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Alcatel Sel Ag - Archived 11/96

Headquarters

Alcatel SEL AG
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Standard Elektrik Lorenz Aktiengesellschaft (SEL AG) is one of Germany's major electronics/electrical manufacturers. SEL is noted as a major German supplier of defense and aerospace electronics. In addition to military and aerospace applications, SEL product range also encompasses electrical and electronic systems for rail, communications and broadcasting equipment, text and facsimile transmission equipment, and electric motors.

C. Lorenz AG was a pioneering firm in the realm of defense and aerospace electronics. The company patented the Scheller-Lorenz guide-beam navigation system in 1907, and in 1913 the company had the distinction of introducing the first radio transceiver for an aircraft. During the 1920s, the company provided the first civil aviation radio facility and began to supply *Deutsche Lufthansa* with medium frequency aircraft radios. Technological excellence was demonstrated further in the

1930s with the introduction of the company's VHF radio beacons for use in air and sea ports, and introduction of VHF beacons as landing aids.

In 1958, Standard Elektrik Lorenz was founded as a result of a merger between Mix + Genest AG and C. Lorenz. Both of these companies were originally founded in Berlin in the late 19th century. In the post-war years, SEL has been involved in the development of systems such as ILS radio landing beacons, military radios for the US Army, computers, satellites, artillery-detection radars, and a number of other systems for various applications.

Following the acquisition 98.5 percent of its stock in 1992, SEL is now part of Alcatel Alsthom - one of Europe's largest telecommunications concerns. SEL was, prior to its formation under Alcatel, a subsidiary of International Standard Electric Corp, itself a unit of International Telephone and Telegraph (ITT) Corp. In 1986, ITT merged its group telecommunications interests with those of CGE of France, thereby forming

Alcatel, which is headquartered in the Netherlands. CGE's share of Alcatel totals 55.6 percent.

Structure And Personnel

Dr. Joachin Holzer

Chairman Supervisory Board

Dr. Gerhard Zeidler

Chairman Executive Board

Dr. Th von Keller

Managing Director, Radio and Defense Systems

Product Areas

The SEL range of defense products includes battlefield surveillance radars, avionics, contract manufacturing for NATO and US companies, and depot-level maintenance. In addition, SEL provides tactical radios, line-of-sight equipment, fiber optic local area networks (LAN), microwave communications equipment, tactical and strategic networks, interface units, automated data

processing, data display equipment, sensor technology air traffic control and navigation equipment. Following is assimilation into Alcatel, the new Alcatel SEL is believed to be organized into the following divisions:

1. Public Switching Systems
2. Line Transmission Systems
3. Radio and Defense Systems

- 4. Business Systems
- 5. Transport Automation

- 6. Components

Facilities

Alcatel SEL AG, Lorenzstrasse 10, 70435 Stuttgart. Telephone: (49 711) 821 0. SEL Alcatel is headquartered in Stuttgart at this address:

Alcatel SEL AG, Radio and Defense Systems, Lorenzstrasse 10, 70499 Stuttgart. Telephone: (49 711) 869 4500

SEL's Radio and Defense Division, as well as all of its other operations with the exception of the Components Division, are located in Stuttgart at the same address as the administrative headquarters.

Alcatel SEL AG, Components, Nimrodstrasse 9, 90441 Nurnberg.

Corporate Overview

Alcatel SEL is headquartered in Stuttgart, in the southern German state of Baden-Württemberg. With over a century of experience, the company is one of Germany's most important manufacturers of electronic and electrical equipment. Following its assimilation into Alcatel Alsthom, SEL's defense and aerospace activities are now organized as part of Alcatel's Communication Systems group. This group participates in the design, development, manufacture and marketing of defense, aviation and space electronics through its

Telecommunications: Space and Defense operations. Areas of business which SEL focuses on in the defense/aerospace electronics markets include tactical radio nets, military communication facilities, command and control/reconnaissance systems, navigation and location systems, air traffic control systems, electronics for space applications. In addition, SEL provides technical support services to maintain the operational status of these various systems to customers worldwide.

New Products And Services

No major new products or services have announced by Alcatel SEL in the past year.

Plant Expansion/Modernization/Organization Update

No new plant modernization plans have been recently identified.

SEL. SEL is now 98.5 percent owned by Alcatel Alsthom and is incorporated in that company's annual consolidated statements of income. Alcatel SEL now falls under the auspices of Alcatel Alsthom's Communication Systems segment.

