

# GPS equipment near transmission lines

AltaLink understands that some people are concerned about potential radio frequency interference from transmission facilities impacting the operation of Global Positioning System (GPS) and Global Navigation Satellite System (GNSS) receivers. Research has indicated that impacts from transmission line corona activity or spark-gap discharge generated radio frequency interference is unlikely.

## CAUSES OF INTERFERENCE

Interference on a device can be experienced when the operating frequencies of two devices overlap. This can only impact equipment operating in similar frequency bands. GPS and GNSS receivers typically operate in the microwave frequency band, which is in the gigahertz (GHz) range. This is a much higher frequency than potential interference produced by transmission lines - usually below 30 megahertz (MHz). Research has shown the possible effects of interference or signal scattering from overhead transmission lines to be unlikely.

GPS and GNSS receivers have been shown to lose signal lock for several reasons that have been incorrectly attributed to nearby transmission lines. This can include satellite anomalies such as low power, code generation errors, or outages.

Studies using modern GPS and GNSS equipment have shown no impact to receiver accuracy and performance when operating near or underneath high-voltage transmission lines. AltaLink's discussions with agricultural autonomous vehicle manufacturers support the research that operation of vehicles near or underneath transmission lines should not be affected.

## RESOLVING INTERFERENCE ISSUES

There are several steps users can take if they experience issues with their GPS or GNSS systems:

- ensuring all factory upgrades have been installed
- correcting receiver installation deficiencies
- replacing the receiver with a newer one that has improved programming
- relocating the ground-based station

AltaLink is committed to working with you to investigate issues related to the operation of your GPS or GNSS equipment and potential causes. If the transmission line is found to be the source of the problem, AltaLink will ensure any interference from the transmission facility meets industry regulations. If necessary, we may have an external interference specialist come to your property or contact the manufacturer of the GPS or GNSS equipment to help propose solutions.

During previous investigations, AltaLink has not found any locations with interference concerns that could not be resolved. Please contact us with any GPS or GNSS questions you may have.

## CONTACT US

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