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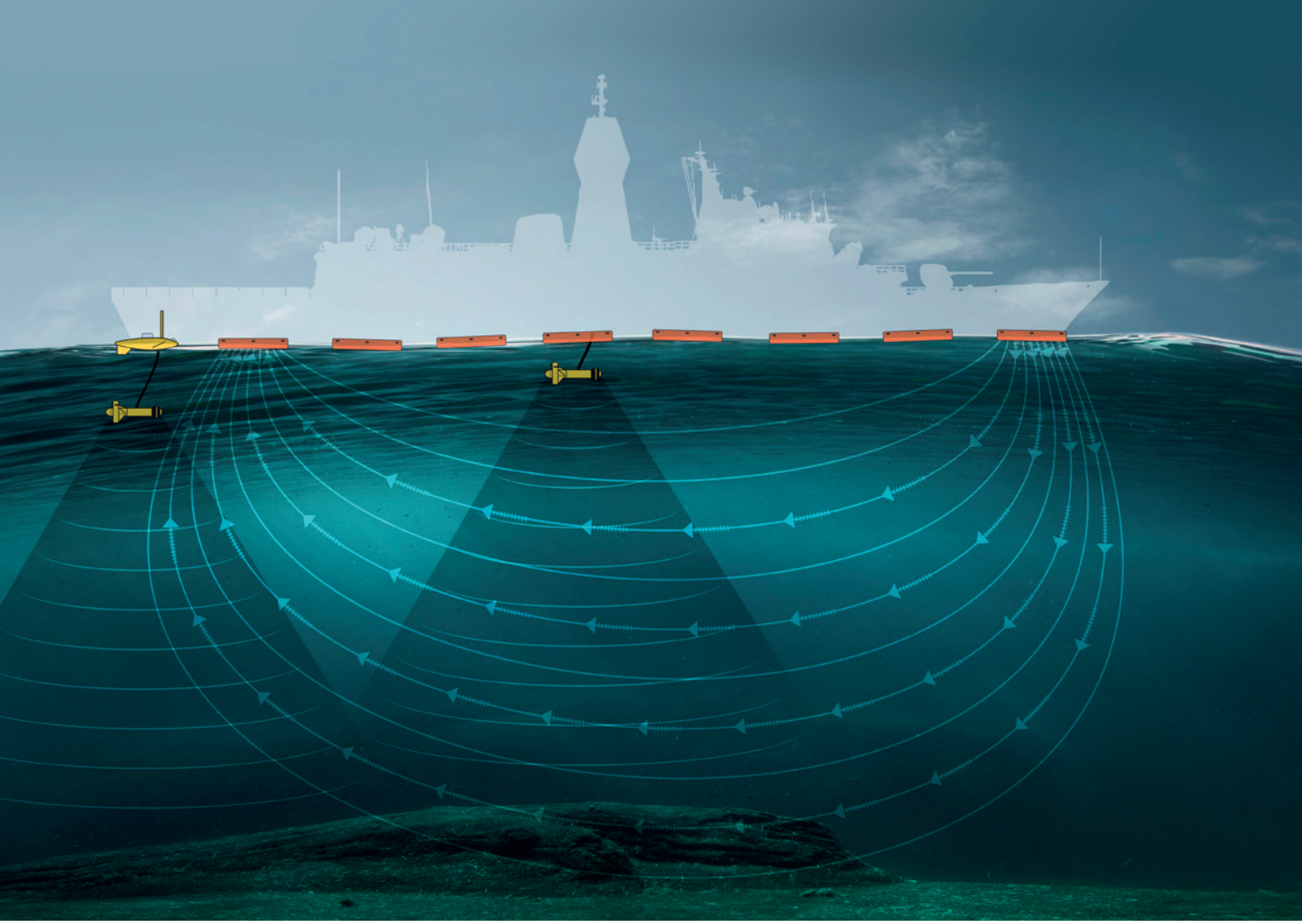
Australian Combined Influence Sweep **Mission Planning Support System (MPSS)**



Australian Combined Influence Sweep
Mission Planning Support System

The Mission Planning Support System (MPSS) is a Windows 10 based software used to support Australian Combined Influence Sweep (CIS) multi influence sweeps.

