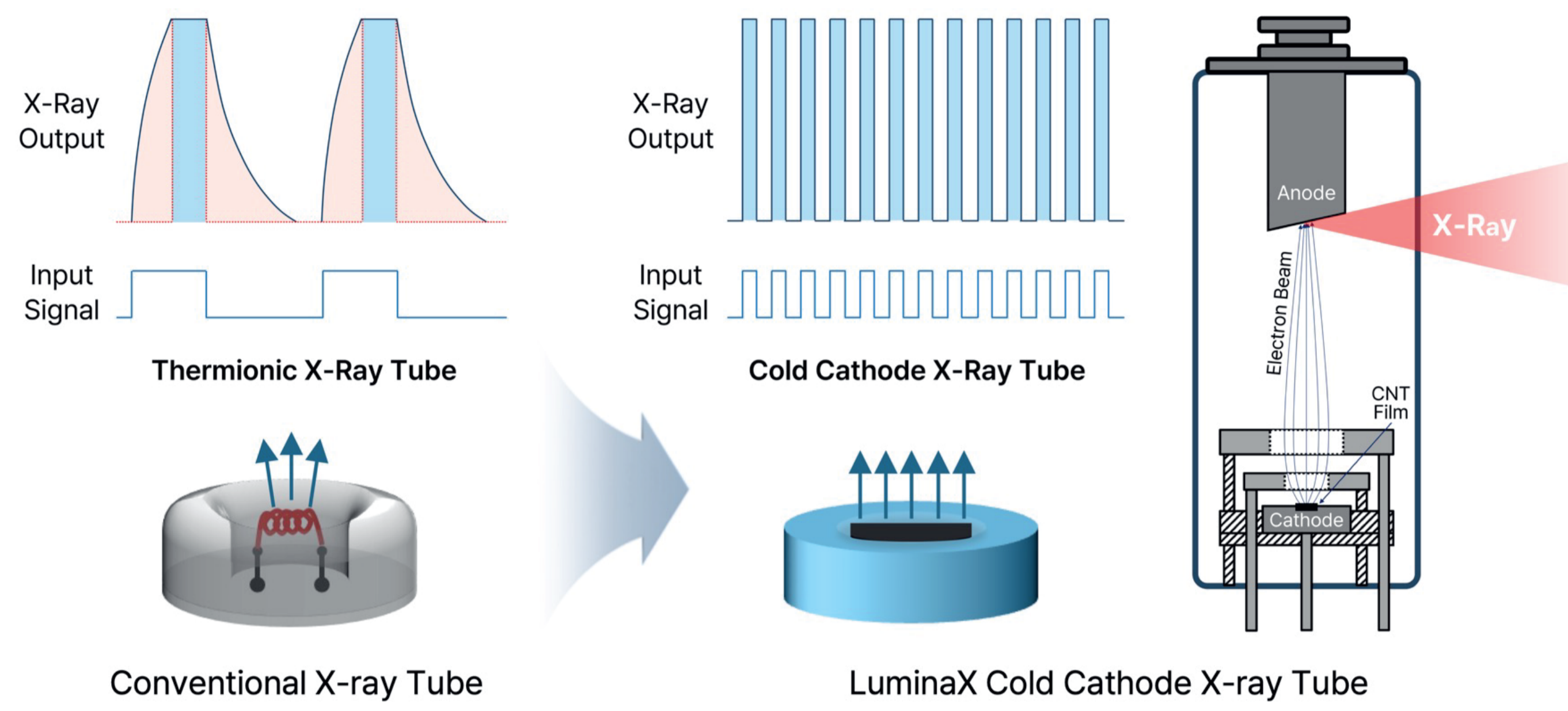


# Cold Cathode X-ray Tubes with 5.5 kW Power Rating

## Next-Generation X-Ray Imaging Technology



### Advantages of cold cathode X-ray tubes over conventional X-ray tubes

- Low Unnecessary Radiation Exposure
- Low Operating Energy
- High Operating Speed
- Easy Dose Control
- Multi X-ray Source

## Digital Cold Cathode X-ray Tubes



### Cold Cathode X-ray Tubes Applicable to Various X-ray Systems

Medical Systems	Dental Systems	Veterinary Systems
Portable / Mobile / C-arm / Angio	Portable / Pano / Ceph / CBCT	Portable / CBCT

## Dental X-ray Tubes

Model	Max Current	Max Voltage	Focal Spot	Max Power Rating	Dimensions and Weight
LD-10	10 mA	100 kV	0.5 mm	1.0 kW	∅ 42 mm x 120 mm, 350 g
LD-20	20 mA	100 kV	0.5 mm	2.0 kW	∅ 42 mm x 120 mm, 350 g

## Advantages of Cold Cathode X-ray Tubes over Conventional X-ray Tubes

Material → Carbon Nanotube	Operating Temp. → Cold Cathode	Mode → Digital Pulse Drive
<ul style="list-style-type: none"> <li>Small Radius → Energy Efficient</li> <li>High Electric Conductivity → Large Current</li> <li>High Thermal Conductivity → High Stability</li> <li>High Mechanical Stability → High Stability</li> </ul>	<p>Room Temperature → Low Energy Consumption</p> <ul style="list-style-type: none"> <li>High-temperature induced X-ray emission</li> <li>Electric field induced X-ray emission</li> </ul>	<p>Digital Switching → Fast, Low Unnecessary Radiation Dose</p> <ul style="list-style-type: none"> <li>Slow switching modes</li> <li>Fast switching modes</li> </ul>
Hot-Cathode (Conventional)	Cold-Cathode (LuminaX)	Analog Drive (Conventional) / Digital Drive (LuminaX)

Conventional Systems (with hot-cathode tube)	Next-gen Systems (with cold-cathode tube)	Advantages of Next-gen Systems
Unnecessary Radiation Dose: High	Low	Health benefits / increased frequency of X-ray examinations
Energy Consumption: High	Low	Potential to create new markets for battery-powered systems
Operation Speed: Slow	Fast	Enhanced image resolution and increased accuracy in treatments
Drive Method: Analog	Digital	
Multi X-ray Source Capability: Difficult	Easy	Cost-effective CT implementation possible

## Comparison of Cold Cathode X-ray Tubes

Carbon Nanotube Paste X-ray Tube	LuminaX's Carbon Nanotube Film X-ray Tube
Number of electron emission sites: 200 ~ 300 / per paste	Number of electron emission sites: hundreds of thousands / per film

High X-ray dose, high X-ray uniformity, high resolution, simple structure → Favorable for use in medical diagnostic X-ray systems

	CNT Paste X-ray Tubes	CNT Film X-ray Tubes	Benefits of Equipment with LuminaX's X-ray Tubes
X-ray Dose	Low	High	Wide medical diagnostic range
X-ray Uniformity	Low	High	Precision diagnostic applications
Beam Focal Spot	Large	Small	High resolution
Structure	Complex	Simple	High stability and manufacturing yield
Application Range	Limited to portable intraoral systems	Medical and dental systems	Applicable in various diagnostic fields

## Medical X-ray Tubes

Model	Max Current	Max Voltage	Focal Spot	Max Power Rating	Dimensions and Weight
LM-10	10 mA	120 kV	0.5 mm	1.2 kW	∅ 42 mm x 120 mm, 350 g
LM-20	20 mA	120 kV	0.5 mm	2.4 kW	∅ 42 mm x 120 mm, 350 g
LM-30	30 mA	120 kV	0.5 mm	3.6 kW	∅ 42 mm x 120 mm, 350 g
LM-50	50 mA	120 kV	0.5 mm	5.5 kW	∅ 42 mm x 120 mm, 350 g