

MIRA GPR SYSTEM

Technical capability datasheet



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Background

The first significant advancement in Ground Penetrating Radar (GPR) in the last 5 years has arrived in the form of the MIRA (Mala Imaging Radar Array) system.

By using revolutionary new technology, the MIRA system delivers accurate 3D GPR data acquisition, interpretation and recording of below ground infrastructure.

Designed and engineered by MALA Geoscience, 40SEVENS established GPR provider, this system is changing our Industry's whole approach to radar imaging surveys for the future, today!

As the first commercially available true 3D, multi channel GPR system in operation in the UK, we are delighted to be already seeing the results of better resolution data, collected quicker and delivering more confidence of accuracy than has ever been seen in our industry previously.

A key difference between our single antenna and even other multi-channel systems comes from it's unique system design delivering 3D data sets in true 'real world' positioning allowing large and intensive areas to be mapped without any loss of information down to depths of around 2.5m.

40SEVEN's MIRA experience was firmly established by delivering on a very key and safety critical investigation with the prototype system last year. Following refinements for the UK market we have seen the system continue it's impressive course for changing the way that we work with GPR for good.



2009 UK Model

The MIRA system is able to capture large volumes of 3D data vastly more accurately than single channel traditional GPR systems. The data set is positioned using a total station and interpreted and post-processed through unique software. The result is that the depth of targets found will be known along the entire route rather than at grid intervals thus ensuring greater accuracy of reporting. The data also allows for the dimension modelling of the target - a task that was previously very difficult and unreliable using other systems.

Benefits

Up to 50 times faster than our conventional systems

Accuracy levels are significantly increased

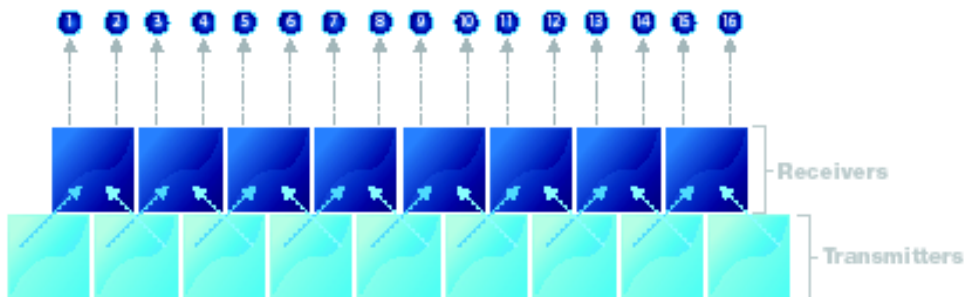
Allows advanced post-processing, reduces delivery time by up to 75%

8cm spacing, high acquisition speed and arbitrary shooting sequences ensure loss-less data collection

Data can be shown as images or interpretation strings and can be integrated into CAD or GIS formats

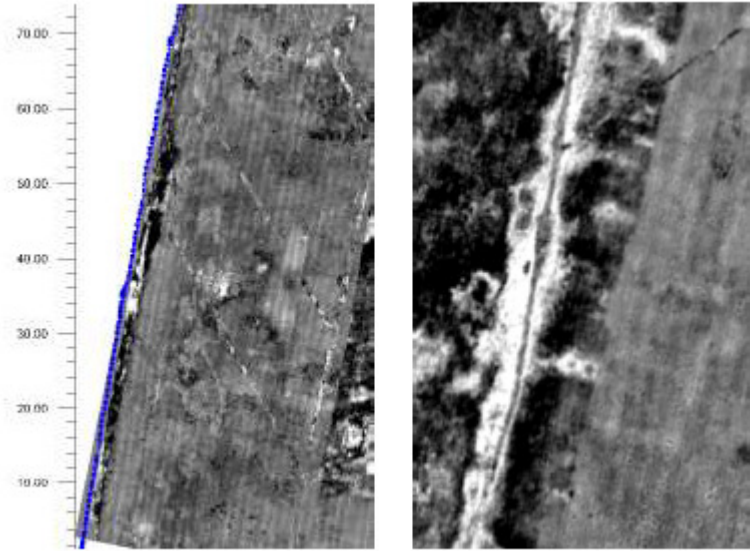
What makes the MIRA different?

The system has 9 transmitters and 8 receivers with each receiver collecting radar signals from 2 adjacent transmitters. This allows the MIRA system a total of 16 channels delivering more detailed, in-depth 3D data.



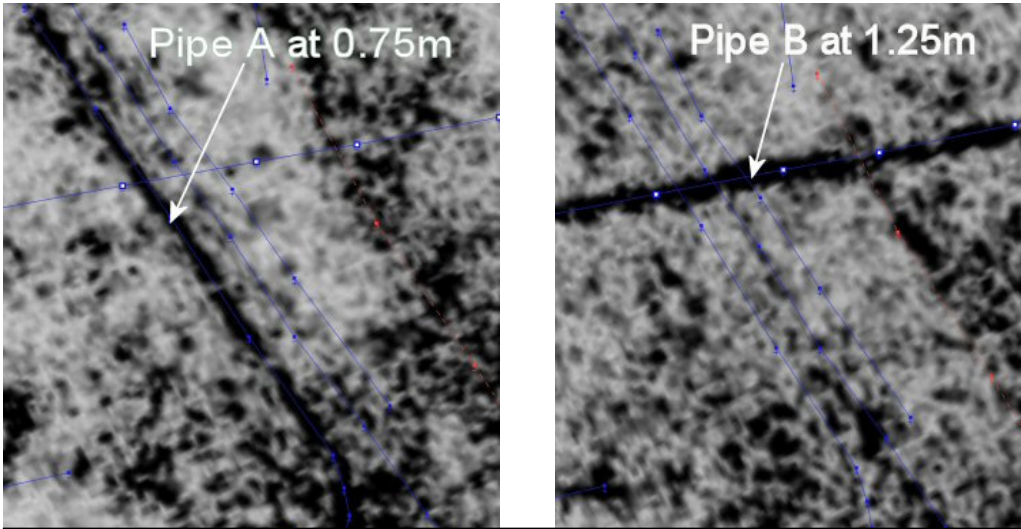
The current or traditional GPR systems suffer from a lack of real 3D capabilities, which can result in data loss and affect accurate positioning of targets. The MIRA system is also most likely to be able to deliver a target under target scenario, which single antenna systems will always struggle with.

Data example 1.



MIRA data showing a herringbone style land drainage system

Data example 2.



Pre-filtered MIRA data. This is showing a pipe crossing a pipe at different depths at the same position.