

# BE CONNECTED ON THE FRONT LINE

TACTICAL SOLUTIONS

SYSTEMS AND SOLUTIONS  
CAPABILITY PROFILE



**CODAN**  
COMMUNICATIONS  
[CODANCOMMS.COM](http://CODANCOMMS.COM)





## OUR MISSION

Codan has a 60 year history of providing custom systems and solutions for customers. Leveraging off of our capabilities for design, manufacturing and support of our acclaimed line of communications equipment, we offer an extensive set of design and support services to add value to our customers.

These include:



Systems Engineering  
and Integration



Radio Propagation  
Modelling



Antenna Modelling and  
Selection



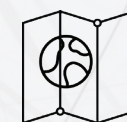
Spectrum Management  
and Optimisation



System Safety  
Engineering



Electromagnetic  
Compatibility Engineering  
(EMI/EMC)



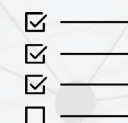
Environmental Conditions  
Engineering



System Security



Configuration  
Management



Integrated Logistics  
Support (ILS)



Training





# SYSTEMS ENGINEERING AND INTEGRATION

Codan can design, manufacture and install bespoke turnkey systems for customers using a combination of Codan, custom and third party components.

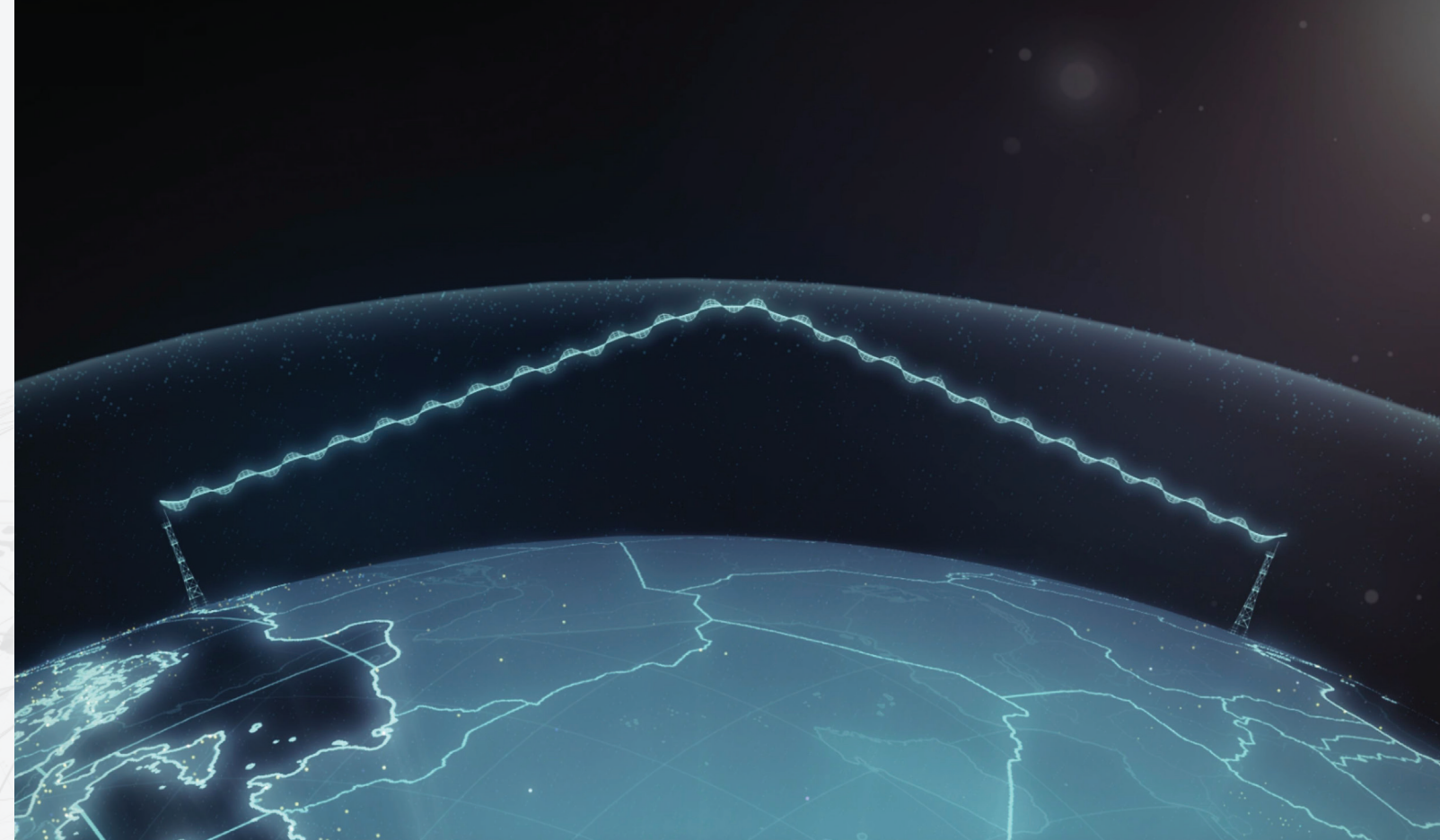
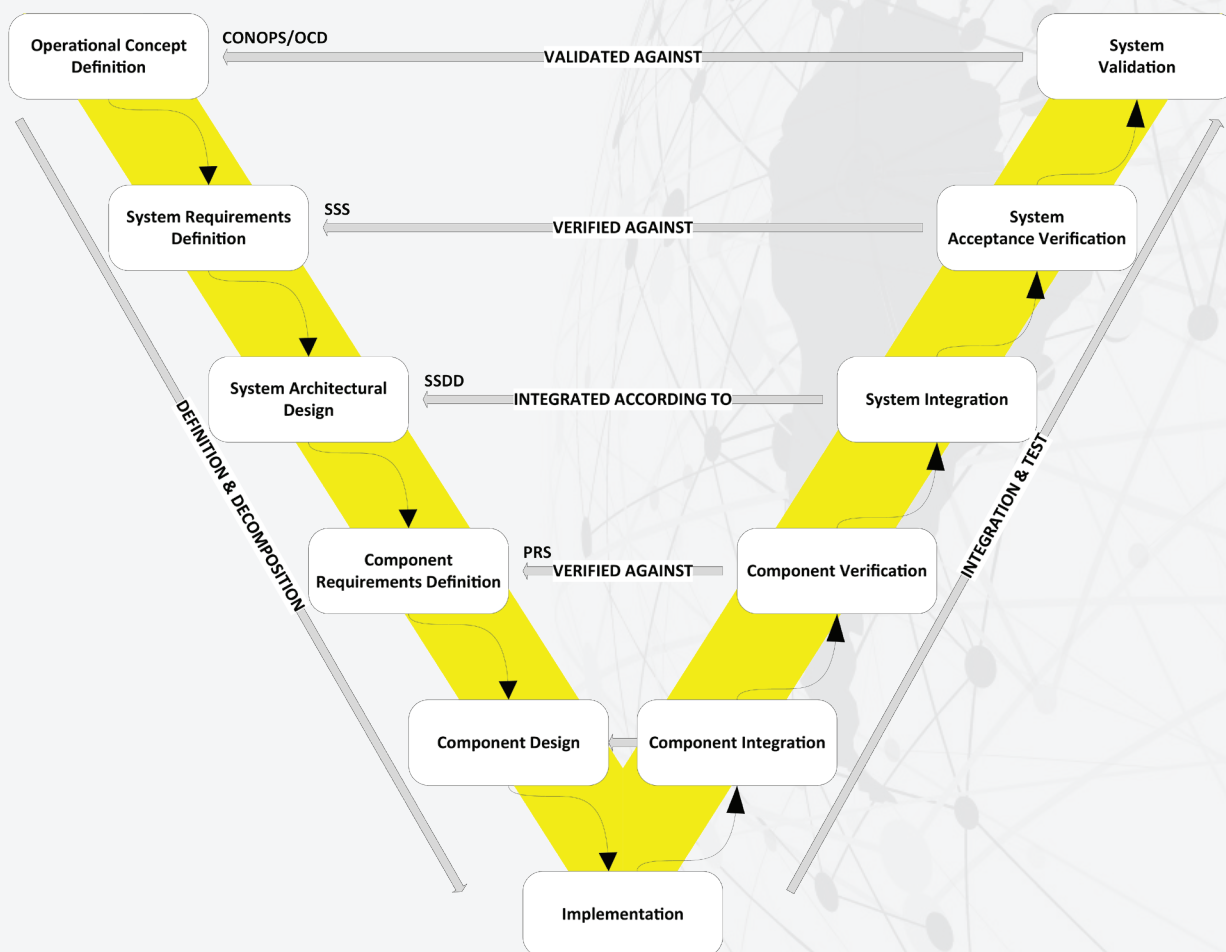
Codan can work with you to identify your requirements and design, manufacture, install, verify and validate a systems solution to meet your exact needs. Our systems engineering processes allow the management of complexity and change, reducing risk and whole of life cost associated with your system.

