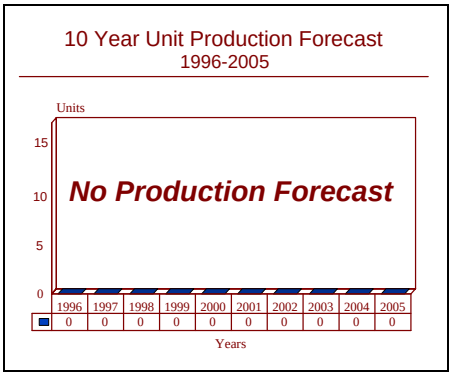
MLQ-34 TACJAM - Archived 6/97

Outlook

- In service; upgrades and ongoing support
- Reduced need will slow spares procurement and repair
- No further production expected



Orientation

Description. Mobile tactical communication counter-measures system.

Sponsor

US Army
Army Communications-Electronics Command
(CECOM)
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USA
Tel: +1 201 532-2534

Contractors

AEL Inc
305 Richardson Rd
Lansdale, Pennsylvania (PA) 19446
USA
Tel: +1 215 822-2929
Fax: +1 215 822-9165
[purchase by Tracor in progress]
(Production)

GTE Government Systems Corp
Electronic Defense Sector
P.O. Box 7188
Mountain View, California (CA) 94039
USA
Tel: +1 415 966-2000
Fax: +1 415 966-3401
(Development/initial production)

Status. In service, upgrades and ongoing support.

Total Produced. An estimated total of 96 systems have been produced.

Application. The MLQ-34 is a tactical jammer mounted in a ballistically protected shelter on an M-548 or M-1015 tracked cargo carrier.

Price Range. Estimated unit cost is US$2.5 million.

Technical Data

Characteristics

Frequency Range:	20 MHz to 200 MHz
Power:	3 - 4 kW (effective radiated power)
Modulation Modes:	FM, CW, FSK, AM, Noise, SSB
	Signal-Initiated Jamming (SIJ)
	Look-through/read-through capability

Design Features. The MLQ-34 TACJAM system combines advanced computer control with multiple jamming capabilities and tracked vehicle mobility. It is made up of a multiple receiver, exciter, and transmitter which can monitor and disrupt many hostile frequencies at the same time. The system can independently jam multiple signals, focusing 2,000 watts of power on three emitters simultaneously.

A high-gain directional antenna is matched to a high-power, solid-state amplifier. It transmits effective radiated power over a broad VHF frequency range. Included in the TACJAM set are the UYK-19 ruggedized computer and the ULR-19 communications intercept receiver.

Although automatic control for jamming and communications operations is provided by the processor, full manual override is available so the TACJAM operator can redirect system activities as needed.

TACJAM is housed in a Kevlar S-595 shelter, mounted on an M-1015 tracked cargo carrier fitted with a quick erecting log-periodic antenna. Components of TACJAM include three jamming antennas per set.

Operational Characteristics. The MLQ-34 TACJAM is the jamming segment of the Army's TACOM EWS (Tactical Communications Electronic Warfare System). Typical deployment is three systems with a forward operations company, three systems with a division support company, and two systems with a brigade support company. TACJAM interfaces with the TSQ-112 TACELIS system with operations companies. When at a division support or brigade support company level, TACJAM interfaces with the Division Support Company Operations Center by means of the GRC-106 or the VRC-46 tactical radio sets.

The mobile tactical communications countermeasures system can disrupt enemy communications with high-power jamming over a multi-octave frequency range. TACJAM can be operated automatically under computer control, or by an operator at the control panel.

When mounted on its tracked vehicle, the system is rapidly deployable. It can range over most terrain, at speeds of up to 40 kph (25 mph) and can be quickly moved from one site to another. TACJAM can transition from road configuration to active jamming in less than two minutes.

A variety of modulation modes are available, including FM, CW, FSK, AM and noise. Most modes include several modulation options. Protection is provided for multiple jamming and friendly communication frequencies. A visual display of received and transmitted frequencies is provided along with digital frequency readouts.

TACJAM monitors the VHF frequency range through the onboard computer and responds instantly to changes in the electromagnetic environment. This capability includes Signal-Initiated Jamming (SIJ), in which the TACJAM computer automatically locks onto a target signal and begins jamming immediately without the need for operator intervention.

Using the TACOM-EW control processing center's command and data links, the system can independently jam three signals simultaneously while under remote control. Independent operation can be undertaken from the Division Support Company Operations Center (DSCOC).

Built-In Test Equipment (BITE) supplies automatic, rapid fault isolation and correction. The impact of timing error, unit failure, or high VSWR is prevented by protection circuitry.

Variants/Upgrades

A number of improvements have been implemented on TACJAM. In FY85, new signal processing algorithms were developed. In FY86, voice activity detection hardware and signal processing algorithm development began. Overall system capability has more than doubled without the need for additional operators and with reduced impact on operating and support costs. A special antenna design was adapted for TACJAM to provide a high

frequency capability. Further improvements have included NBC proofing and data link improvement.

