A day in the life of a Failure Analysis Engineer

Arrive at the office at 8.30am and log on to my email account. I check to see if there are any important emails from my sales colleagues in Germany. The company manufactures computing chips. As my job mainly involves failure analysis of customer returns it is important that I keep in contact with the sales engineers to prioritise claims. This morning there are no urgent emails so I have the freedom of prioritising my own claims.

I begin analysis on one particular claim which is for an important customer. The first step is visual inspection using a microscope. The device has been in application and is in poor condition so I remove excess flux and solder using a soldering iron.

The next step is IV Curve Trace. This method checks the diode characteristics of each pin on the device. This technique will tell me if excessive voltage or current has damaged any pins. This time, all the pins have passed. Next I x-ray the device to see if there is any internal damage such as broken bond wires or a cracked chip. The device is in good condition and passes x-ray. The next step in analysis is the most important step – the device is tested using a mass production test program. This will test the functionality of the device and from the customers point of view is the main test. The device is tested on a special mass production test board. If it passes this test this usually means that the customer has experienced a problem with their application which is not due to our device. However in this case the device has failed.

1pm – and time for dinner! Now that my most important claim is tested I have time for other issues. Part of my job involves QT testing. These are qualification tests for new devices. Today, one of the QT's needs special analysis. This will tell me if there is any delamination inside the device package. On inspection of the devices, all are ok. This is good news and the people in charge of this device in Japan are informed of our results. They are very pleased.

I now return to my claim from earlier in the day. I examine the datalog and discuss it with my supervisor. We determine the root cause of the fail and I begin writing the report. When the report is finished I send it to the Sales and Marketing representatives in Germany and close it off on our database.

3.30pm – tea break. When I return to the office there are a couple of emails with reports from Japan. It is also my job to check failure analysis reports from Japan and send them to the sales people in Germany.

Every day is different. I get to use complex analysis equipment from locations all around the plant. Some days are very hectic, depending on customer demands. Also, every day brings challenges – a new problem or a new opportunity to learn. Other days involve teleconferences, audits, phone calls with sales engineers, new projects – the list goes on. I finish work at 5pm. I am happy that I have completed an important claim today but I know that no sooner has one important claim finished than a new one arrives in the door.

Paul Noonan

'I x-ray the device to see if there is any internal damage such as broken bond wires or a cracked chip.'

Paul Noonan at work using IV Curve Tracer for analysis. Paul graduated in Photonics from the IT Tralee, then gained a BSc in Physics with Lasers and Photonics from The University of Hull in England.