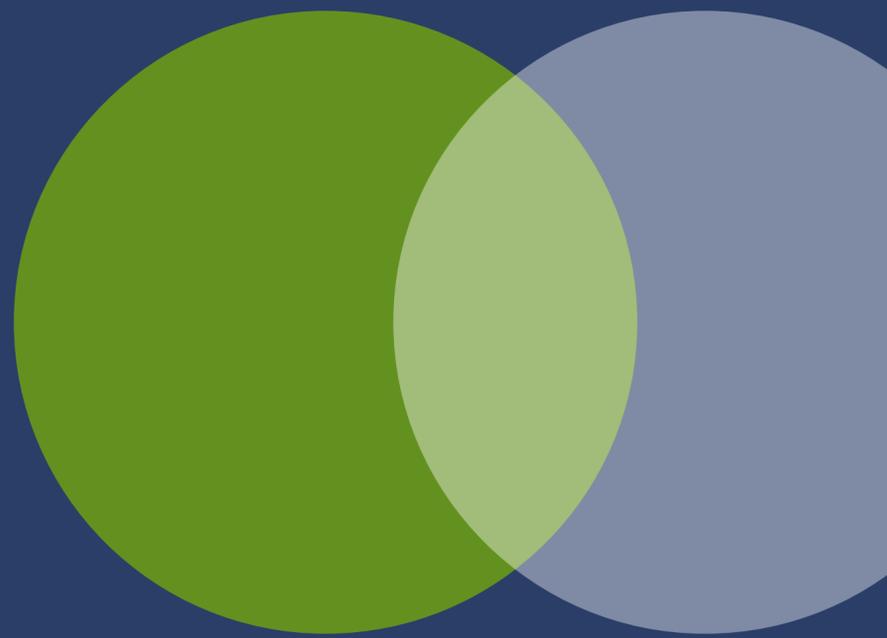
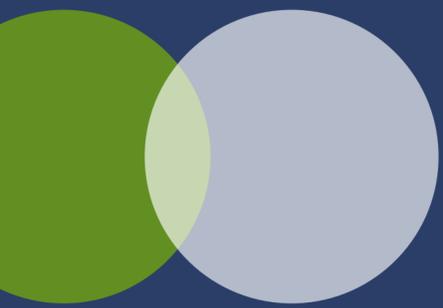


# CASE STUDY

Working Near 5G &  
RFR Hazards



WAVEMON  
RF-60



## Summary

A large energy provider in Queensland wanted to know their employees were safe from Radio Frequency Radiation (RFR) when working near telecommunication antennas. Occupational health limits exist for both those working in RFR fields and in non RFR environments, to protect all workers from the harmful effects of any potential radiation exposure.

Telecommunication 5G upgrade programmes are currently being rolled out using small cells, which are essentially mini base stations that extend the coverage of the mobile network, or boost capacity in busy usage areas. They consist of 1-2 antennas mounted on existing infrastructure including light poles, power poles and buildings.

Prior to this work being carried out the company wanted to accurately measure the amount of RFR emitted from these areas. It is crucial that the cells are turned off before the worker begins as exposure to RFR can be extremely harmful. An (Electro Magnetic Field) EMF monitor is needed to check if there is any threat to exposure of RFR.

## Problem Statement

The company needed a reliable monitor to ensure the safety of its workers. There are many radiation monitors on the market, so they were unsure which was the best and the most consistently performing unit. Tests were conducted on several units in a workplace situation, including more intense tests exposing the monitors to energised conductors.

## Solution

The RF-60 monitor from WaveMon was introduced to their workforce after the results from the rigorous testing process.

The performance of the RF-60 monitor was noted as 'superior to others trialed' as it did not false alarm in close proximity to energised 11KB conductors, whereas all other monitors did. Further testing revealed that the RF-60 did false alarm, but only in very rare situations when touching energised 22KB conductors and if placed within 100mm of energised 33KB apparatus.

A key feature of the RF-60 monitor is that it can be attached to sunrise fittings on operating or telescopic sticks. The monitor is also equipped to be worn on the arm or a harness, suitable for those working at height on, or around, 5G network installations.

The monitor performs a start up sequence so you can identify that all warning systems are working properly, including audio, LED lights and vibration. Using a 2-way radio you can easily check that all monitor alarms are operational. RFR monitors are programmed to alarm at set percentage readings of the Occupational Limit. For none RFR workers the alarms are set to the General Public Occupational Limit, which are set to alarm at 50% and 100% of that limit.

## Key Challenges Faced

- Many options of radiation monitors are available
- Need reliable and accurate alarms to ensure safety
- Needs to be able to attach to operating or telescopic sticks
- How do you continuously monitor for RFR when a worker is already working at a height?



WaveMon  
RF-60

## Outcomes and Benefits

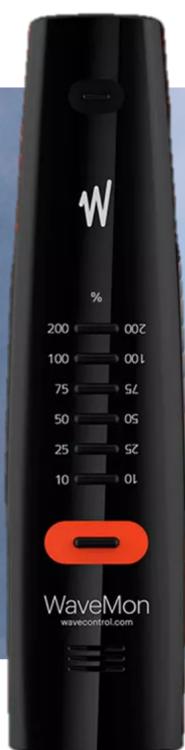
- The RF-60 provided protection for workers without triggering false alarms, which would cause several workplace inefficiencies like unnecessary downtime. The WaveMon RF-60 does not react to interference from energised conductors whereas other monitors did
- Provides user confidence in the unit
- The monitor has a water-resistant rating but can be further protected by placing it in a weatherproof pouch
- At the 50% alarm workers should immediately move away from the antenna and notify management, providing compliant measures and actions implemented
- Option to be attached to a harness or workers arm, providing continuous monitoring when workers install networks at height and off the ground.

## Lessons Learnt

- Test all EMF monitors first in a normal working environment to understand if they're suitable for the application
- Using a reliable monitor which workers have confidence in, reduces unnecessary downtime
- Always sense check with a 2-way radio to ensure the monitor is correctly working before use.



5G small cell mounted on power line



Electrical technician working on power line