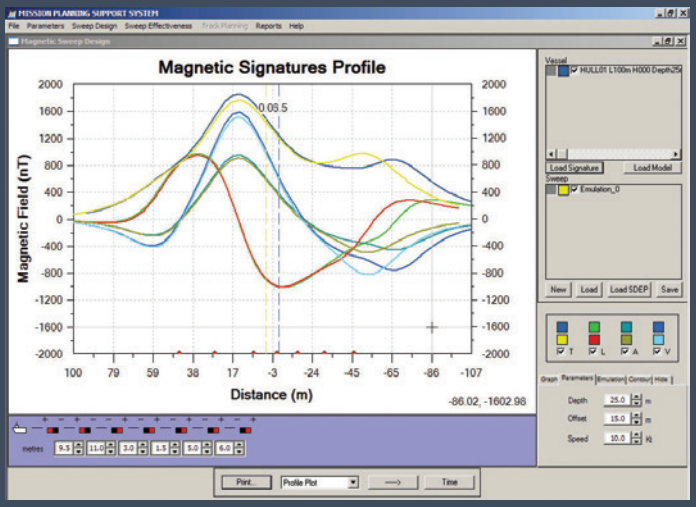
MPSS

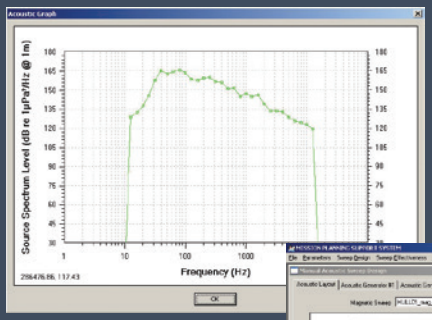
The MPSS software incorporates integrated sweep design, sweep effectiveness and mission planning software supplied on a ruggedised laptop computer and was developed to maximise the effective use of the capabilities of the CIS Sweeps. The software is underpinned by algorithms validated by the Australian Defence Science and Technology Group (DST).

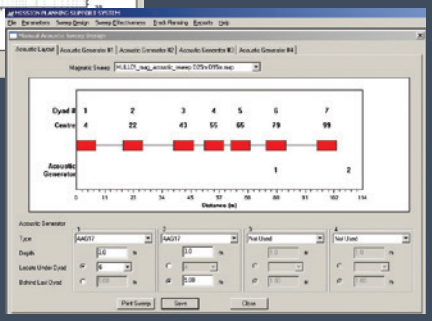
The system enables an operator to design the appropriate sweep using magnetic and acoustic modelling tools, to meet the minesweeping mission objective and establish the effectiveness of the sweep against designated mine sensors and logic.

The MPSS planning steps include:

- Create segments and Q-routes
- Enter a ship's parameters (including its magnetic and acoustic signatures)
- Design a sweep (including its magnetic and acoustic signatures)
- Define the mine threat and add mines to the channel
- Calculate Actuation Probability Profile (APP) and detonation profiles for magnetic, acoustic and combined magnetic/acoustic mines
- Calculate safe towline length
- Calculate track plan and run sequence





