Cosite Communication Solutions

CCS

ENSURE THAT YOUR
COMMAND AND CONTROL PLATFORM
COMMUNICATIONS ARE NOT LOSING
COMMUNICATIONS RANGE
FROM COSITE INTERFERENCE.

OUR MISSION IS TO ASSIST RF
COMMUNCATIONS INTEGRATORS
IN FIELDING FIRST TIME SUCCESSES.

POLE ZERO
CMP
A DOVER COMPANY

CELEBRATING
20
YEARS

POLE/ZERO CCS

Command and Control (C2) platforms require multiple RF communications channels to ensure force coordination over long distances. Unbeknownst to the warfighter, quite often these critical communication requirements are not met due to self-generated or cosite interference that severely degrades communication range. To ensure this does not happen to your platform, Pole/Zero can provide a comprehensive evaluation of your platform's communication performance level, enabling peak operation even in the most dense electromagnetic environments. Pole/Zero's Cosite Interference Analysis (CIA) takes into account the adversaries to your communications link including:

- Radio spurious output
- Broadband noise
- Simultaneous co-channel operation
- Limited antenna isolation
- Receiver desensitization
- Reciprocal mixing
- Cross modulation

The dynamic interaction of these phenomenons in your Command and Control (C2) communication architecture can severely hinder the warfighter's ability to communicate if not properly addressed. Whether during the development phase, a communication upgrade, or on an existing deployed system, Pole/Zero will assist your team to ensure optimum performance without the risk of either improper interference mitigation or costly overdesign. The end result is a cost effective solution with maximum communication range!

Cosite Analysis and Support Capability

Analysis support for system integration

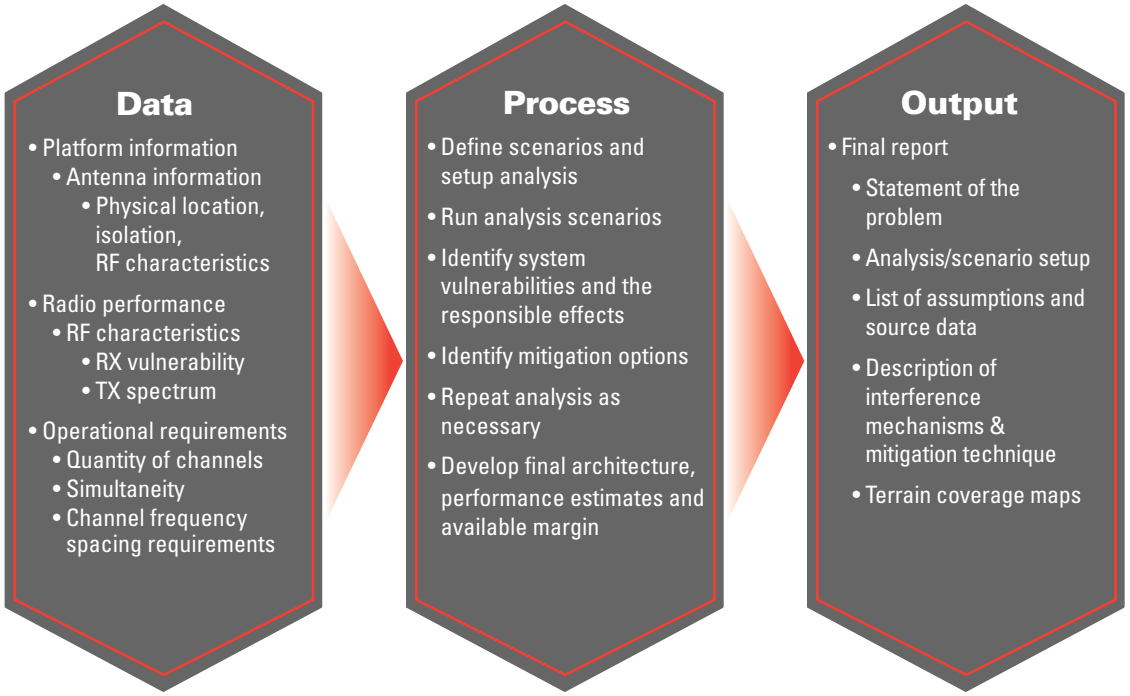
- Derive platform configuration
- Interpret performance requirements
- Derive comm scenarios

