

Claim

1. A system for evaluating the scan quality of a scanner on a test piece, the system comprising:
 - a processor; and
 - a memory in communication to the processor for storing instructions executable by the processor,
 - wherein the processor is configured to:
 - receive a scanned image of the test piece from the scanner,
 - display the scanned image,
 - generate a first score value based on the scanned image,
 - display an evaluation input interface configured to receive user evaluation input based on the evaluation of the scanned image, and
 - generate a second score value based on the user evaluation input,
 - wherein the first score value and the second score value are utilized to evaluate the scan quality of the scanner.
2. The system according to claim 1, wherein the processor is configured to determine at least one region of interest (ROI) in the scanned image and analyse the at least one ROI to generate the first score value.
3. The system according to claim 2, wherein the processor is configured to retrieve a template comprising at least one pre-determined ROI, map the template onto the scanned image to determine the at least one ROI in the scanned image.
4. The system according to claim 2 or 3, wherein the processor is configured to extract image data from the at least one ROI of the scanned image and generate statistical data from the extracted image data to analyse the image data of the at least one ROI.
5. The system according to any one of claims 2 to 4, wherein the at least one of ROI is determined based on the test piece.

6. The system according to any one of claims 3 to 5, wherein the template is determined based on the test piece.
7. The system according to any one of claims 1 to 6, wherein the test piece is optimised for CT image quality analysis.
8. The system according to claim 7, wherein the scanner has a field of view in the range of 100mm x 100mm to 2000mm x 2000mm.
9. The system according to claim 7 or 8, wherein the scanned image has an image resolution in the range of 0.5mm to 10.0mm reconstructed voxel.
10. The system according to any one of claims 7 to 9, wherein the scanner has a helical scan system with a scanning speed in the range of 0.01m/s to 10.00m/s.
11. The system according to any one of claims 1 to 6, wherein the test piece is optimised for transmission X-ray image quality analysis.
12. The system according to claim 11, wherein the scanner has a field of view in the range of 300mm x 300mm to 4500mm x 6000mm.
13. The system according to claim 11 or 12, wherein the scanned image has an image resolution in the range of 0.3mm to 10mm spatial resolution.
14. The system according to any one of claims 11 to 13, wherein the scanner has a linear X-ray system with a scanning speed in the range of 0.01m/s to 100km/h.
15. The system according to any one of claims 1 to 6, wherein the test piece is optimised for backscatter X-ray image quality analysis.
16. The system according to claim 15, wherein the scanner has a field of view in the range of 300mm x 300mm to 5000mm x 12000mm spatial resolution.

17. The system according to claim 15 or 16, wherein the scanner has a linear backscatter scanning system with a scanning speed in the range of 0.01m/s to 20km/h.
18. The system according to according to any one of claims 15 to 17, wherein the scanned image has an image resolution in the range of 0.5mm to 20mm.
19. The system according to any one of claims 11 to 18, wherein the scanner is an X-Ray scanner.
20. A computer-implemented method for evaluating the scan quality of a scanner on a test piece, the method comprising:
 receiving a scanned image of the test piece from the scanner,
 displaying the scanned image,
 generating a first score value for the scanned image,
 displaying an evaluation input interface configured to receive user evaluation input based on the evaluation of the scanned image, and
 generating a second score value based on the user evaluation input,
 wherein the first score value and the second score value are utilized to evaluate the scan quality of the scanner.
21. The method according to claim 20, wherein further comprising determining at least one region of interest (ROI) in the scanned image and analysing the at least one ROI to generate the first score value.
22. The method according to claim 21 or 22, further comprising retrieving a template comprising at least one pre-determined ROI, mapping the template onto the scanned image to determine the at least one ROI in the scanned image.
23. The method according to any one of claims 20 to 22, further comprising extracting image data from the at least one ROI of the scanned image and generating statistical data from the extracted image data to analyse the image data of the at least one ROI.

24. A non-transitory computer readable storage medium comprising instructions, wherein the instructions, when executed by a processor in a system, cause the system to:
- receive a scanned image of the test piece from the scanner,
 - display the scanned image,
 - generate a first score value based on the scanned image,
 - display a scoring input interface configured to receiving user input, and
 - receive a second score value via the scoring input interface,
- wherein the first score value and the second score value are utilized to evaluate the scan quality of the scanner.
25. A testing system comprising a system according to any one of claims 1 to 19 and a test piece for evaluating the scan quality of a scanner.
26. The test system according to claim 25, wherein the test piece comprises a plurality of test panels spaced apart from each other along a longitudinal axis, wherein each of the plurality of test panels is perpendicular to the longitudinal axis.
27. The test system according to claim 25, wherein the test piece comprises a base panel comprising a first plurality of test elements and a longitudinal axis, a rotatable panel comprising a second plurality of test elements and pivotally connected to the base panel along the longitudinal axis, wherein the rotatable panel is rotatable about the longitudinal axis.