Codan can also work to incorporate your system as a subsystem of a larger system or as part of a system of systems.

Activities can include:

- Operational concept development
- Requirements analysis
- System architectural design
- System modelling
- System integration
- Platform/site integration
- Verification and validation

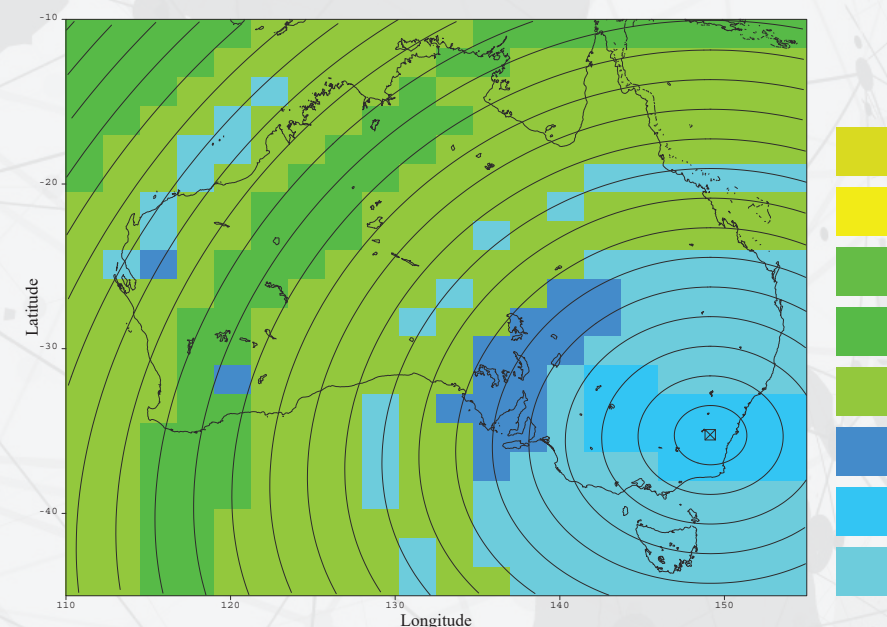
Codan has experience developing and supporting systems in all parts of the capability lifecycle using familiar standards such as ISO/IEC/IEEE 15288, EIA-632 and MIL-STD-498 using waterfall, incremental and spiral development models.



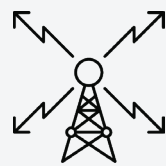
## RADIO PROPAGATION MODELLING

High frequency (HF) communication using sky wave propagation through the ionosphere presents challenges that need to be carefully considered in the design of a HF communication system.

Codan can conduct radio propagation modelling to support the choice of base station locations, power, frequency and antenna selection to maximise coverage to meet your requirements and achieve your communication availability targets.



