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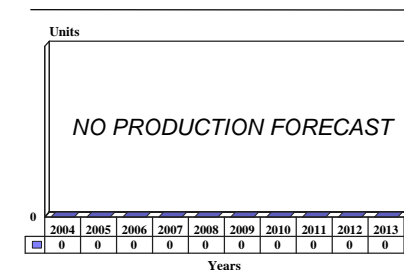
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Mobile Subscriber Equipment (MSE) - Archived 11/2005

Outlook

- Forecast International projects zero production of the MSE system for the U.S. Army
- The MSE system will be replaced by the Warrior Information Network-Tactical (WIN-T)
- Barring any major developments, this report will be archived in 2005

10 Year Unit Production Forecast
2004 - 2013



Orientation

Description. The Mobile Subscriber Equipment (MSE) is a radio-operated telephone system used by the U.S. Army. MSE provides the Army commander with a mobile, tactical communications system capable of passing data, facsimile, and voice traffic throughout the division and corps area of operations.

Sponsor

U.S. Army Communications & Electronics Command
Ft. Monmouth, New Jersey (NJ)
USA

Status. No longer in production.

Total Produced. Through 2003, some 53,441 pieces of MSE/IMSE-related equipment had been produced.

Application. Communications

Price Range. Approximately, US\$35,000 per unit.

Contractors

Technical Data

Design Specifications. The major functional elements of the baseline Mobile Subscriber Equipment system are as follows:

Subscriber Terminals. These are telephones, facsimile machines, and alphanumeric terminals that are operated by the subscribers and are necessary to input voice and data information to the MSE system. These include subscriber telephones (the TA1035/U Digital Non-secure Voice Terminal or DNVT) and facsimile equip-

ment (UXC-7s). The DNVT acts as both a telephone set and an interface between MSE facsimile/user-provided data terminals and the subscriber access function.

Mobile Subscriber Access. This is a radio telephone terminal that allows the user to communicate secure voice and data information throughout the tactical areas of operation. These access terminals are deployed on tactical wheeled or tracked vehicles and can be

unmounted to function in other physical environments. This functional area is being handled by the VRC-97 Mobile Subscriber Radio Terminal (MSRT), working with the KY-68 Digital Subscriber Voice Terminal (DSVT).

Wire Subscriber Access. This function provides MSE access for switch-wire subscribers. Terminals allow users to send secure voice and data traffic on an automatic, discrete basis to all other wire and mobile subscribers operating in the area of tactical operations.

Area Coverage. Users of both the mobile and the wire gear can radio-access a network of digital communications nodes. Included in the network are TTC-47 node center switches (NCSs), TRC-191 radio access units (RAUs), GRC-226(V) line-of-sight (LOS) radios, and digital group multiplexers (DGMs). Together, these elements comprise a tandem switched network and the interface between mobile and wire subscribers.

System Control Elements. These elements allow signal corps personnel to manage and control the MSE in near real-time on a corps-wide basis. They offer an automatic planning and management capability. The main units supporting this function are the System Control Centers (SCC-2s), consisting of the OL/416/TYQ-35(V) management shelter, the OL/415/TYQ-35(V) technical shelter, and the OL/414/TYQ-35(V) planning shelter.

System Element Specifications

AB-1340/G 30-Meter Mast. One 30-meter mast is provided for each node center. The mast and accessories are carried in the Node Support Vehicle (NSV) trailer.

Digital Group Multiplexer (DGM). The DGM family of equipment includes the orderwire control unit Type 1 (C-11878)/T installed in the network as well as a group modem MD-1231 (up to four groups, conditioned diphas). A loop group multiplexer TD-1246 (15 channels, 256 kbps) rounds out the DGM equipment.

GRC-224(P) Down-the-Hill Radio. This radio has an SHF bandwidth (14.50-15.35 GHz) and a nominal range of 10 kilometers. The radio is housed in both the small and large extension nodes.

GRC-226(V) Line-of-Sight Radio. This radio is equipped with a DGM, and has a nominal range of 25 kilometers and frequency bands covering 225 to 400 MHz and 1,350 to 1,850 MHz.