Program Review

Background. TACJAM replaced the GLQ-3. Initial research & development for TACJAM took place under PE#63745A and PE64745A. In FY78, jammer-related work was transferred to PE#64750A. TACJAM passed its development and acquisition in-process review early in FY79.

GTE/Sylvania delivered the first prototype TACJAM system to the newly organized Army Signals Warfare Lab in 1981. SWL took delivery of the first full-production run of six systems in 1983. GTE completed delivery of 17 systems in 1984.

AEL received contracts for 31 systems in 1983, and for 13 systems in 1985. AEL delivered a total of 80 TACJAMs. The company also received a US$135 million contract in 1985 for 96 biological/chemical warfare protection kits for TACJAM. On August 14, 1990 AEL delivered the final TACJAM system.

TACJAM-A. In March 1987 the Army selected an AEL/Sanders joint venture to participate in the early design and analysis of the TACJAM-A program. In 1989 the TACJAM-A engineering and development Phase II contract was awarded to the team of AEL/ Sanders, which was competing against a team led by Hughes. TACJAM-A will eventually replace the MLQ-34 and become the major ground portion of the Army's Intelligence and Electronic Warfare Common Sensor (IEWCS) planned for operation by the end of the decade.

Army Modernization Plan. In January 1993 the Army released its *Modernization Plan*, a 17 volume document which lays out the Army's plan for re-shaping and re-equipping its forces for the future battlefield. Annex I highlighted the Army's plan for Intelligence and Electronic Warfare (IEW) and how it will support the Army's five modernization objectives and the Vision of LAND FORCE DOMINANCE. The IEW Annex outlined the details and rationale for the major programs that are key to achieving the Modernization Vision. These efforts will support:

- Winning the Information War
- Protecting the Force
- Conducting Precision Strikes
- Dominating the Maneuver Battle

Based on lessons learned in Operation Desert Storm, the Army found that its IEW force lacked versatility and balance. Processing and communications capabilities are inadequate, and deployability is limited. Sensor technology is 15 to 25 years old and does not have the needed frequency range or a precise targeting capability, and could not exploit many modern modulation techniques. The platforms are also very support/maintenance intensive and the number needed to support field forces can be a strain on available air and sea lift capacity.

In its plan, the Army noted that during the next decade military forces in many regions will increase their combat capability by acquiring increasingly sophisticated weapons and communications equipment. US forces must be prepared to face a broad array of systems and capabilities. As a result, the Army will have to upgrade older systems or add new, leading edge systems to its inventory.

The major improvements in EW/SIGINT capability are envisioned to be fielded during FY96 though FY99. The new systems will have an open architecture and modular design. Precision and capability will be significantly improved; as will mobility, deployability, balance, and supportability. Keys to this will be fielding the Guardrail Common Sensor, Advanced Quick Fix, and Ground Based Common Sensors, as well as TACJAM-A.

Funding

Current funding is from Operations & Maintenance accounts.

Analysis. The Army had a chance to evaluate most of its electronic warfare equipment in combat during the Persian Gulf War. The Coalition was very successful in totally disabling the Iraqi command and control network. Intelligence gathering relied mostly on airborne assets, but the complexity and sophistication of the networks needed to distribute that information to tactical commanders proved that front- line assets cannot be eliminated. Mobility proved to be a problem with most of the current assets, and fielded equipment was far from the most advanced technology now available. Even when performing at their peak, most systems were found to have some significant limitations. All could benefit from better components and new processing capabilities.

TACJAM and the current family of battlefield EW equipment cannot be salvaged or upgraded for the IEW Modernization Plan. The systems are too limited and support-intensive, and lack mobility. This equipment has served adequately, but it is time for new systems to take over the electronics-intensive battlefield of the future. TACJAM-A, CHALS-X, and Advanced Quick Look are among the replacements which will take their place on the battlefield of the future.

Recent Contracts

No recent DoD contracts over US$5 million recorded.

Timetable

	1973	GTE received TACJAM contract
Oct	1979	Production contract for 17 TACJAM systems
Jul	1983	First MLQ-34 delivered by GTE
	1984	GTE final deliveries
Mar	1987	Hughes Aircraft & Sanders Associates/AEL awarded competitive contracts for definition studies of the advanced version of MLQ-34, TACJAM-A
Jan	1989	TACJAM A Phase I complete
Mar	1989	AEL/Sanders team won competition for TACJAM-A Phase II
Aug	1990	Final TACJAM II delivered by AEL
Jan	1992	TACJAM-A engineering development contract awarded
Nov	1994	TACJAM-A completed initial field testing
	FY95	Began fielding Army Modernization Plan equipment
Mar	1995	Initial TACJAM-A production

Worldwide Distribution

This is a **US** only program.

Forecast Rationale

Operation Desert Storm proved the value of electronic warfare on the battlefield. A reduction in the size and operating tempo of the Army will slow long-term spares procurement and repair activities for TACJAM and many similar systems. Some operational TACJAM systems may be taken out of service and stored as wartime reserves.

The Army IEW Modernization plan sees FY95 as the end of the operational life of most of today's older SIGINT/ELINT systems. In FY96 to FY99, the next family of battlefield EW equipment will be fielded, and retirement of TACJAM finalized.

Ten-Year Outlook

No further production is expected.

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