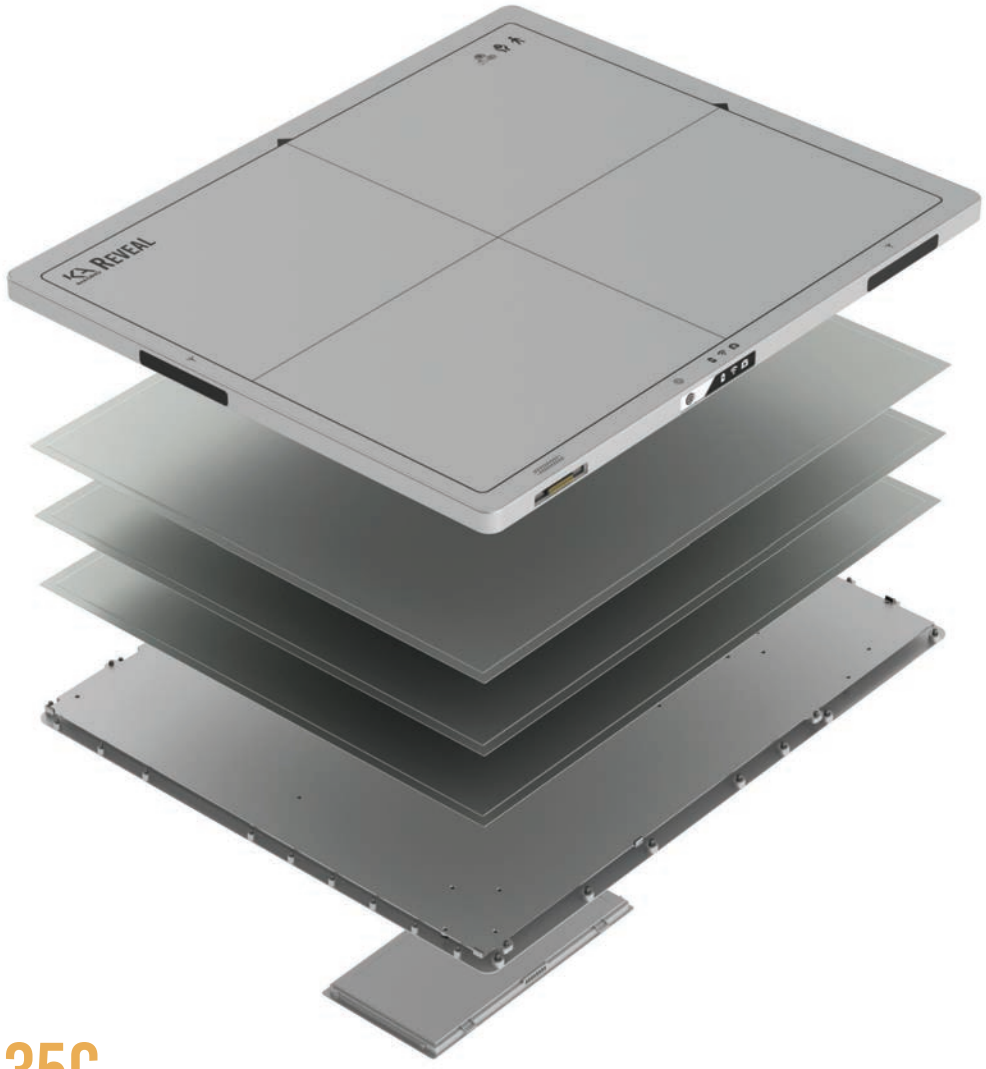
REVEAL™ 35C
FLAT PANEL DETECTOR

KA IMAGING™

THINGS EVOLVE. WHY SHOULDN'T X-RAY?



REVEAL™ 35C

Reveal™ 35C is the world's first and only dual-energy X-ray detector that can be used in fixed, mobile, and portable applications. Thanks to its patented triple-layered design, this detector overcomes the limitations of other dual-energy technologies. Reveal™ 35C only requires **one** X-ray exposure to function, producing high-quality[1] DR, bone, and tissue images **without** motion artifacts[2].