Determine and resolve cosite effects on system performance

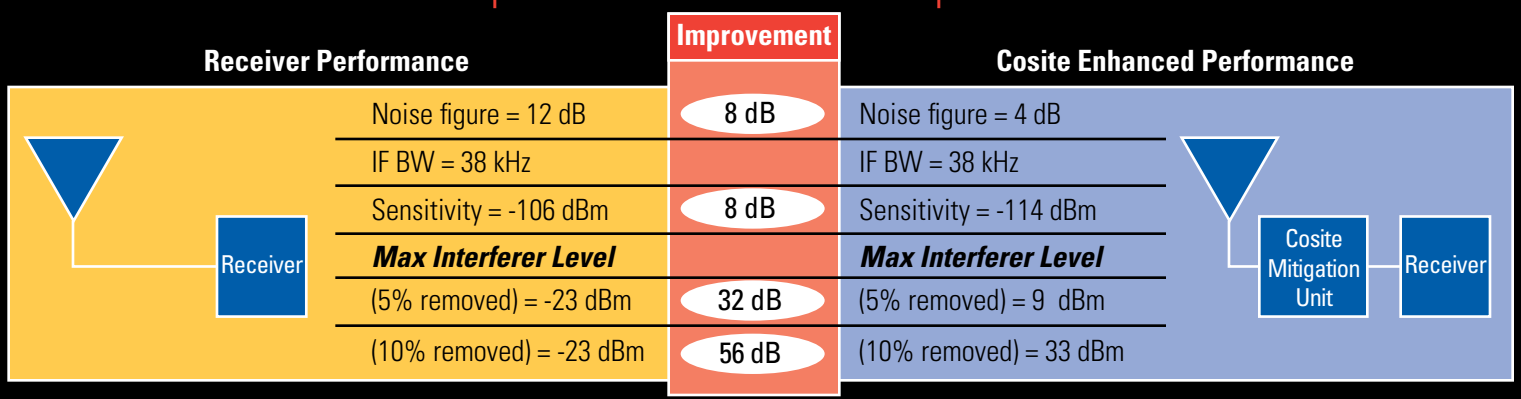
Process Analysis Components

- Leverages equipment performance database
- Utilizes proprietary routines for predictions of interference effects

