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## UAV Based Magnetic Field Mapping Solution to OSI

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Based on the lessons learned during the past training and exercise experiences, especially IFE08 and IFE14, inspection efficiency and health & safety concerns are very important factors for conducting ground or air-borne magnetic field mapping. This work would propose an UAV based magnetic mapping system, which is also the active result of joint efforts made by experts of OSI and commercial magnetic mapping application. The system is composed mainly of UAV, magnetic mapping sensor arrays as payload, ground based station subsystems. UAV platform is specially designed to minimize its own magnetic field to reduce the interference to the magnetic detection to the minimum. Quantum magnetic detector has been utilized to achieve the sensitive detection of magnetic field over 100 times more accurate than ordinary magnetic detector. Ground based station would achieve UAV flight-control and real-time magnetic mapping data visualization and analysis. The whole UAV based magnetic field mapping system would achieve mapping of 20000 m<sup>2</sup> inspection area per hour with the flight speed of 4 m/s and detection width of 2 meter. Detection of metal anomalies with sensitivity ranging from 0.5 nT to 10 nT could be conducted with the detection depth from 3 meter to 60 meter.

### Promotional text

This work would propose an UAV based magnetic field mapping system, which is more safe for inspection team, and more efficient for OSI operation.

**Primary author:** Mr LI, Peng (Hope investment Development Corp. Ltd., Beijing, China)

**Co-authors:** XU, Xinlei (Hope investment Development Corp. Ltd., Beijing, China); Mr XU, Peng (Hopong Technology (Guangdong) Co., Ltd., China); Mr HE, Xinmin (Hope investment Development Corp. Ltd., Beijing, China); Mr HANG, Xue (Hope investment Development Corp. Ltd., Beijing, China)

**Presenter:** Mr LI, Peng (Hope investment Development Corp. Ltd., Beijing, China)

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