KY-68U DSVT. Digital (16 kbps), four-wire terminal with data port for facsimile and data interface. Compatible with DNV. Subcomponent of VRC-97 MSRT (see below).

TA-1035 DNV. Digital (16 kbps), four-wire terminal with data port to interface facsimile and data. Compatible with DSVT (KY-68).

TRC-190(V) Line-of-Sight Radio Shelter. The TRC-190(V) has a nominal range of 25 kilometers and covers two frequency bands: Band 1, 225 to 400 MHz; Band 3, 1,350 to 1,850 MHz.

TRC-191 Radio Access Unit. This radio access unit consists of eight RT-1539 digital (16 kbps) radios and has a 15-kilometer nominal range. It has a CONUS frequency range of 30 to 35 MHz in low band and 40 to 50 MHz in high band.

TSM-182 Maintenance Facility. Each shelter provides bench space for two repairmen and storage for MSE ground support equipment, consisting of two S-250E/M1037 HMMWVs, one 3/4-ton trailer, and a 10-kW generator set.

TSM-183 Spares Facility. This facility contains communications and electronics spares and spares documentation. Spares include one S-250E/M1037 HMMWV and a 3/4-ton trailer.

TSQ-154 Node Management Facility. This facility manages node assets and equipment in the SCC shelters. The facility uses a PU-753/M 10 kW diesel generator.

TTC-46(V) Large Extension Node (LEN) Switch. The switch can handle upward of 176 local subscribers, both digital and analog. The switch is carried on one S-250/M1037 HMMWV, and one S-250E/M1037 HMMWV and is equipped with a 10-kW diesel generator set.

TTC-47(V) Node Center Switch (NCS). The switch includes flood search routing, digital (for trunks and local loops) and analog (NATO application) external termination, and 24 local subscribers. The TTC-47(V) consists of the ON/306/TTC-47 switching group shelter and the OL/413/TTC-47 operations group shelter. The switch is carried on one S-250/M1037 HMMWV and one S-250E/M998 HMMWV and is equipped with a 10-kW diesel generator set.

TTC-48(V) Small Extension Node (SEN) Switch. This switch includes two SB-4303 switches, one secure digital transmission group (16 channels) to node center, analog (for commercial application) and combat net radio interface external termination, 26 digital terminations (V1), and 41 digital terminations (V2). The switch is carried on one S-250E/M1037 HMMWV with a 10-kW generator set.

TYQ-35(V)1 SCC. The system control center is equipped with multicolor graphic displays and two VDU work stations.

TYQ-35(V)2 SCC. This element adds the OL-414/TYQ-35(V)2 SCC planning shelter with two VDU work stations to the division configuration. All TYQ-35(V) shelters are carried on a M1037 HMMWV.

UGC-74B SCC Interface. This element is a telephone/teletype unit (UGC-74B) with data terminal adapter. It is employed at corps-area and support battalions and serves as an SCC interface for the battalion commander.

UXC-7 Facsimile Terminal. The facsimile terminal transmits an 8.5x11 inch page in 15 seconds. The terminal is NATO-interoperable (STANAG 5000, Type 1).

VRC-97 MSRT (Mobile Subscriber Radio Terminal). The VRC-97 MSRT consists of the receiver/transmitter RT-1539, a DSVT telephone with KY-68 data port, a KYK-13 electronic transfer device, an antenna, and a frequency fill cable. Capabilities are digital (16 kbps), full duplex, automatic power control, and automatic re-affiliation. It has a 15-kilometer nominal range.

Ancillary equipment includes the above-mentioned S-250 and S-250E communications-electronics shelters, M1037 HMMWV trucks, M101A2 3/4-ton trailers, node support vehicles, and LEN cable trucks.

Variants/Upgrades

IMSE. The Improved Mobile Subscriber Equipment system is an improved, exportable version of the U.S. Army's Mobile Subscriber Equipment tactical commu-

nications system. The IMSE incorporates technology advancements developed since initial fielding with the U.S. Army.