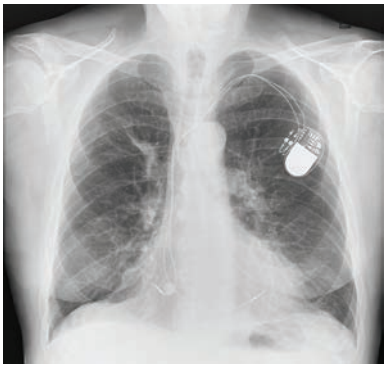
1 shot

3 images

0 motion artifact

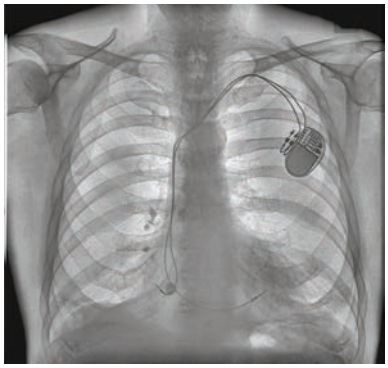
CHOOSE WHAT YOU WANT TO **SEE**

- DR, Bone and Tissue images help reveal chest pneumonia[3.3] (including COVID-19), hidden fractures, PICC lines, indeterminate nodules[3.1], and coronary calcifications[3.5] with high sensitivity.
- Explore lateral and oblique views with dual energy for the first time to see behind the heart.
- Sharp Bone and Tissue images, high-quality DR[1] with DQE as high as 75%.



TRADITIONAL DR IMAGE

SOFT TISSUE IMAGE



BONE IMAGE

CHOOSE WHERE YOU WANT TO **USE IT**

- Standard cassette size: 14 X 17 inches (ISO 4090).
- Retrofittable: add true dual energy capability to any X-ray system. No hidden costs.
- Compatible with existing fixed systems.
- For the first time, take advantage of dual energy in mobile and portable applications.

CHOOSE HOW YOU WANT TO **PURCHASE IT**

Choose between capital purchase or flexible subscription models

OPTIMIZE YOUR **WORKFLOW**

Enhanced Patient and Operator Safety
20X less radiation compared to CT[4], Reduction in diagnostic errors and malpractice concerns[4]

Improved Patient Outcomes[3]
Early disease detection shortens time to providing corrective procedures

Higher Operating Efficiencies
Reduces radiologist reading time for X-rays by 30%[5], Enables residents to make accurate diagnoses[5]

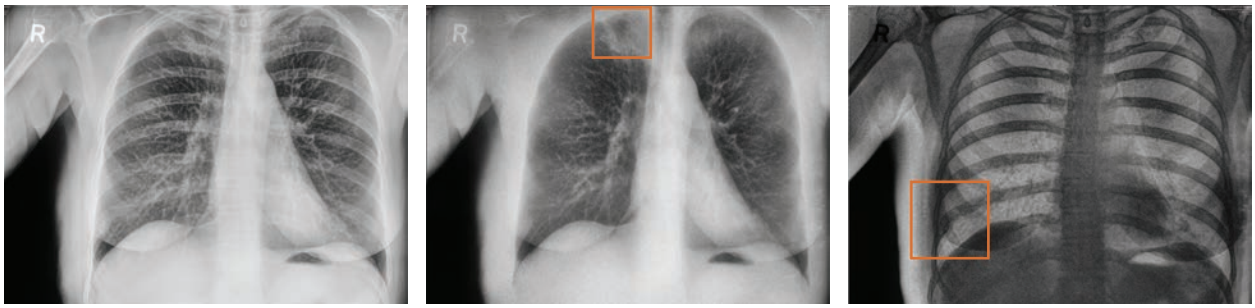
Significant Savings
10X lower purchase and operating costs than CT

REAL **CASES**

KA Imaging has initiated a clinical trial at Grand River Hospital in Kitchener, Ontario, Canada to image lung cancer patients with Reveal™ 35C. In this trial, more than 20 patients have been scanned using the detector to visualize lung nodules and lesions.

