# VTEM<sup>™</sup> plus

# **VERSATILE TIME-DOMAIN ELECTROMAGNETIC SYSTEM**

Geotech's exclusive and industry-leading VTEM<sup>™</sup> (Versatile Time-Domain Electromagnetic) system has surveyed more than two million line-kilometres with confirmed results in many different deposits and host geologies for various industries. We operate more than 30 VTEM<sup>™</sup> systems globally.





# VTEM<sup>™</sup> plus

## FEATURES

- Highest signal to noise ratio in the industry providing superior depth of investigation
- In-loop transmitter-receiver geometry to provide a symmetric response to allow for intuitive conductor interpretation
- Low noise receiver and in-loop transmitter-receiver geometry provides for high spatial resolution
- Low base operating frequency standard is 30 Hz or 25 Hz to penetrate through conductive overburden
- Long on-pulse and B-field data to detect and resolve high conductance targets
- Easily deployable to all parts of the world

## VTEM<sup>™</sup> plus WITH OPTIONAL MAGNETIC GRADIOMETER

- Two Geometrics split-beam total field magnetic sensors, with a sampling interval of 0.1 seconds located 10 m above the transmitter loop
- Horizontal separation between two magnetic sensors is 12.5 m
- Second GPS antenna and inclinometer at 10 m above the transmitter loop

#### BENEFITS

VTEM<sup>™</sup> plus is the leading time-domain electromagnetic system in the world. At the beginning of 2010, 30 systems were available worldwide. The coincident, vertical dipole transmitter-receiver configuration provides a symmetric system response. Any asymmetry in the measured EM profile is due to conductor dip, not the system or direction of flying. This allows for easy identification of the conductor location and for interpretation of the EM data. The low noise receiver, plus the high power transmitter yields a system that has the best signal to noise ratio of any airborne system.

VTEM<sup>™</sup> plus has been designed to detect and discriminate between moderate to excelent conductors using a low base frequency, long pulse width, and derived B-field. The B-field is derived from integrating data collected at 192 kHz over the entire waveform.

The system is easily disassembled into small enough pieces to be shipped using standard containers. Geotech maintains an inventory of spare parts to ensure the system can be repaired easily in the field.



An example of VTEM<sup>™</sup> dB/dt and B-field data is shown. It can be seen that the B-field data responds to the better conductors and that the overburden response is supressed. This allows for easier interpretation of bedrock EM anomalies. The high signal to noise ratio of the system is also seen above.

#### TRANSMITTER

Transmitter-receiver geometry	In-loop, vertical dipole
Transmitter coil	Dodecagon shape-vertical axis, 540m <sup>2</sup>
Base frequency	Standard 30 Hz or 25 Hz depend- ing on powerline frequency
Pulse shape	Polygonal
Pulse width	Typically 43% of the half cycle - over 7 ms in length
Peak dipole moment	Up to 625,000 NIA (400,000 typical)
Peak current	Up to 310 Amperes (200 typical)

#### RECEIVER

Coils	Standard Z,X, optional Y
Sample rate	192 kHz over entire waveform
Bandwidth	Up to 50 kHz
Spheric noise rejection	Digitial
Industrial noise rejection	60 Hz or 50 Hz

#### MECHANICAL

Nominal survey speed	90 km/hr
EM transmitter/receiver ground clearance	30 m
Operating temperature	-45°C to 45°C
Power requirements	From helicopter, auxiliary power not required
Shipping	Standard packaging (longest piece - 2.5 m)
Installation/assembly time	One day typically

Americas www.geotech.ca sales@geotech.Ca International www.geotechairborne.com sales@geotechairborne.com Offices Australia Brazil Canada Chile Kazakhstan Russia

Brazil Barbados Chile Ghana Russia South Africa

