuum spaces of different ray sources are not connected.

911. The inspection system according to claim 810, wherein the plurality of ray sources are configured to translate between different scanning positions so that a combined

scanning angle of the plurality of ray sources is greater than 180 degrees.

10~~12~~. The inspection system according to claim 9~~11~~, wherein the plurality of ray sources are configured to translate between different scanning positions synchronously.

11~~13~~. The inspection system according to claim 10~~12~~, wherein the plurality of ray sources are spaced around the inspection region.

12~~14~~. The inspection system according to claim 10~~12~~ or 11~~13~~, wherein the detector assembly is arranged to be translatable when viewed along the central axis of the inspection region.

13~~15~~. The inspection system according to claim 12~~14~~, wherein the plurality of ray sources and the detector assembly are arranged to be translatable synchronously when viewed along the central axis of the inspection region.

14~~16~~. The inspection system according to claim 12~~14~~ or 13~~15~~, wherein the detector assembly is arranged radially closer to the central axis relative to the plurality of ray sources,

wherein target spots of the plurality of ray sources are located in a first plane, and

wherein detector crystals of the detector assembly are located in a second plane.

~~17. The inspection system according to claim 16, wherein target spots of the plurality of ray sources are located in a first plane.~~

~~18. The inspection system according to claim 17, wherein detector crystals of the detector assembly are located in a second plane.~~

15~~19~~. The inspection system according to claim ~~18~~14, wherein the first plane is parallel to the second plane, and the target spot of each ray source is arranged to deflect a predetermined tilt angle toward the detector assembly along the central axis so that the X-rays emitted by each ray source are not blocked by the detector assembly before passing through the inspection region.

16~~20~~. The inspection system according to claim 15~~19~~, wherein the detector assembly comprises a plurality of detector arms, each detector arm is provided with a plurality of detector units, and each detector arm is configured to receive X-rays emitted by at least two of the ray sources.

17~~21~~. The inspection system according to claim 16~~20~~, wherein each detector unit comprises a detector crystal, and each detector crystal is arranged at an end of a corresponding detector unit facing the ray source along the central axis, and

wherein the plurality of detector arms extend completely around the central axis to form a detector ring.

~~22. The inspection system according to claim 20 or 21, wherein the plurality of detector arms extend completely around the central axis to form a detector ring.~~

18~~23~~. The inspection system according to claim 1 or 2, wherein the central axis is parallel to a horizontal direction; or

wherein a ray emission direction of the ray source is not perpendicular to the central axis; or

wherein the inspection system is configured such that the ray source does not emit X-rays when the ray source translates between different scanning positions; or

wherein the ray source and the detector assembly are configured to move a predetermined distance in the traveling direction relative to the conveying device so that the aviation pallet cargo to be inspected completely passes through the inspection region or the aviation pallet cargo to be inspected does not completely pass through the inspection region; or

wherein the translation distance of the ray source between two adjacent scanning positions is greater than a spacing between any two target spots of the ray source.

~~24. The inspection system according to claim 1 or 2, wherein a ray emission direction of the ray source is not perpendicular to the central axis.~~

~~25. The inspection system according to claim 1 or 2, wherein the inspection system is configured such that the ray source does not emit X-rays when the ray source translates between different scanning positions.~~

~~26. The inspection system according to claim 1 or 2, wherein the ray source and the detector assembly are configured to move a predetermined distance in the traveling direction relative to the conveying device so that the aviation pallet cargo to be inspected completely passes through the inspection region or the aviation pallet cargo to be inspected does not completely pass through the inspection region.~~

~~27. The inspection system according to claim 1 or 2, wherein the translation distance of the ray source between two adjacent scanning positions is greater than a spacing between any two target spots of the ray source.~~

19~~28~~. An inspection method for an aviation pallet cargo, comprising:

(a) loading an aviation pallet cargo to be inspected onto a conveying device;

(b) positioning a ray source at one of a plurality of scanning positions surrounding an inspection region when viewed along a central axis of the inspection region, wherein the ray source comprises a separate housing to define a vacuum space and comprises a plurality of target spots enclosed within the housing;