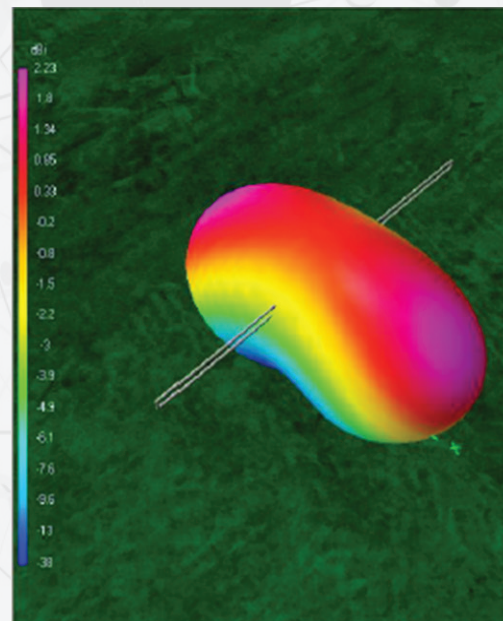
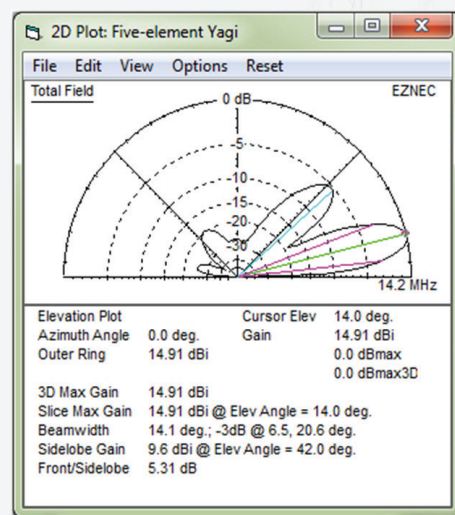




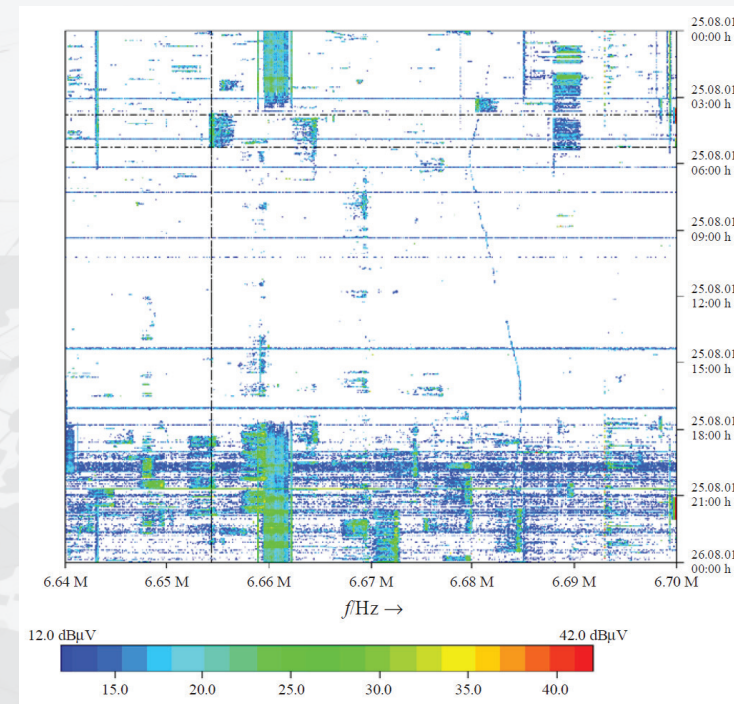
## ANTENNA MODELLING AND SELECTION

The antenna is a crucial element of radio communications, especially in the HF band. A high performance radio with a low performance antenna is very unlikely to give good results. Inversely, a lower performance radio with a high performance antenna can give very good results.

Codan maintains a comprehensive library of performance of its antenna product range and select third party antennas. It can model antenna performance characteristics in various environments to facilitate correct antenna selection for optimum system design.



## SPECTRUM MANAGEMENT AND OPTIMISATION



Successful radio communication is dependent on the availability of appropriate radio spectrum at the right frequencies and bandwidths that are free from interference. Modern wideband communications techniques in the HF and other bands necessitate the need for effective and efficient spectrum management and optimisation to ensure high communications availability.

Codan can identify appropriate frequency allocations, bandwidths, licensing and spectrum reuse options to support effective radio communication.

Codan can design, develop, install and test dynamic spectrum monitoring and frequency management systems to support effective operation.



