

- A-3 -

Single-frequency surveying

The DIGHEM^{II} system has two transmitter coils which are mounted at right angles to each other. Both coils transmit at approximately the same frequency. (This frequency is given in the Introduction.) Thus, the system provides two completely independent surveys at one pass. In addition, the digital profiles (generated by computer) include an inphase channel and a quadrature channel which essentially are free of the response of conductive overburden. Also, the EM channels may indicate whether the conductor is thin (e.g., less than 3 m), or has a substantial width (e.g., greater than 10 m). Further, the EM channels include channels of resistivity, apparent depth and conductance. A minimum of 14 EM channels are provided. The DIGHEM^{II} system gives information in one pass which cannot be obtained by any other airborne or ground EM technique.

Figure A1 shows a DIGHEM^{II} flight profile over a conductive ore body in Australia. It will serve to identify the majority of the available channels.

Channels 20 and 21 are respectively the magnetics and the EM bird height. Channels 22 and 23 are the inphase and quadrature of the coaxial coil-pair. This coil-pair is