Mergers/Acquisitions/Divestitures

Alcatel Alsthom Gains Ownership. During 1992, Alcatel Alsthom acquired through a tender 968,166 shares in

Teaming/Competition/Joint Ventures

Aerospace Management Systems (ASM). SEL is the leading German member of this five-nation consortium which has been established to examine NATO air defense requirements. The consortium comprises some fourteen companies and was established to provide NATO with a follow-on to the NATO Air Defense Ground Environment (NADGE) coordinating radar system in NATO's European airspace. NATO ACCS (Air Command and Control System) will also have a battle management function, directing both offensive and defensive air operations in NATO airspace. The program was initiated in 1977 after a London NATO summit which agreed to develop long-term defense planning programs through task forces. However, funding has

continually been scaled back from original allotments and the eventual completion date of this program is now uncertain.

EURONAV. SEL is teamed with Magnavox (USA), GEC Avionics (UK), TRT (France), LMT (France), and Elmer on the Navstar GPS program. The consortium is known as Euronav.

Fiar. SEL and Fiar of Italy have undertaken joint development of the FTA-43 TACAN system.

Italtel. Italtel (Italy) and SEL are involved in the joint development of IRIS airborne radio system. In addition, GEC Avionics of the UK is also involved in the IRIS program alongside Italtel and SEL.

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Financial Results/Corporate Statistics

Following the company's assimilation into Alcatel Alsthom, Alcatel SEL no longer issues independent financial statistics. Alcatel SEL's results are now grouped under Alcatel Alsthom Communications Systems segment. Latest year statistics are provided below. Figures prior to 1991 are unavailable. US dollar figure translated as a 1993 average at the rate of US\$1=DM 1.6533.

Y/E December 31 (DM millions)	1989	1990	1991	1992	1993	1993 US\$
Net Sales	na	na	5389	6304	5627	9303
Net Income	na	na	102	160	107	177
Backlog	na	na	5612	5483	4822	7972
R&D Expenditures	na	na	800	866	894	1478

Industry Segments

A breakdown of Alcatel SEL's sales by major market segment for the years 1993 through 1991 is given below. The figures below include interdivisional sales. Operating Income figures are not reported by Alcatel SEL.

SALES (DM millions)	1991	1992	1993
Public Switching Systems	2258	2919	2715
Line Transmission Systems	814	952	748
Radio and Defense Systems	882	924	789
Business Systems	1156	1168	1068
Transport Automation	371	438	338
Components	385	360	328

Strategic Outlook

During the past few years, SEL became even more tightly bound with the industrial powerhouse of Alcatel Alsthom of France. During 1992 Alcatel increased its share in SEL AG to 98.5 percent, making it a main subsidiary. With the increase in shares comes the added security of operating within the framework of one of Europe's most prolific electric and electronic companies. The new

Alcatel SEL has become one of Alcatel Alsthom's most important subsidiaries in Germany and promises to remain a player in all of its market involvements. However, since Alcatel SEL no longer provides independent information concerning its operations, this report will be merged with its parent, Alcatel Alsthom, next year.

Prime Award Summary

Not Available.

Program Activity

Business Interests. Some important aerospace and government programs currently underway at Alcatel SEL are listed below. The briefs are intended to provide a listing of programs that are of major importance to the

company. For detailed information or analysis of specific aerospace and defense programs or equipment, please refer to the appropriate FORECAST INTERNATIONAL binder (for example, AIRCRAFT, MILITARY

VEHICLES, WARSHIPS, MISSILES, ELECTRONICS, and GAS TURBINES). The following is an outline of the company's business interests:

- .. Communications including C3I systems
- .. Air Traffic Control systems
- .. Avionics components
- .. Technical & logistics support equipment

ELECTRONIC PROGRAMS

Tactical Communications

SEL produces VHF radio systems and equipment for voice and data transmission, combat vehicle intercom sets, development of vehicle installation kits, VHF amplification, small capacity troposcatters, telecommunication networks switching and transmission installations, data transmission equipment, mobile telephone sets, filed telephones, and optical transmission systems.

SEL is very active in the field of tactical VHF radios; the firm can provide basic units such as a manpack radio to vehicular stations for high-power transmission.

In addition to radio systems, SEL provides transmission and switching systems and optical fiber transmission equipment. SEL will provide systems ranging from a portable field set to a digital central switching center.

Aviation and Space Systems

SEL is an active participant in the Columbus space station module with responsibilities for communications. In addition, SEL is supplying 30 ground stations for the DFS-Kopernikus Bundespost/Deutsche Telekom satellite system.

ATC: SEL designs, develops and manufactures civil and military air traffic control systems.

Avionics: avionics for fixed and rotary wing applications, avionics for remotely-piloted-vehicles (RPVs), data processing systems for satellites and other spacecraft

Sensor Technology: SEL provides sensor technology for various applications including missiles. The most notable missile program SEL is currently involved in is Roland.

COMCO: Computerized Operation and Maintenance Concept for the SYSTEM 4000.