Hidden Masses Discovered in PA Chest X-ray

Apical lesion in the right upper lobe was missed in the conventional PA X-ray image but was visible in the soft-tissue dual-energy X-ray image.



TRADITIONAL DR IMAGE | SOFT TISSUE IMAGE | BONE IMAGE

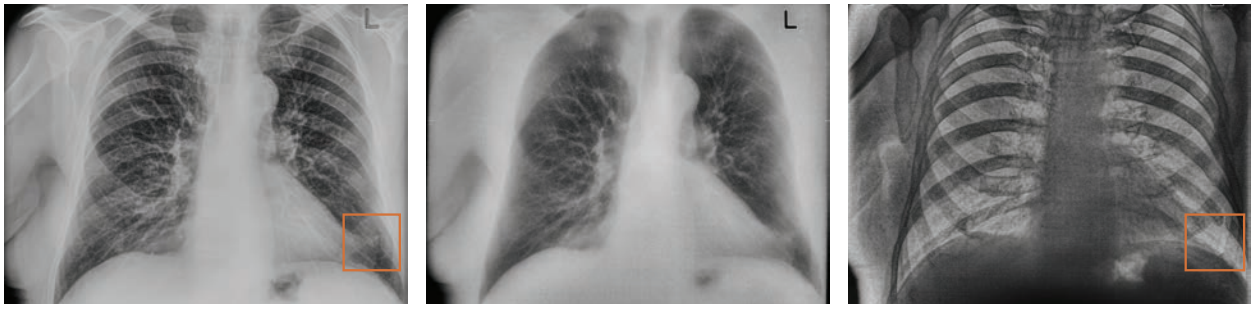
Hidden Masses Discovered in Lateral Chest X-ray

Upon reviewing the soft-tissue and bone dual-energy images, radiologists confirmed a mass in the lower left lobe, a calcified granuloma in the lower right, and a possibility of a new right lower lobe mass.

TRADITIONAL DR IMAGE | SOFT TISSUE IMAGE | BONE IMAGE

Fractures Discovered in PA Chest X-ray

Old fractures missed on the PA image is significantly visible in the bone dual energy X-ray image.

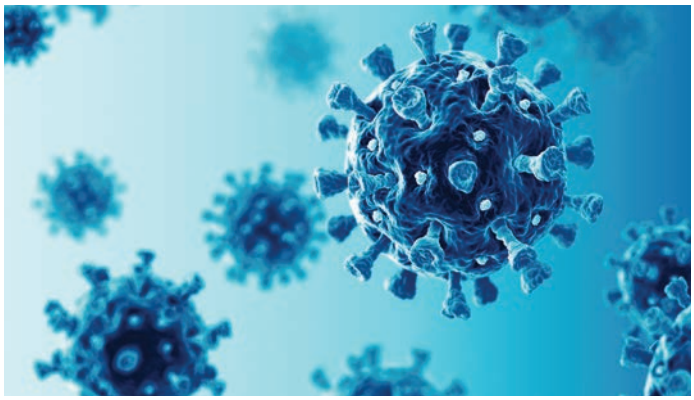


TRADITIONAL DR IMAGE | SOFT TISSUE IMAGE | BONE IMAGE

REAL **CASES** CONTINUED

COVID-19

KA Imaging has also partnered with a team of researchers from Toronto in a study for the early detection of COVID-19. Dual-energy X-rays and Thoracic Tomograms will be compared with the ones obtained on a CT scan, which is currently the standard of care for confirming pneumonia. The data will allow researchers to build an artificial intelligence model for automated and nearly instant image interpretation.



