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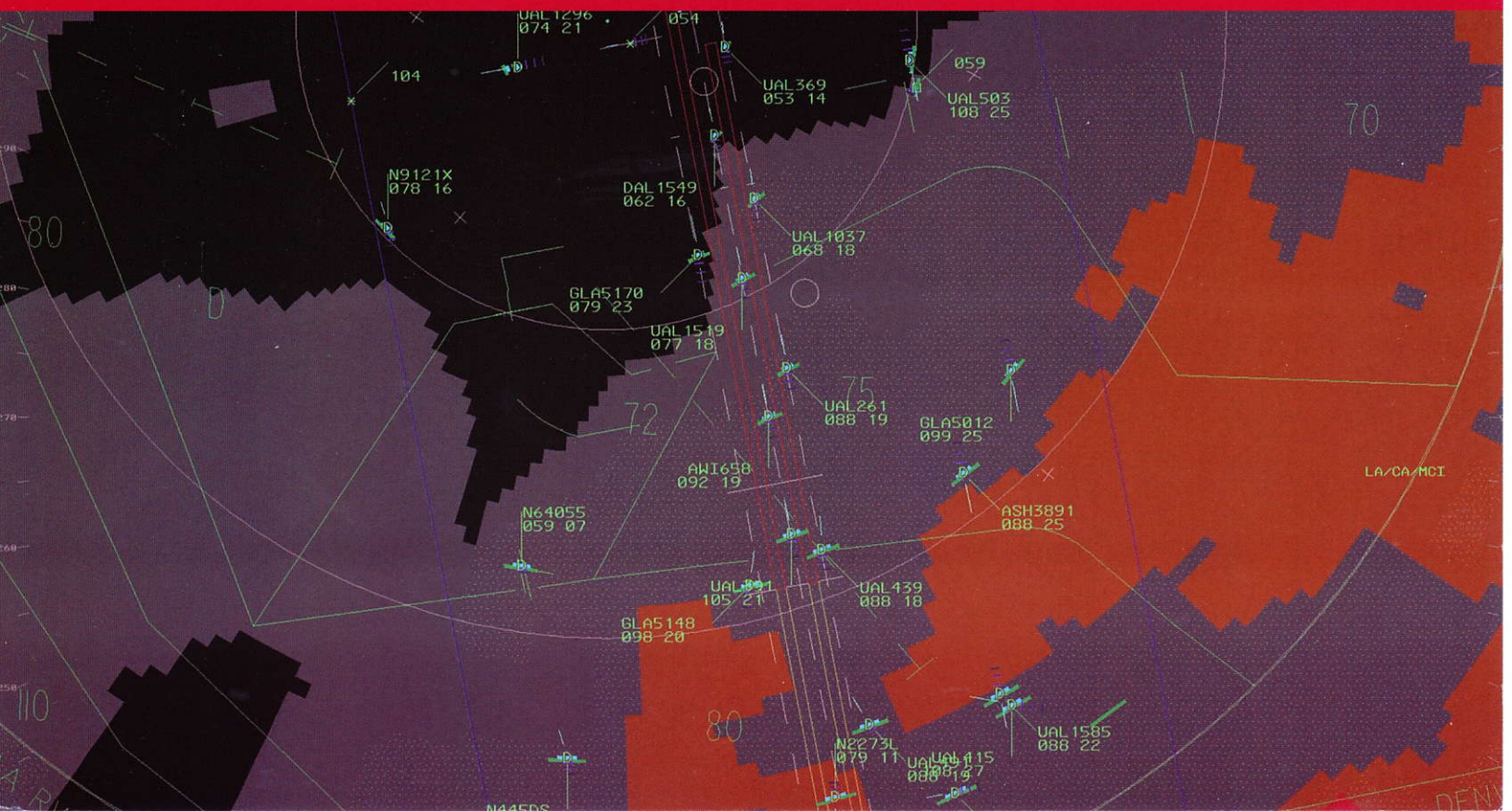
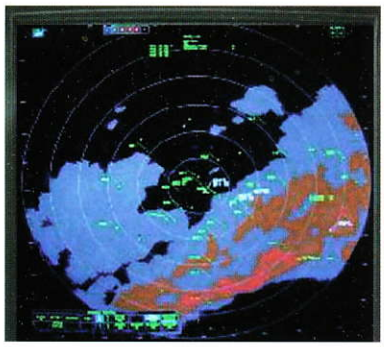
ARTS Color Display

FAA Type No. FA-13006 ARTS Color Display

FAA Type No. FA-13014 Remote ARTS Color Display





ARTS Color Display

Lockheed Martin's ARTS Color Display (ACD) is FAA-certified and is in operational use today at the FAA's largest terminal control facilities. The ACD and its tower configuration, the Remote ARTS Color Display (RACD), are high performance air traffic control workstations for display of arrival, departure, and surface traffic. The ACD and RACD offer full ARTS functionality and feature a hardware/software platform that enables remote operation in a tower environment, bringing radar and flight data into geographic locations that were formerly without automation.