(c) moving the ray source and a detector assembly in a traveling direction relative to the conveying device so that the aviation pallet cargo to be inspected enters the inspection region, while emitting X-rays from the ray source so that the X-rays pass through the aviation pallet cargo to be inspected located in the inspection region and are received by the detector assembly until the ray source and the detector assembly move a predetermined distance in the traveling direction relative to the conveying device, so as to complete a scanning process; and

(d) translating the ray source to another one of the plurality of scanning positions, and repeatedly performing step (c) to complete the scanning process at each of the plurality of scanning positions, wherein a translation distance of the ray source between two adjacent scanning positions is greater than a spacing between adjacent target spots of the ray source, and the traveling direction is parallel to the central axis.

~~29. The inspection method according to claim 28, wherein the aviation pallet cargo to be inspected is transported in the traveling direction by the conveying device.~~

~~30. The inspection method according to claim 28 or 29, wherein the ray source is~~

~~always located above the conveying device during a translation process of the ray source.~~

~~31. The inspection method according to claim 28 or 29, wherein step (c) and step (d) are repeated so that a combined scanning angle of the ray source is greater than 180 degrees.~~

20~~32~~. The inspection method according to claim 19~~28 or 29~~, wherein the ray source and the detector assembly are configured to stop moving in the traveling direction relative to the conveying device after each time the aviation pallet cargo to be inspected completely passes through the inspection region, and in two adjacent repetitions of step (c), the ray source and the detector assembly are configured to move in opposite directions relative to the conveying device; or

the inspection method further comprising: after completing a scanning process at a scanning position in step (c), moving the ray source to one of a plurality of target spot positions and repeatedly performing step (c), wherein the plurality of target spot positions comprise a current scanning position,

wherein a rotation angle of the ray source between two adjacent target spot positions is less than an angle of two adjacent target spots of the ray source relative to the central axis, or a movement distance of the ray source between two adjacent target spot positions is less than the spacing between two adjacent target spots of the ray source.

~~33. The inspection method according to claim 32, wherein the translation distance of the ray source between two adjacent scanning positions is less than a length of the ray source in a translation direction.~~

~~34. The inspection method according to claim 28 or 29, further comprising: after completing a scanning process at a scanning position in step (c), moving the ray source to one of a plurality of target spot positions and repeatedly performing step (c), wherein the plurality of target spot positions comprise a current scanning position,~~

~~wherein a rotation angle of the ray source between two adjacent target spot positions is less than an angle of two adjacent target spots of the ray source relative to the central axis, or a movement distance of the ray source between two adjacent target spot positions is less than the spacing between two adjacent target spots of the ray source.~~

~~35. The inspection method according to claim 34, wherein a rotation angle of the~~

ray source between two farthest target spot positions is less than the angle of two adjacent target spots of the ray source relative to the central axis, or a movement distance of the ray source between two farthest target spot positions is less than the spacing between two adjacent target spots of the ray source.

36. The inspection method according to claim 28 or 29, wherein a plurality of ray sources are provided to emit X rays, and vacuum spaces of different ray sources are not connected.

37. The inspection method according to claim 28 or 29, further comprising: reconstructing a three-dimensional scanning image of the aviation pallet cargo to be inspected based on detection data of the detector assembly.

38. The inspection method according to claim 28 or 29, wherein the central axis is parallel to a horizontal direction.

39. The inspection method according to claim 28 or 29, wherein a ray emission direction of the ray source is not perpendicular to the central axis.

40. The inspection method according to claim 28 or 29, wherein the ray source is configured to not emit X rays when the ray source translates between different scanning positions.

41. The inspection method according to claim 28 or 29, wherein the ray source and the detector assembly are configured to move a predetermined distance in the traveling direction relative to the conveying device so that the aviation pallet cargo to be inspected completely passes through the inspection region or the aviation pallet cargo to be inspected does not completely pass through the inspection region.

42. The inspection method according to claim 28 or 29, wherein the translation distance of the ray source between two adjacent scanning positions is greater than a spacing between any two target spots of the ray source.