

# 3D imaging greatly improves endodontic outcomes

By David Petrikas



Figure 1. Dr Kourshounian was the first in Australia to install an Acteon X-Mind Trium 3D extraoral imaging unit.



Figure 2. Acteon X-Mind Trium 3D extraoral imaging unit.

**T**alented South Coast NSW dentist, Dr Chris Kourshounian, who installed the first Acteon X-Mind Trium 3D extraoral imaging unit in Australia, has found it a huge boost to his practice.

To begin with, he now has immediate access to high-resolution digital images in his practice without having to refer his patients to a radiology practice in Nowra, half an hour's drive away.

More importantly the X-Mind Trium has greatly aided in the accuracy of his diagnosis and significantly aids in treatment planning for endodontic procedures, implant placement and removal of impacted wisdom teeth.

Dr Kourshounian says the 3D capability and image quality of the X-Mind Trium together with its powerful AIS (Acteon Imaging Suite) software, sets it apart from 2D Panoramic machines and other software suites. For example, heavily calcified root canals - which can be extremely difficult to locate and see clearly on a 2D image - are a particular area where the X-Mind Trium 3D shines.

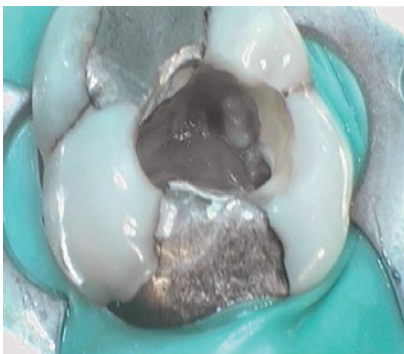
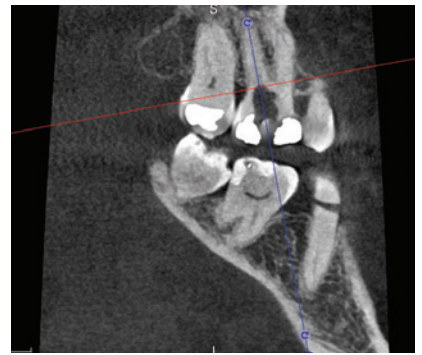
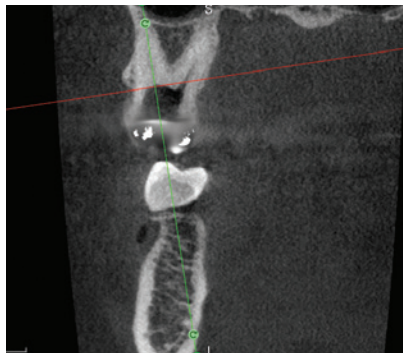
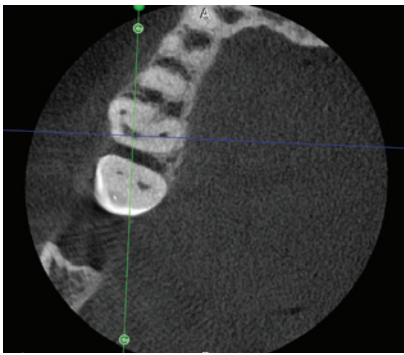
He says being able to clearly see the root in relation to the surrounding vital tissues is necessary before any surgical intervention is attempted.

"I use the X-Mind Trium in 3D mode to navigate into the detailed anatomy of a root canal system and diagnose the cause of the patient's symptoms and

also identify risks of probable endodontic treatment failures.

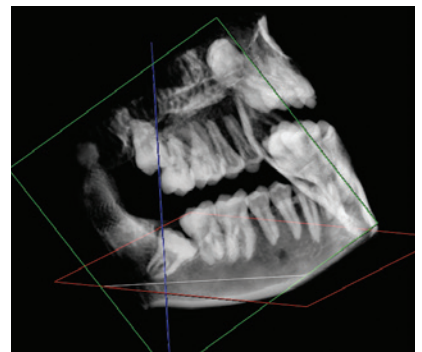
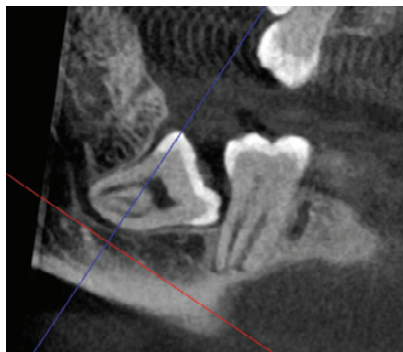
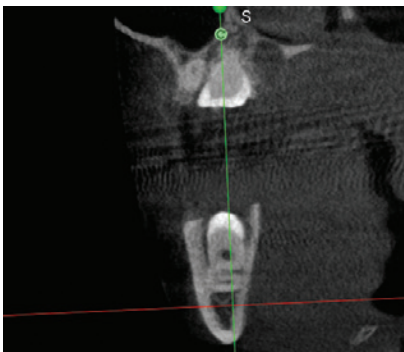
"This will guide treatment planning and determine if a root canal treatment is warranted or if the affected tooth has to be extracted because of unacceptable risk of root canal treatment not working," Dr Kourshounian said.

In the case of impacted wisdom teeth, it is important to have a full appreciation of the location of the vital structures in relation to one another as a wisdom tooth extraction may cause complications such as dental paresthesia if close to or intersecting the inferior alveolar nerve. The exact location of the root branches in relation to the nerve is often not clearly evident in conventional 2D panoramic images.



Figures 3-5 (Above). X-Mind Trium 3D images showing a calcified orifice. Images taken to localise the location of the canal entrance.

Figures 6-7 (Left). SoproLIFE images taken during endodontic treatment.



Figures 8-10. X-Mind Trium 3D images of a wisdom tooth taken to localise the nerve with respect to the roots.

“It is very important that I take a 3D image to see where the tooth is in relation to the nerve. In some cases, the roots are wrapped around the nerve on either side which means the tooth has to be carefully dissected and removed in portions to avoid damaging the nerve.”

The X-Mind Trium and the AIS software tools are equally useful in implant planning and placement to determine bone volume and density and the proximity of the planned implants to the sinuses and other vital structures to help determine the optimum implant design and location and angulation of implant posts.

Being part of Acteon Digital Workflow suite of products, Dr Kourshounian is able to import images from the X-Mind

Trium, as well as from his SoproCARE fluorescent intraoral cameras, X-Mind Unity digital X-ray and PSPiX phosphor plate unit.

Dr Kourshounian regularly uses his SoproLIFE cameras to record the dentition of all new patients as part of the record-taking process to establish a baseline of oral health, monitor tooth health over time and as a medico legal record of all procedures performed.

He is then able to acquire X-ray images, together with 2D panoramic and 3D images in various fields of view from single teeth to full arch as needed using the X-Mind Trium for endodontic, periodontic and surgical purposes and also attach these images to the patient file.

Dr Kourshounian said he was greatly comforted by the knowledge that the X-Mind X-ray and extraoral imaging machines have a very low radiation dose that adjusts automatically according to patient morphology, resulting in safer operation and better-quality images without risk of overexposure compared to other units.

For more information on the X-Mind Trium, visit [www.acteongroup.com](http://www.acteongroup.com).

The X-Mind Trium is supported by Acteon Group Australia and New Zealand and available through A-dec dealers nationwide. Call 1800-225-010 for your nearest showroom or dealer location.