## SYSTEM SAFETY ENGINEERING

Codan can implement a system safety program to ensure that safety hazard in the radio communications system are identified and mitigated to an acceptably safe level. Both the designer and the operator of a system have obligations to ensure that a system is safe.

For a radio communication system the focus is on:

- RF Radiation Hazards (RADHAZ)
- Electrical Safety
- Hazardous Materials (HAZMAT)

Codan can conduct system safety programs in accordance with common standards such as MIL-STD-882 and workplace health and safety regulations in the relevant jurisdiction.



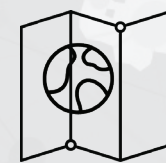
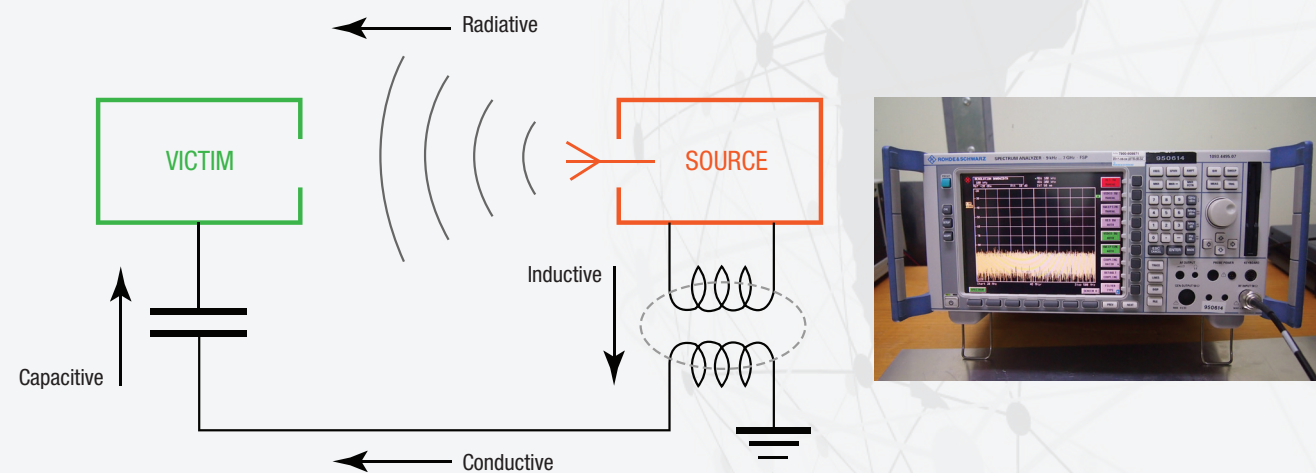




## ELECTROMAGNETIC COMPATIBILITY ENGINEERING (EMI/EMC)

Electromagnetic Compatibility (EMC) ensures the correct operation, in the same electromagnetic environment, of different equipment, and the avoidance of interference between equipment. This ensures that different components work together in the intended environment e.g. vehicle, ship and allows early identification and resolution of problems.

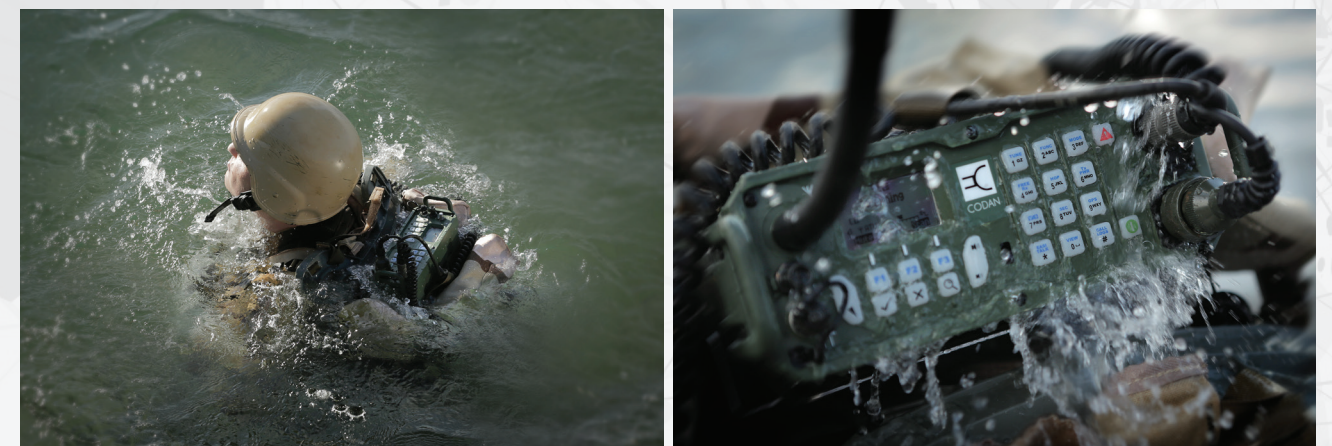
Codan can conduct electromagnetic compatibility analysis and/or testing in accordance with common standards such as MIL-STD-464, so that different components of the system do not interfere with each other.



