39th IACDE National Conference

THE INVISIBLE REVEALED : SWIR Imaging to Dentistry

SWIR???

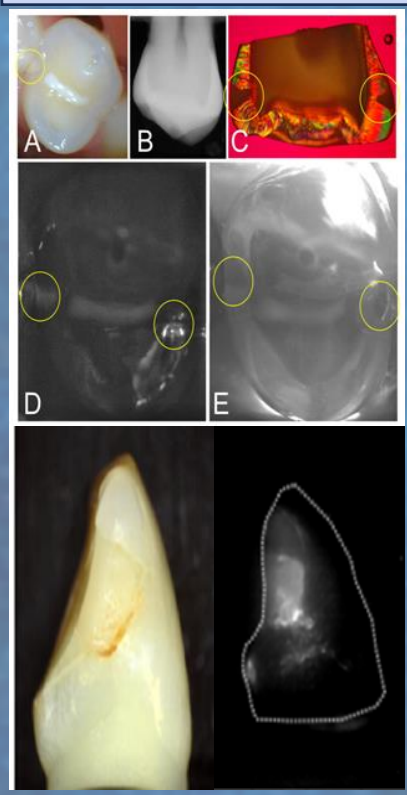
Short Wave Infrared Radiation (SWIR) works at a wavelengths from 1000-2300nm are highly promising due to the higher transparency of dental enamel.

ADVANTAGES

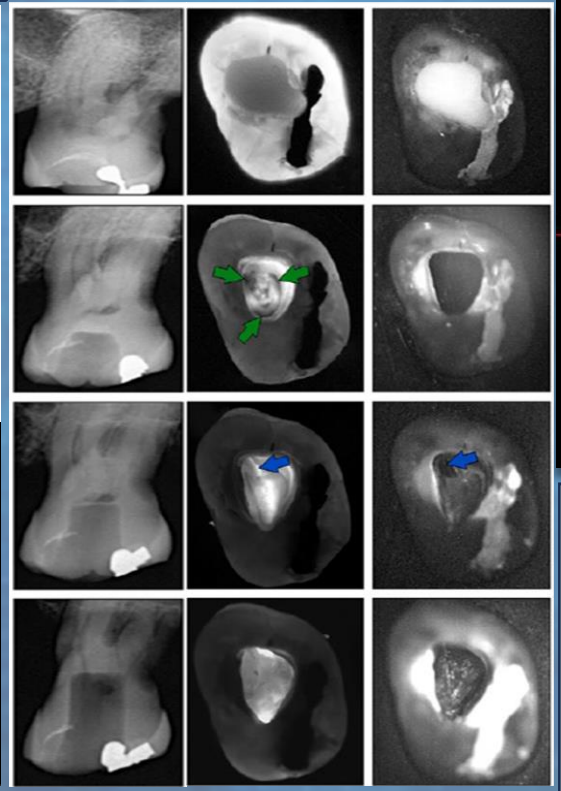
- Non-invasive
- Low-radiation
- Cost-effective
- Enhanced performance in moist environments.
- Images diagnosed with only 5% decalcification.
- Increase the contrast of pulp canals and growth lines inside the pulp.

APPLICATIONS OF SWIR

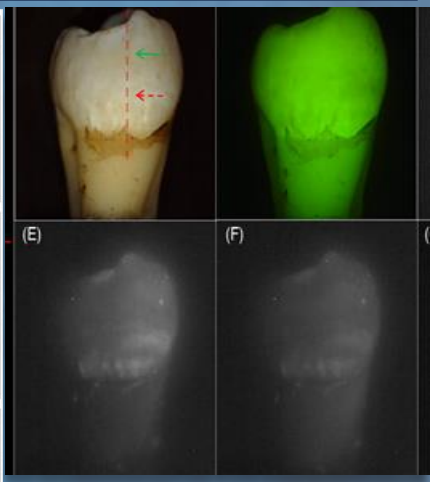
1.Detection of Interproximal and Secondary caries



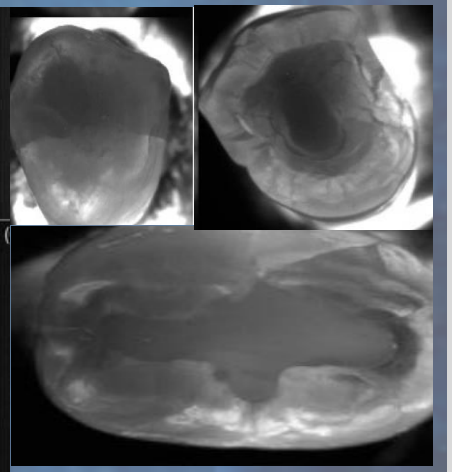
2.Visualization of Pulp



3.Flouride monitoring



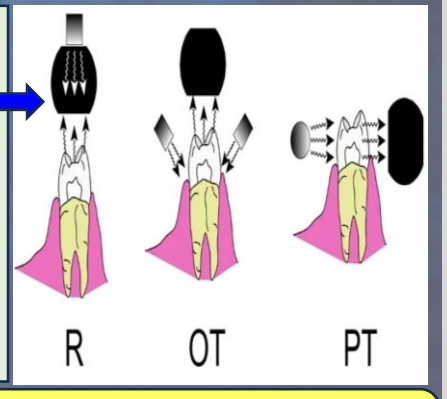
4.Detection of Cracks



TYPES OF SWIR

1.Reflection (R)
2.Transillumination (T)

- Occlusal (OT)
- Proximal (PT)



Probes of SWIR has two parts: the main body with the reflectance light source and optics, and a second attachment for transillumination.

REFERENCE : Zhu, Y.; Fried D. Measurement of the Depth of Lesions on Proximal Surfaces with SWIR Multispectral Transillumination and Reflectance Imaging. Diagnostics 2022,597.