

## India gets its First Dual Energy CT Scanner with Cardiac Spectral imaging capabilities 'Discovery CT750-HD FREEdom Edition'

New High Definition CT Scanner Dramatically Improves Cardiac Imaging and Reduces Radiation Exposure to Patients by up to 50 Percent

A quantum leap in diagnosing heart disease earlier and more accurately than ever before

**New Delhi, October 12th, 2012:** India's first Dual Energy CT Scanner with Cardiac Spectral Imaging capabilities 'Discovery CT750-HD FREEdom Edition' by GE Healthcare is a **revolutionary heart scanning technology**, brought to our nation by Mahajan Imaging, a well-respected group running a chain of high-end radiology and nuclear medicine centres in North India. It has been installed at Mahajan Imaging at Hauz Khas in New Delhi.

Discovery CT750 HD FREEdom Edition is designed to provide a new level of cardiac CT performance and to help physicians' better serve patients. It offers physicians capabilities that could change the rules of cardiac CT, which has been available in India since 2003. Based on exclusive FREEdom technologies (Fast Registered Energies & ECG), this innovative system provides a three-pronged solution to the challenges in traditional cardiac CT: (1) Motion FREEdom, with intelligent motion correction via SnapShot Freeze; (2) Calcium FREEdom, with enhanced coronary visualization using Gemstone Spectral Imaging (GSI) Cardiac; and (3) Horizon FREE opportunities, going beyond today's clinical information with plaque material composition assessment and accurate perfusion calculations.

Low Radiation CT scanning is the new technological advancement in Discovery CT750 HD which allows physicians to immediately lower radiation by up to 50% for examinations in patients of all ages. Lowering patient radiation is important to all patients, especially infants and children, women, and patients getting follow up scans.

"The installation of this machine is a statement to the world that there are no compromises in India when it comes to healthcare. There are only few of these machines in the world today and getting one of the first machines in India is testament to the economic growth of the country and the strides made in the healthcare sector", said, **Dr. Harsh Mahajan, Founder and Chief Radiologist, Mahajan Imaging; President of the Indian Radiological and Imaging Association and Honorary Radiologist to the President of India.**

Coronary Heart Disease (CHD) is estimated to become the most common cause of death in India and globally by 2020(1). CHD occurs when the arteries (blood vessels) of the heart that normally provide blood and oxygen to the heart are narrowed or even completely blocked. The narrowing is caused by deposition of fatty plaques and calcium in the vessels. It is blockage of these vessels and breaking of fatty deposits that leads to heart attacks.

With the advent of 16, 64, 128 and 256 slice CT scanners, diagnosis of coronary heart disease reached an all time high, since these machines enabled visualisation of the heart and its vessels in great detail non-invasively allowing us to find out what the condition of the vessels was, but, this was not without its problems.

"Many times with 16, 64, 128 and 256 slice CT scanners we would not be able to see the condition of the vessels because calcium deposits in them would obscure our view. Also, even if we were able to see the blockage, it was difficult to tell what kind of deposit the patient has. The Dual Energy Spectral CT scanner actually shifts the CT paradigm beyond slices and enables us to see the deposits with dramatic clarity using much less radiation exposure", explained **Dr. Harsh Mahajan, Founder and Chief Radiologist, Mahajan Imaging.**

**Dr. Mahajan** further added, “Till today, CT scanning could only show the disease, now we can tell the clinician what it is made of so as enable him to plan targeted treatment. We can also now more confidently promote CT coronary angiography as a screening tool for people having risk factors for heart disease since the radiation exposure is very low with this system and the information obtained is clear and precise.”

“Most of the times if a patient has a heart attack, it is very difficult to tell whether or not a stent or a bypass surgery will help him or not, since we do not have a quick test to detect the viability of the heart muscles”, said, **Dr. J.P.S. Sawhney, Chairman, Department of Cardiology at Sir Ganga Ram Hospital, New Delhi.**

“This Dual Energy Spectral CT scanner enables the radiologist to perform myocardial perfusion imaging at the same time, to see whether or not the heart tissue is living or not, assisting us in taking the correct decision about further course of the treatment. Also, with this high resolution CT and fast scan time, I think we finally have a good screening tool for heart disease that we can trust”, **Dr. Sawhney added, while examining a perfusion study.**

**Dr. Rajiv Parakh, Chairman of the Division of Peripheral Vascular and Endovascular Sciences at Medanta- The Medicity and Vice President of the International Society for Vascular Surgery** pointed out, “In patients who already have stents in their heart vessels, it was previously impossible to estimate the degree of stent blockage since the stent itself would prove to be a hindrance to accurate visualisation within the vessel. Spectral imaging using multiple energy levels makes this possible, and helps us establish the extent of re-stenosis in a post-angioplasty patient. It would be interesting to see how this machine ends up affecting treatment planning and outcomes as we have never seen anything like it before. I am sure the additional information provided would be of great clinical value.”

“Spectral imaging using fast kV switching enables us to not only shed light on the character and type of lesions, but also helps us remove artifacts that appear as a result of implants in the body”, says **Mr. Sunil Khurana, Director-CT, Wipro GE Healthcare.** “It enables us to extract non-contrast images from contrast-enhanced ones leading to a major reduction in radiation dose to the patient by further fifty percent. An advanced application is the capability to remove heart motion blurring and show images that don’t have any motion artifacts, which was previously not possible. It can also tell about the chemical composition of kidney stones and can give unique information about liver fibrosis, gout, brain disease, lung disease amongst many others”, he added.

Even though the machine costs nearly twice as much as the highest end CT scanner previously available, Mahajan Imaging will be charging standard market rates from the patients. One has to open up non-invasive cardiac imaging and for that it must be ensured that the most advanced of technology is utilized by the masses..

On the interiors for the new CT scan room, **Ritu Mahajan, Executive Director of Mahajan Imaging**, said, “Since most of the patients who come to us come in a state of anxiety and distress, we decided to give our CT room a bit of a twist with the ceiling and floor giving a feeling of being out in the open. Incidentally, this has also helped us achieve stable heart rates, as the patients are relaxed, leading to even better image quality.”

“I have had several CT scans of the heart because of my heart condition, for which I even got stents put into my arteries, but always got ambiguous results. The doctors used to tell me that the calcium and stents in my heart are preventing them from precisely seeing how much of blockage I have. I am told that with this new machine calcium and other deposits would be better seen and also my cardiologist would know precisely how my stents are doing”, said **Mrs. Pushpa Gupta, a retired teacher.**



Mahajan Imaging's latest installation is a remarkable step towards a healthier nation.

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**References:**

1. Is coronary heart disease rising in India? A systematic review based on ECG defined coronary heart disease: N Ahmad, R Bhopal, Heart 2005;91:719–725. doi: 10.1136/hrt.2003.031047

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