The ACD and RACD employ high-resolution color monitors and an easy to use graphical user interface. All ARTS functions are supported, including a six-level, selectable weather presentation. The ACD and RACD use the computer-human interface developed with NATCA and PASS participation and provides the controller with Minimum Safe Altitude Warning, Conflict Alert, and Mode C Intruder safety functions. It supports all the display-related Common ARTS capabilities, including normal operation (sensor and mosaic modes), traffic management unit, training, retrack, playback and maintenance.

Both displays use Common ARTS hardware and software components for exceptional performance, increased reliability and lower cost of ownership. ACD software is FAA-released and FAA-certified. Full logistics and training support are available.

The ACD provides an ARTS-compliant presentation and all standard data entry capabilities.

Track symbology is standard for ARTS. "Owned" tracks are displayed in white, and all others in green, allowing the controller to easily identify tracks of primary concern. The new displays use standard ARTS symbology for full, limited, partial, alert and ghost data blocks. Alerts are indicated by blinking, color-coding and aural alarms. The color scheme is fully adaptable.

The ACD and RACD render target extents digitally or via an optional Radar Scan Converter for those sites with analog radar. A graphical representation is furnished for primary and secondary radar returns, analogous to existing analog displays. Direction and rate of turn are clearly distinguished. Primary radar extents are displayed using multiple shades of bluish white and are generated from either correlated or uncorrelated primary radar reports. Secondary radar extents are displayed in green and have special indications for emergency and ident reports. Separate intensity adjustments are provided for the primary and secondary radar extents, with adaptable minimum and maximum limits.

Fading mimics phosphor decay and is controlled by the history trail adjustment. The adjustment allows the user to designate the number of scans (0 to 10) required. The result is a smooth and uniform decay of each target extent over time.

The ACD and RACD store multiple digital maps for each sensor interfaced to the ARTS system and for mosaic mode. Standard certified digital maps supplied directly by FAA are used. Digital maps provide the same information currently available from analog "video mappers," but with a much higher degree of accuracy and clarity.

Sites with digital radar may select an all-digital presentation with up to six levels of weather data. This presentation uses a combination of color and stippling. At sites with analog radar, weather presentation is provided via the optional Radar Scan Converter.

All standard ARTS data entry capabilities, including time-saving, implied entries are provided. On-screen controls manipulate menus and are grouped by function, including:

- Console Control: Range, offset, video intensities, etc.
- Map: Selection and intensity, etc.
- Track: History, data block control, list sizes and intensities
- User: Preference set definition and selection.

The Radar Gateway provides an independent, emergency path for radar target and weather data to the displays.

The ACD and RACD include an interface to Radar Gateways for the receipt of digital radar target and weather data via an independent path from the ARTS system. When Radar Gateway mode is selected at an ACD, target and weather data are received from the Radar Gateway interfaces and processed for display. In this mode, the ACD generates limited data blocks for presentation along with the target extent, weather and map data. The ACD and RACD offer a scaleable system that encompasses all ARTS functionality and computer-human-interface while delivering appreciable savings in cost of ownership through its use of COTS hardware and FAA-certified software.

The Remote ARTS Color Display provides the functionality of the ACD adapted to the tower environment.

The RACD supports tower configurations local to and remote from the ARTS automation systems. The RACD is also available in a Stand Alone Tower configuration with direct interfaces to radars and en route systems. The RACD supports multiple sunlight-readable monitors and permits remoting of the monitors and keyboards from the RACD processor.

Benefits

- Replacement for current displays (FDADS, DEDS, RADS and DBRITE)
- Proven ARTS functionality, interface and performance
- Directly interfaces with Common ARTS and ARTS IIIA automation systems
- Includes TRACON, TMU, local tower, remote tower and stand-alone tower configurations
- Platform supports advanced ATC functions such as ADS-B and ITWS.
- Final Monitor Aid (FMA) is operational with the Denver Common ARTS system. FMA was demonstrated using high update rate surveillance technologies, such as multilateration and ADS-B on ACDs.
- High resolution color monitors and flat panels, driven by state-of-the-art COTS hardware, improve reliability, maintainability and lower logistics costs.
- Transparent window presentation provides see-thorough tabular lists that do not block the view of radar situation data.
- Adaptable color scheme highlights displayed objects to help controllers discern alerts, "owned" tracks, targets, CRDA ghost tracks, map data, etc.
- Multiple User Preference Sets cover all user-accessible controls.

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Lockheed Martin Air Traffic Management has been assessed as a Software Engineering Institute Capability Maturity Model (SEI CMM) Level 4 organization and is registered as an ISO9001 company.