Program Review

Background. In 1983, the U.S. Army assembled a study group at Fort Leavenworth, Kansas, to design a new architecture for its tactical communications system. The result of this study was an enhanced MSE definition. Two years later, the Army awarded the MSE program contract to a consortium led by General Dynamics. In March 1990, the Army awarded the fifth year option of the initial MSE contract.

By the end of 1994, the U.S. Army had completed fielding MSE equipment to the final eight Army divisions. In all, 23 division sets were procured and deployed. In addition to Corps, Signal Brigade and selective commands above corps were also equipped. At this point, the U.S. Army began developing upgrades. Maintenance and spares production were ongoing.

Recent Developments. In August 2003, the U.S. Army's 3rd Infantry Division released a report stating the Mobile Subscriber Equipment was unable to handle the rigorous pace and extended distance covered in Operation Iraqi Freedom. The report said, "[The MSE] is an antiquated system that must be replaced as quickly as possible." The report concluded, "The operation justifies the need for a deliberate investment in reliable on-the-move voice and data communications to support all assets in the division." In March 2004, Lt. Gen. Steven Boutelle, director of information systems for command, control, communications, and computers for the U.S. Army, announced the U.S. Army will remove most of the MSE systems in the summer and fall of 2004 and replace them with newer systems that are more network centric.

Funding

The Mobile Subscriber Equipment system is no longer funded.

Recent Contracts

No recent contract information is available.

Timetable

<u>Year</u>	<u>Major Development</u>
1975	Army requirement for MSE identified as part of the Division Backbone System
1979	Army explores cooperative development effort with Germany

<u>Year</u>	<u>Major Development</u>
1980	OSD verifies the need for MSE
1981	OSD directs the Army to execute a unilateral U.S. MSE program
1982	Requirements are revalidated and an acquisition plan approved
1983	Army calls for new bids for greatly expanded MSE program
1984	Army releases RFP; MSE proposals received from Plessey/ITT and Thomson-CSF/General Dynamics
1985	MSE evaluation completed; MSE contract awarded to Thomson-CSF/General Dynamics consortium
1988	Test and evaluation begun; MSE system for 1st Cavalry Division delivered; third-year contract awarded
1989	Award of contract for fourth year option
1990	III Corps fielding complete; V Corps fielding complete; fifth-year option awarded
1991	VII Corps fielding begun; VII Corps and XVIII Corps fielding commenced
1993	Fielding for active/NG divisions completed
1994	Current-generation upgrades completed
1996	Taiwan orders IMSE for first export of system
1999	Taiwan fields IMSE
2000	Taiwan announces procurement of a follow-on IMSE communications system
2001	U.S. Army awards General Dynamics a contract for Phase II of the IMSE program for the Republic of China Army
2003	U.S. Army's 3rd Infantry Division releases a report stating the MSE was unable to handle the rigorous pace and extended distance covered in Operation Iraqi Freedom
2004	The U.S. Army announces it will remove most of the Mobile Subscriber Equipment in the summer and fall of 2004 and replace it with newer systems

Worldwide Distribution

MSE has been distributed to the **U.S. Army**.

Forecast Rationale

The Mobile Subscriber Equipment (MSE) system is a tactical communications system manufactured by General Dynamics for the United States Army. The MSE system includes UHF radios and node center switches mounted on Humvees.

Forecast International projects zero production of the MSE system for the U.S. Army.

During the Iraq and Afghanistan wars, the U.S. Army found the 25-year old MSE system not mobile enough. According to an after-action report on the war in Iraq,

the pace and distance of the fight hampered the MSE system's ability and led to logistical problems.

To address the shortcomings of the MSE system, the U.S. Army is developing the Warrior Information Network-Tactical (WIN-T), an on-the-move communications system that will connect commanders, staffs, and formations. The WIN-T, which has been valued at more than US\$10 billion through 2018, is specifically designed to replace the Mobile Subscriber Equipment system.

Ten-Year Outlook

With production complete, Forecast International has omitted the Ten-Year Outlook chart.

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