

CASE STUDY: MAX IV

ScandiNova enables the brightest X-ray source in the world

MAX IV Laboratory is a national electron accelerator laboratory for synchrotron radiation research. Having operated successfully for 30 years, it is currently constructing the new MAX IV synchrotron facility in Lund, Sweden.

More than 1000 scientists from Sweden and the rest of the world travel to the MAX IV Laboratory every year to conduct research in areas as diverse as physics, chemistry, geology, engineering, medicine, materials science, structural biology and nanotechnology.

The core of the new facility is a 300-meter long linear accelerator and two storage rings. The larger of the rings has an electron energy of 3000 MeV and a circumference of 528 meters. An emitted electron beam is accelerated by RF pulses produced by a total of 20 ScandiNova RF systems. At the end of the accelerator, the electron beam is deflected to create X-ray light that can be used to investigate different materials in detail. The X-ray light created by MAX IV will display greater brilliance than any other X-ray source currently in use.

The new MAX IV facility will be inaugurated on June 21, 2016 – the lightest day of the year for the brightest light in the world.



MAX IV installation – 20 turn-key RF systems (19 K2-2 systems and 1 K1 system, including klystrons and other RF parts).



Professor Mikael Eriksson, Machine Director, MAX IV.

CHOSEN SUPPLIER HAD TO ASSUME FULL RESPONSIBILITY

When selecting RF system vendors, the MAX IV team focused on the ability to take full responsibility for the whole system, including the pulse modulator, klystron, control system and other RF parts.

“We wanted to have an RF unit with one single company delivering and taking full responsibility”

Mikael Eriksson, Machine Director, MAX IV.

Another important criterion when selecting vendors was to choose a system with the highest possible reliability. Any disruptions or other problems involve huge costs and revenue losses, since ultimately no researchers or companies would want to use the facility for their experiments. A facility intended to deliver world-class results thus needs equipment that meets very tough reliability requirements. “The life-time of the switches is very important. It must be a very robust system”, adds Mikael Eriksson.

Of all the systems evaluated, ScandiNova’s solution best fulfilled the above criteria.