



## **Electromagnetic Radiation Certificate** **for** **Pine Hill Transmission Site**

### **Current Situation**

Kordia's transmission site at Pine Hill transmits analogue and digital TV, microwave links and miscellaneous other radio communications. This electromagnetic radiation (EMR) certificate outlines the current and future possible EMR levels around Kordia's site at Pine Hill to support Kordia's application for site designation.

### **Site Description**

The site contains a single monopole and a small equipment building, located beside a water reservoir, and surrounded by residential housing. All areas around the site are considered publicly accessible.

### **Relevant Regulation**

Regulation 4 of *Resource Management (National Environmental Standards for Telecommunications Facilities) Regulations 2008* (NES) provides a standard for the maximum acceptable level of public exposure to electromagnetic radio frequency fields, and states that a telecommunication facility is a permitted activity as far as radiofrequency fields are concerned if it is operated in accordance with NZS 2772:Part 1:1999 *Radiofrequency Part 1 – Maximum Exposure Levels – 3 kHz to 300 GHz*. The limits in NZS 2772:Part 1:1999 vary with frequency, however, for the services at Pine Hill, a conservative limit of 200  $\mu\text{W}/\text{cm}^2$  is appropriate.

Kordia's transmission site is planned and operated in accordance with NZS 2772:Part 1:1999, including compliance with clause 10(d).

### **Existing EMR Levels**

An independent EMR survey was undertaken in the general vicinity of the Pine Hill site by Trevor Woods on 23 September 2009. The maximum EMR level measured in publicly accessible areas around the site at two metres above ground level was 4  $\mu\text{W}/\text{cm}^2$  beside the monopole (2% of the 200  $\mu\text{W}/\text{cm}^2$  general public limit), representing the cumulative effect of all existing services on site.

Since September 2009 three low power services have been added, and four higher power broadcast services have been removed. The net result is that the current maximum EMR levels will be lower than the 2% measured in September 2009.

There are no other radio sites nearby that contribute any significant EMR.

**EMR Levels From Future Services**

Kordia may wish to establish additional services at Pine Hill in the future, and their EMR contribution will depend on parameters such as transmission power, antenna configuration and location. However, current trends indicate that future services on site will only have a minor effect on EMR, and total EMR levels are very unlikely to ever reach 25% of the New Zealand Standard. It is important to note that in December 2013 all analogue television services transmitting from Pine Hill will be switched off – the removal of these transmitters will result in a reduction in EMR levels around the Pine Hill site.

Kordia will ensure that the site always operates in accordance with the limits of the New Zealand Standard applying at the time.



Adam Tommy, CPEng  
Broadcast Network Architect  
Kordia  
19 June 2012