



Wei Liang Choong, Application Engineer at Vibrant NDT, in the AMRC Advanced Structural Testing Centre.

Creating new ventures to help manufacturers

Vibrant NDT is a new company helping UK manufacturers reduce inspection time and costs. It was founded as a joint venture between two companies which were introduced by the AMRC with Boeing.

Vibrant NDT specialises in an advanced non-destructive testing technology called process compensated resonance testing (PCRT). The technique sends minute vibrations through a manufactured part, and studies how it resonates to identify any potential flaws in its material structure.

Unlike previous resonance-based techniques, PCRT employs advanced software analysis and temperature compensation techniques to allow for acceptable variations between manufactured components while still reliably rejecting unacceptable defects.

Vibrant NDT was formed in 2008 as a joint venture between Sheffield-based testing equipment manufacturer Johnson & Allen, a member of the AMRC with Boeing, and Vibrant Corporation of the US. The two companies were introduced at the AMRC after researchers and industrial partners realized the value of a potential partnership.

"The second we were exposed to the technology, I could see the benefits in the re-testing of mass produced components and also in determining the

life of a component in service," says Jon Johnson, Managing Director of Johnson & Allen. *"PCRT is the only NDT technique which can monitor the buildup of stress and deterioration of a component during its life cycle. Any change from a component's initial resonant spectra taken when new indicates that the component has suffered a stress or has aged in some way. If an identical resonant finger print is taken of a part after it has been in service, it gives a green light and reassures us that that part has not gone beyond its operational design."*

Vibrant NDT has itself joined the AMRC as a Tier Two member, and has been involved with many of the centre's world-leading research projects.

Vibrant has deployed its technology to help prove innovative techniques for additive manufacturing of aerospace components; test vital parts for the Bloodhound SSC land speed record bid; and develop new composite materials to reduce emissions in jet engines.

Applications Engineer Wei Liang Choong is based

at the AMRC and works closely with the Advanced Structural Testing Centre to apply PCRT and develop new industrial applications.

"Working with the AMRC has allowed us to engage in many world's-first R&D projects with businesses," says Choong. *"It's challenging to introduce new and innovative products to the market, and determining structural worthiness is a huge leap towards acceptance within the industry."*

Partnering with the AMRC has also helped Vibrant NDT build a relationship with the top tier of the aerospace sector and other key manufacturers.

"I love technology, especially technology like PCRT which is green and advances the ways in which non-destructive testing can make our world a safer and more efficient place to live in," says Johnson. *"It has also been a privilege getting to know some of the people who the next generation are relying on to improve their world."*

www.vibrantndt.co.uk