TECHNICAL **SPECIFICATIONS**

System	KA Imaging Reveal 35C Flat Panel Detector
Detector Size	14 x 17 inch/35 x 43 cm (ISO 4090)
Pixel Pitch	140 µm
Sensor Type	Amorphous Silicon
Scintillator	CsI
Communication	Wireless or gigabit ethernet
Trigger	Lossless AED
Power	Battery and/or tethered AC 100-240 VAC/50-60 Hz
A/D Conversion	16 bits
Cycle Time	Typ. 10 seconds
Preview Time	Typ. 7 seconds
Software	SDK available for system integration
Energy Range	40 ~ 150 keV*

*Higher energy supported on request
**Measured at RQA5

System	KA Imaging Reveal 35C Flat Panel Detector		
Dose Efficiency and Resolution**	lp/mm	DQE	MTF
	0	75%	N/A
	1	67%	64%
	2	53%	35%
	3	34%	18%
	Nyquist	21%	13%
Dose Range**	Saturation Dose		140 µGy
	Maximum Linear Dose		120 µGy
	Noise Equivalent Dose		80 nGy

FDA 510(k) clearance

Health Canada Medical Device Licence

REFERENCES

1. Maurino, S. L., Badano, A., Cunningham, I. A., & Karim, K. S. (2016, March). Theoretical and Monte Carlo optimization of a stacked three-layer flat-panel x-ray imager for applications in multi-spectral diagnostic medical imaging. In Medical Imaging 2016: Physics of Medical Imaging (Vol. 9783, p. 97833Z). International Society for Optics and Photonics.

2. Maurino, S. L., Ghanbarzadeh, S., Ghaffari, S., Zhang, T., Cunningham, I., & Karim, K. S. (2018, June). Evaluation of A Novel Stacked Triple-Layer Flat-Panel X-Ray Detector for Dual-Energy and Digital Radiography Imaging. In Medical Physics (Vol. 45, No. 6, pp. E137-E137). Wiley.

3. Improved patient outcomes

   3.1 (Lung Nodules) Oda, Seitaro, Kazuo Awai, Yoshinori Funama, Daisuke Utsunomiya, Yumi Yanaga, Koichi Kawanaka, Takeshi Nakaura et al. "Detection of small pulmonary nodules on chest radiographs: efficacy of dual-energy subtraction technique using flat-panel detector chest radiography." Clinical radiology 65, no. 8 (2010): 609-615.

