



Case study – TubeGuard at Shandong Medical Imaging Research Institute

For over 10 years, the renowned Shandong Medical Imaging Research Institute has been working on optimizing the use of CT systems for the examination of patients from throughout China. And because this institute, located in the provincial capital of Jinan, has always used the latest CT technology from Siemens, today Professor Xu Zhuo Dong, Director of the CT Department, can rely on a SOMATOM Definition that is protected by a completely new service offering – TubeGuard.

“From the very beginning, it was clear that if we could afford a system as advanced as the SOMATOM Definition, we could not compromise on service if we wanted to exploit the system’s full potential for efficiency and image quality in every examination,” says Professor Xu. That’s why the Shandong Medical Imaging Research Institute decided to sign for the Siemens Guardian Program, a proactive service offering that significantly improves service availability and performance by means of proactive online monitoring on an ongoing, real-time basis.

Proactive tube failure prediction

The institute also took this opportunity to supplement the Siemens Guardian Program with the new TubeGuard option – a completely new solution which uses the integrated sensors of a SOMATOM Definition to monitor the main functions of the installed tube and to predict the probability and moment of tube failure. This means that TubeGuard not only predicts total tube breakdown (hard down) and permits a proactive tube exchange (soft down), but also protects users from the repercussions of frequent scan aborts and major reductions in quality.

Less unplanned downtimes, more efficiency

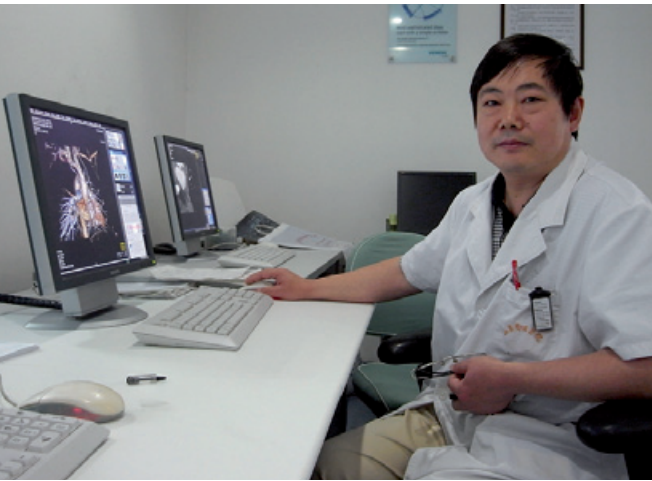
According to Professor Xu, “TubeGuard allows us to better schedule and arrange service times to avoid sudden system downtimes due to tube breakdown. With TubeGuard, Siemens has become the first company to provide real, scheduled, proactive service for CT tubes. It’s a revolutionary innovation, and I eagerly await future developments.”

Profile of Shandong Medical Imaging Research Institute

Established in 1975, the Shandong Medical Imaging Research Institute is now one of the largest imaging research centers in China. With its 15 clinical and 10 adjunct departments, the institute not only covers diagnosis, intervention therapy, teaching, and training, but it also houses the Siemens New Technology Research Center. At present, the institute has over 265 staff members, including 89 professors and associate professors and 49 graduate students.

Guardian Program including TubeGuard

Proactive tube failure prediction for the SOMATOM Definition Family



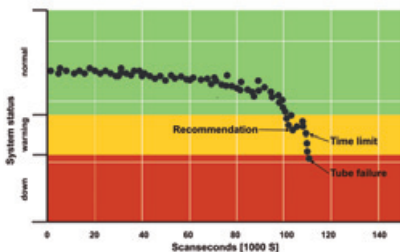
“At first we doubted the power of this new solution – but TubeGuard definitely proved to us that it is able to monitor, detect, and even anticipate the lifecycle of our CT’s tube.”

Professor Xu Zhuo Dong, MD,
 Director of the CT Department,
 Shandong Medical Imaging Research
 Institute, Jinan, China

Guardian Program including TubeGuard in practice

Every tube used in a SOMATOM Definition has more than 10 local sensors that track the tube’s deterioration. The data is transmitted via Siemens Remote Service to the Siemens Service Center. Based on TubeGuard’s complex algorithms and customer-specific system usage data, qualified service engineers there perform an ongoing assessment of remaining tube life. If the tube needs to be changed the customer will be informed – within a dedicated time limit so that the exchange can be made during a planned service visit, such as during a prescheduled system maintenance.

“We were right in the middle of an extensive examination when we received a call from the Siemens Service Center telling us that our tube would fail within the next four days,” says Professor Xu. “Since it was the first time that we received this kind of information, we did not immediately schedule the tube exchange. Instead, as agreed with Siemens, we observed the system to find out whether there would actually be a failure within the next few days – as a kind of validation of TubeGuard. And this was exactly the case: during the next days we actually had problems with the tube, and ten days after the end of the time limit the emitter had a complete breakdown, as predicted. We were pleased – and convinced that TubeGuard worked. Brilliant.”



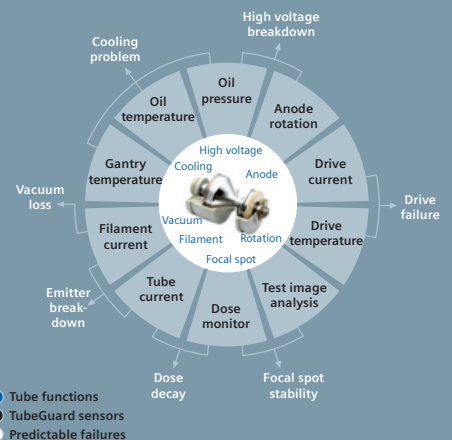
Predicted failure: Emitter breakdown

Based on falling values and increasing fluctuations of the filament current and the tube current, TubeGuard recommended a tube exchange within four days. As agreed, those responsible for the tube did nothing, waiting for the emitter to break down. It indeed happened – 10 days after the period was up.

Guardian Program including TubeGuard Predicting failures – boosting planning reliability

As an additional service offering of the Siemens Guardian Program™, TubeGuard can predict the majority of all potential CT tube failures within the SOMATOM Definition family. More than 10 sensors proactively monitor the tube functions via real-time data flow with Siemens Remote Service (SRS). Deviations can be detected before problems occur – making it possible to proactively and efficiently handle failures in advance. Your advantages at a glance:

- Predictable downtime, with less risk of unplanned workflow disruptions
- Proactive rescheduling of patients and staff
- Tube replacement performed as scheduled – at a convenient time for you
- Less risk of damaging your reputation or reducing patient satisfaction
- Potentially less revenue loss because you can plan downtimes ahead of time



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