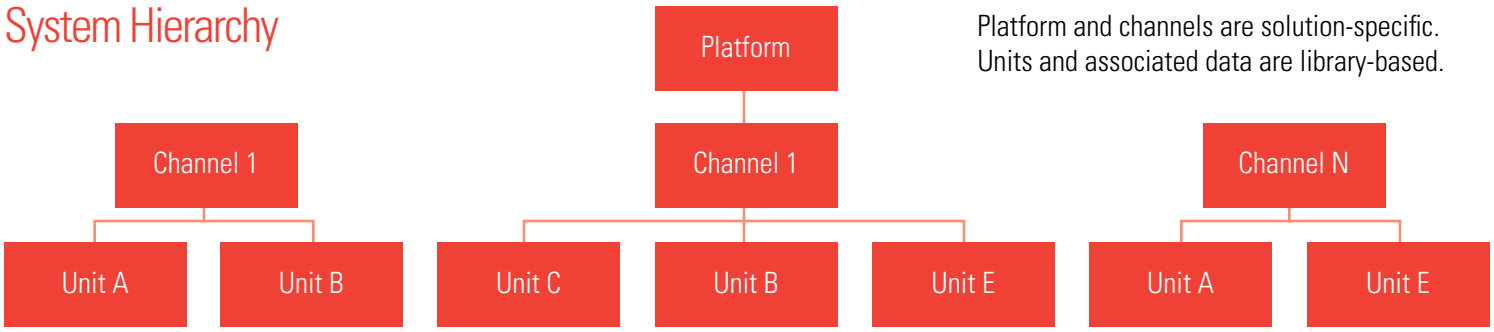
Cosite Analysis Overview



Example Receiver Performance Improvement

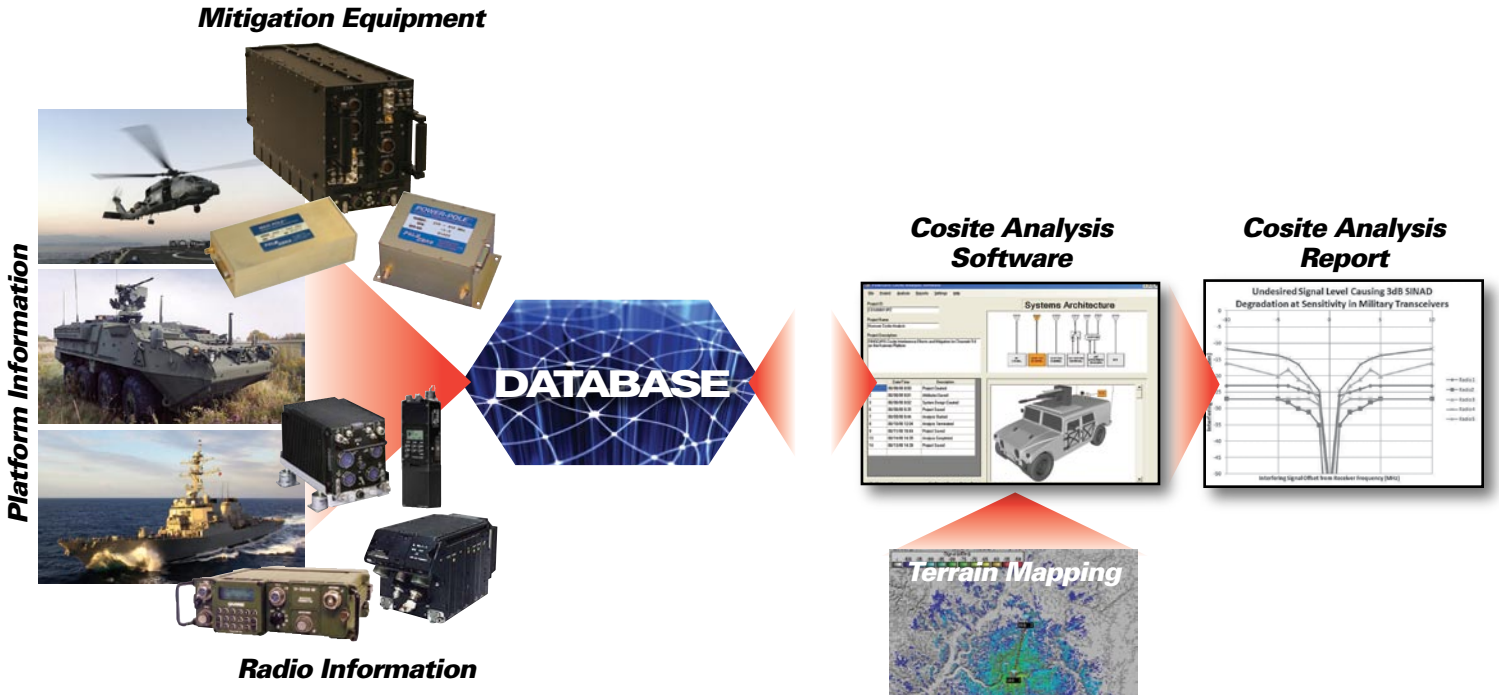


System Hierarchy

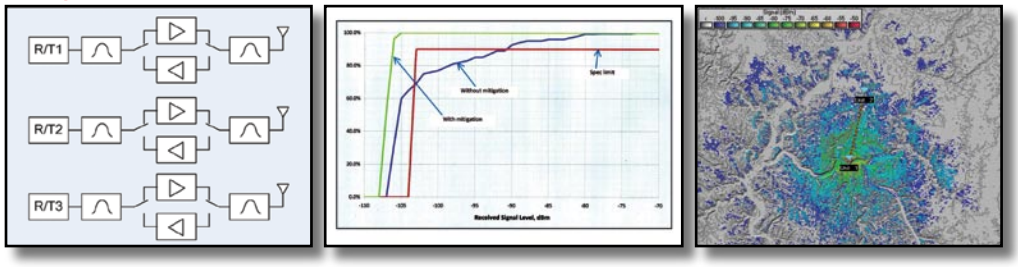


Platform and channels are solution-specific.
Units and associated data are library-based.

Cosite Analysis Software Overview



Output



System Block Diagram

Equipment List

Performance Summary

- Table, graphs, charts, terrain coverage maps, etc.

Final Report

- List of assumptions and source data
- Description of interference mechanisms & mitigation techniques
- Recommendations and conclusions

Solutions

Operational Solutions

- Frequency management rules
- Operational restrictions

Off-the-shelf Mitigation Hardware

- Filters, cancellers, isolators, etc.
- Intermodulation improved power amplifiers, LNA's, etc.

Development Item Solutions

Scenario Predictions

Scenario Success Predictions

- Waveform and duty cycle mix
- Solution comparisons
- Range prediction

Channel Availability

- With cosite interference
- With solutions

Bit Error Rate Estimates

Coverage Area

- Combination of Longley-Rice model and IF77 model
- Predict coverage in specific geographical areas

Conclusions

- Multiple radios together = cosite environment
- With mitigation, critical communication links can be assured

Use Pole/Zero Cosite Interference Analysis Results to Determine:

- Optimal communications hardware selection
- Minimal channel frequency separation determination
- Optimal platform antenna placement
- Minimal link budget margins

POLE/ZERO IS AN INDUSTRY LEADER IN HIGH DYNAMIC RANGE RF COMMUNICATIONS SOLUTIONS WITH OVER 20 YEARS OF EXPERIENCE.

513.870.9060 • support@polezero.com • www.polezero.com