

# Ethernet REIN on EFM interference

Repetitive Electrical Impulse Noise (REIN) and Single Isolated Impulse Noise (SHINE) is interference found on copper connections and is caused by electrical impulses from such electrical items as a faulty power supply which can result in line errors, slow speed and even disconnections. Usually, power sources and a copper connection can co-exist happily. SHINE happens in a burst (i.e. when a device is switched off), whereas REIN is constant throughout a device's usage.

REIN only affects EFM Ethernet circuits as the service is delivered into the premises through a copper pair(s).

## How do I look for a REIN or SHINE fault?

Diagnosing REIN or SHINE faults can be complicated. It is the End User who would diagnose these faults and it is simply a process of elimination. You should get an AM/MW radio and set it to 612KHz. If you place the radio next to your modem/router, you'll hear the SDSL signal. If you then place the radio next to another power source, such as an LCD monitor, you'll hear a distinct sound and such fade out as you move it away. By using the radio, you may be able to see where the noise is coming from, and switch off that power source and then retest your SDSL connection.

Not all noise you may hear will affect your SDSL connection, this is just to help you find the potential cause.



If you are unable to find the cause within the site of the SDSL connection, it could be further afield, such as a neighbour's equipment, or something along the route of the SDSL connection from the exchange, such as roadworks or a faulty streetlight. If the source is external, then you should call into the service desk who will then be able to assist you further.

REIN and SHINE faults can be complicated and can take months to resolve. In extreme cases, the cause cannot be eliminated.

## Typical REIN and SHINE Causes

- Faulty Power Adapters
- Christmas tree lights
- Thermostats (central heating etc)
- Railway cables
- Electric fences / motors
- Street lighting
- Laptops / TVs / Set top boxes for Sky, Virgin, Freeview etc.
- Roadworks