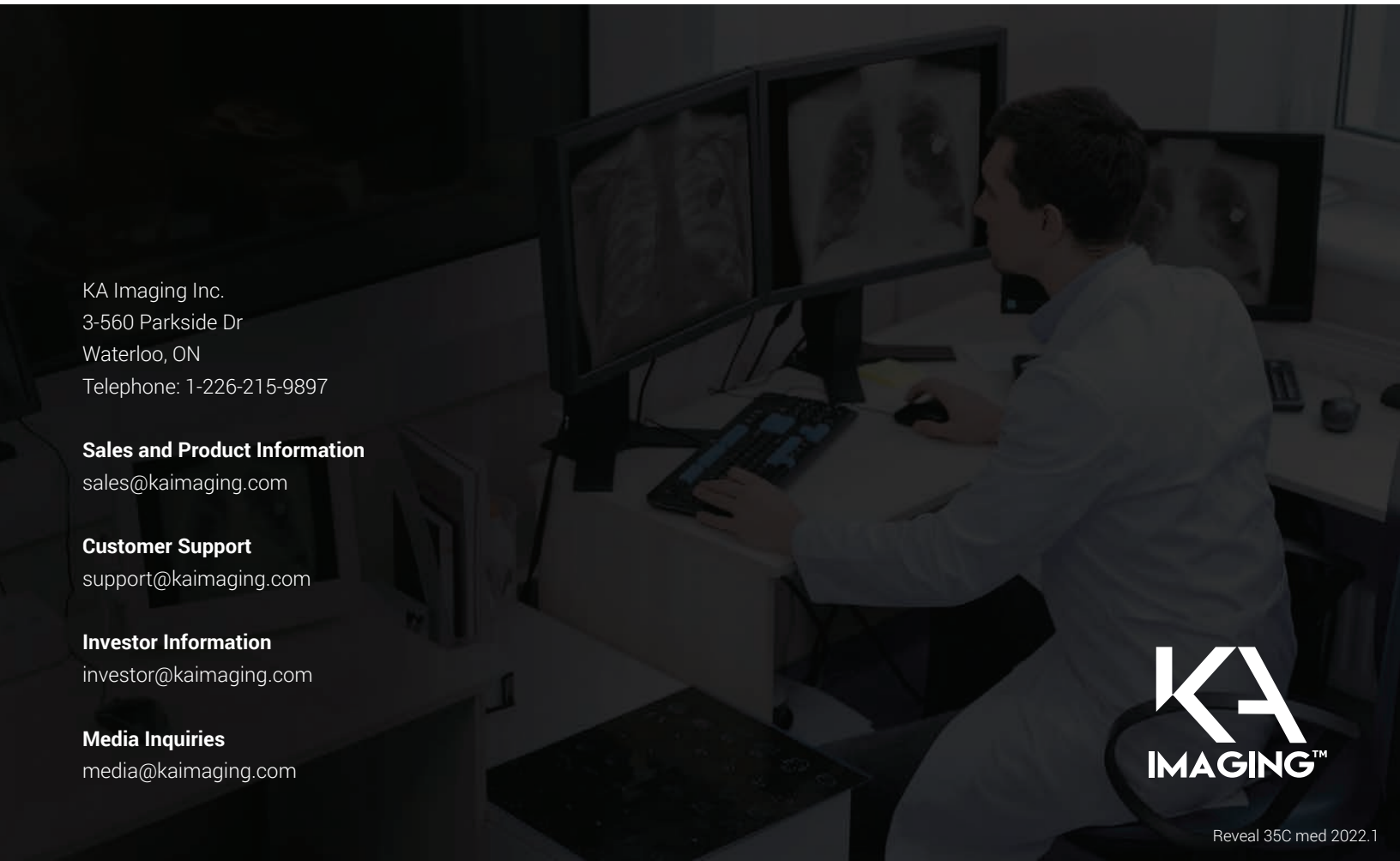
   3.2 (Pneumothorax) Urbaneja, A., Dodin, G., Hoosu, G., et al. (2018) Added Value of Bone Subtraction in Dual-energy Digital Radiography in the Detection of Pneuomothorax: Impact of Reader Expertise and Medical Specialty. The Association of University Radiologists. Elsevier Inc.

   3.3 (Pneumonia) Martini, Katharina, Marco Baessler, Stephan Baumueller, and Thomas Frauenfelder. "Diagnostic accuracy and added value of dual-energy subtraction radiography compared to standard conventional radiography using computed tomography as standard of reference." PloS one 12, no. 3 (2017): e0174285.

   3.4 (Tuberculosis) Sharma, Madhurima, Manavjit Singh Sandhu, Ujjwal Gorsi, Dheeraj Gupta, and Niranjan Khandelwal. "Role of digital tomosynthesis and dual energy subtraction digital radiography in detection of parenchymal lesions in active pulmonary tuberculosis." European Journal of Radiology 84, no. 9 (2015): 1820-1827.

   3.5 (Coronary Calcifications) Song, Yingnan, Hao Wu, Di Wen, Bo Zhu, Philipp Graner, Leslie Ciancibello, Haran Rajeswaran et al. "Detection of coronary calcifications with dual energy chest X-rays: clinical evaluation." The International Journal of Cardiovascular Imaging (2020): 1-8.

   3.6 Kuhlman, Janet E., Jannette Collins, Gregory N. Brooks, Donald R. Yandow, and Lynn S. Broderick. "Dual-energy subtraction chest radiography: what to look for beyond calcified nodules." Radiographics 26, no. 1 (2006): 79-92.



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