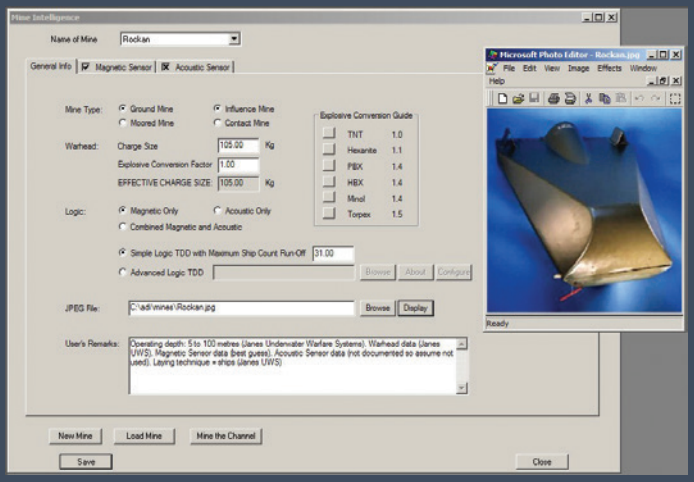


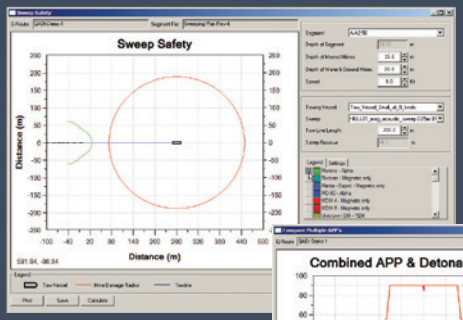
The Sweep Design

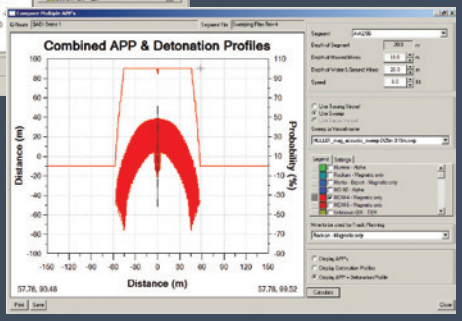
The Sweep Design software will accept ship signature data from magnetic ranging and automatically determine the sweep configuration that best matches the ship signature.

As well as providing the number of Dyads, their polarity and separation, the resultant magnetic signature profile plot is also provided.

Additionally, there is the capability to manually design and manipulate sweep configurations and add acoustic generators to model magnetic/acoustic sweep.



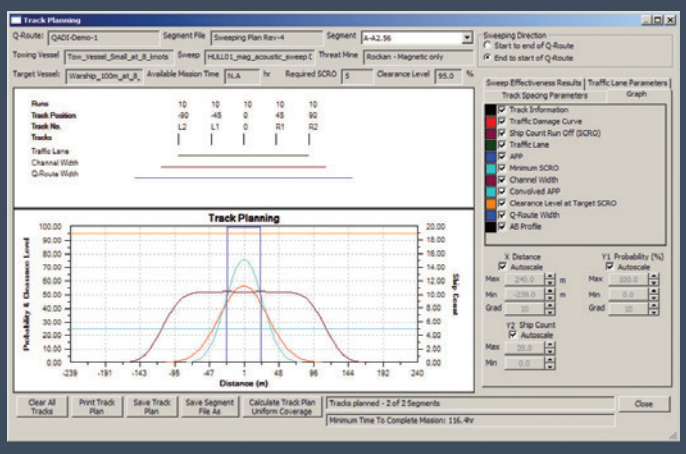




Sweep Effectiveness

The Sweep Effectiveness software models various mine logic and sensor interactions with the magnetic and acoustic signature of a sweep, ship or tow vessel, providing as an output, actuation Probability profiles for the particular sweep, ship or tow vessel against the nominated threat mine.

The module also provides detonation profiles for each threat mine calculated for a sweep, tow vessel or target vessel and allows the optimum length of tow rope to be selected



Track Planning

The Track Planning software provides for the development of optimal minesweeping mission profiles for the selected Dyad Influence sweep, based on operator input of mission parameters and constraints.

It encompasses calculation of channel parameters, track planning, level of effort constraints and ship count coverage profiles, based on the output of the sweep effectiveness module.

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