DME/P: Precision distance measuring equipment. Airborne and ground based components for this system have been developed for use in the microwave landing system (MLS).

GLOBOS: The GPS system for navigation of aircraft and ships, as well as for light military applications such as individual or vehicle use.

Mobile Air Traffic Control System: The SEL system is a complete integrated ATC system, and includes, a tower/cabin, non-directional beacon, direction finder, portable airport lighting system, and a maintenance cabin.

RCMS (Remote Control and Monitoring System): Integrated use with SYSTEM 4000.

SYSTEM 4000: A new-generation microprocessor-controlled radio navigation system with VOR, DVOR, and ILS facilities.

Standard Elektrik Lorenz is also a participant in the NATO AWACS program. SEL is producing the NATO processor in cooperation with International Business Machines (IBM) of the United States.

C³ and Surveillance Systems

Activities in C³ and surveillance include data input/output devices, situation displays, militarized computers and processors, radar equipment for ground surveillance, battlefield reconnaissance and target tracking, millimeter-wave technologies, and sound-ranging equipment.

One of the most important technologies in which SEL is involved is millimeter-wave radar. SEL manufactures surveillance and C³ systems which are capable of action in all weather and are thus full-time systems which offer the user high reliability and high rates of readiness.

Product involvement is as follows:

AMACS: Advanced Modular Artillery Command System.

DEAG: Data Input/Output Terminal for C³ Applications.

RASIT: Long range battlefield surveillance radar, produced in conjunction with LMT of France.

RATAC and Improved RATAC: Lightweight battlefield surveillance radar, production begun in 1972.

SMA-085: Sound Ranging System.

Tactical Communication Systems

SEL is an important German supplier of communications equipment and networks. Program activity includes VHF radio sets and amplifiers, vehicle intercoms, troposcatters, networks, switching and transmission installations, data systems, field telephones and optical fibre systems. SEL is involved in the production of the following programs:

FM15000: Short range radio relay system manufactured in cooperation with ANT Nachrichtentechnik, for the Federal German Armed Forces (*Bundeswehr*).

MMX2/9: Portable field switch.

SEM52-S: Handheld VHF transceiver.

SEM171/171: Manpack VHF radios.

SEM172: Frequency-hopping manpack VHF radio systems.

SEM180/190: Vehicular VHF radio sets.

SEM182/192: Frequency-hopping vehicular VHF radio sets.

Troposcatter: Small capacity troposcatter system for over-the-horizon radio relay in the 8GHz range.

Military Systems

SEL activities in military systems include navigational aids and ground stations for a multitude of applications. In addition, SEL produces radar warning receivers under license of E-System of the US, as well as license production of a number of other systems for military applications. A product summary follows:

APR-39: Radar Warning Receiver (RWR) manufactured under license from E-Systems of the United States.

ASN-128: Helicopter doppler navigation system, manufactured under license of Singer-Kearfott.

CDU: Control display unit for helicopters and fixed-wing aircraft, for control of navigation, communications and EW subsystems.

DNS-2110: Doppler navigation system for Eurocopter GmbH (Messerschmitt-Bölkow-Blohm/Aerospatiale) PAH-2 attack helicopter and German/Dutch/French/Italian NH-90 multi-role helicopter.

DVS-2111: Doppler velocity sensor for PAH-2 and NH-90.

DVS/STIRS: Hybrid doppler/inertial navigation system for use on board the PAH-2 Tiger.

ELTA-2000: Electronic TACAN antenna.

EURONAV: Family of NAVSTAR GPS P-code receivers for military applications.

FTA-43: New-generation TACAN system.

HLWE: Helicopter Laser Warning Receiver, to be used for PAH-2 and NH-90 helicopters.

IRIS: Integrated Radio Information System, comprising a JTIDS/MIDS terminal, two VHF/UHF radios and management units with optional voice control facility, for use on advanced fighter aircraft.

LAB-2000: High speed fiber-optic databus, for use aboard Eurofighter EFA/Jf90.

LDNS: Lightweight doppler navigation system for use on helicopters.

MITAC: Micro TACan system, capable of on-route navigation, approach and landing requirements, used for *Luftwaffe* Tornado and AlphaJet attack aircraft.

ORTAC-M: Monopulse location and navigation system.

SEFAN: Sector navigation system for military vehicles.

SETAC: Sestro TACan, approach and landing aid developed under contact of *Bundesministerium für Verteidigung/ BMVg* (Federal German Ministry of Defense).

TB-2000: Speech communications system linking ground crews with pilots.

VOICE COMMAND: Cockpit voice command system in development as a technology demonstration initiative for advanced fixed and rotary wing combat aircraft management systems.