## ENVIRONMENTAL CONDITIONS ENGINEERING

A radio communication system must be able to withstand environmental conditions such as temperature extremes, immersion, shock, vibration, humidity, dust and altitude. Environmental conditions can effect equipment maintenance, life and lifecycle cost.

Codan can ensure that different components work in their intended environment e.g. shelter, military vehicle, ship. This allows early identification and resolution of problems and ensures minimised maintenance and lifecycle cost. Codan can design your system to comply with common environmental condition standards such as MIL-STD-810.







# SYSTEM SECURITY

Security is an important component of a radio communications system. Codan can ensure that the system and components are designed and installed with a level of security to match their use and environment.

Areas of focus include:

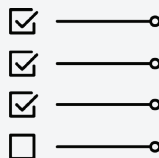
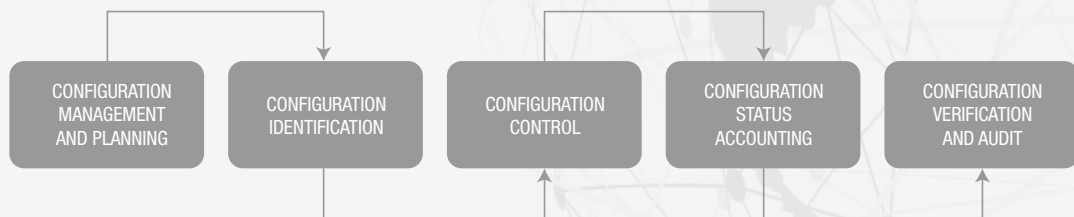
- Physical security
- Cyber (ICT) security
- Cryptographic security (COMSEC)
- Emissions security (EMSEC/TEMPEST)
- Transmission security (TRANSEC) e.g. Frequency Hopping, Low Probability of Intercept (LPI)
- Security accreditation



# CONFIGURATION MANAGEMENT

When designing and operating a mission or safety critical system, configuration management is essential to ensure that you are provided with correctly “configured” hardware, software, and the information necessary to operate and maintain the system effectively.

Codan can ensure that all system components are built-to and subject to an appropriate level of configuration control in accordance with common standards such as EIA-649 or MIL-HDBK-61.



# INTEGRATED LOGISTICS SUPPORT (ILS)

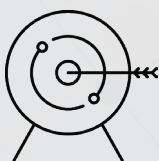
To be effective, every system requires a well designed and effective support system.

Codan can use integrated logistic support (ILS) analysis to design and provide a support system to enable your system to perform its mission.

ILS plans and directs the identification and development of logistics support and system requirements for systems.

Areas of focus include:

- Sparing analysis
- Support and test equipment
- Training needs analysis and development
- Technical data and publications
- Reliability, Availability and Maintainability (RAM) analysis
- Life cycle cost modelling



# TRAINING

Effective operation and support of your system requires well designed training for both operators and maintainers.

Codan can design and deliver training for operators, installers and maintainers, at your premises or our offices and in the field. Course material can be translated into the localized language of choice. Training is custom designed around the required skillsets and existing proficiencies and based around standard training for Codan and third party equipment (where applicable).

Codan’s comprehensive operator, installer and maintainer training courses are based upon classroom instruction and hands-on practical exercises.





**FOR MORE INFORMATION CONTACT**

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