

DECOTEC DEMONSTRATION SCHEDULE

PROGRAMA

- 09:00 - 09:05 Presentation of the group DECOTEC
(General PEDRO QUINTEROS)
- 09:05 - 09:10 General introduction to DECOTEC S.A.
(Mr. BILL WEISENBURGER)
- 09:10 - 09:50 (A) Fax and Telephone Cyphering Units.
Theoretical introduction and practical
demonstration.
(Mr. ROLF ACHTZNICK)
- 09:50 - 10:40 (B) TRANSJAM - THE MOBILE BROADBAND JAMMER
Theoretical Introduction.
(Mr. DONALD SALOMON)
- 10:40 - 11:00 Coffee Break
- 11:00 - 11:45 (C) SATURN-T Satellite Communication System and
IPS-360 Satellite Navigation System.
Theoretical and Practical Demonstration.
(Mr. ROLF ACHTZNICK)
- 11:45 - 12:15 (D) NBQ - Protection suit with mask and filter.
Theoretical and practical demonstration.
(Mr. ECKHARD ROSE)
- 12:15 - 13:00 (E) M-FAX400-FAX-Monitoring System.
Theoretical and Practical Demonstration
(Mr. DONALD SALMON)
- 13:30 - 15:00 Lunch
- 15:30 - 16:00 (F) TRANSJAM The mobile Broadband Jammer
Practical Demonstration Acc to attached
Demo-Schedule
(THE DECOTEC TEAM)
- 16:00 - 17:30 Final discussion

(A) Fax and Telephone Cyphering Units.
Theoretical introduction and practical
demonstration.
(Mr. ROLF ACHTZNICK)

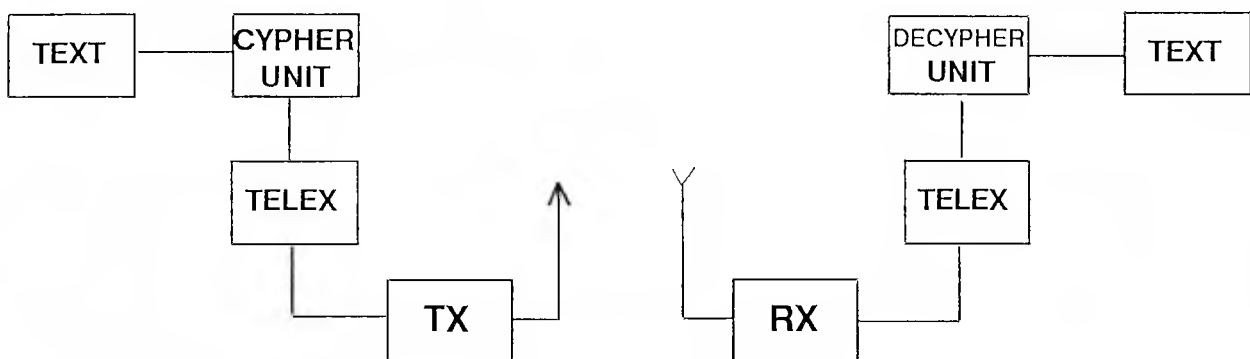
DECOTEC S.A. CH 1701 FRIBOURG

INTRODUCTION

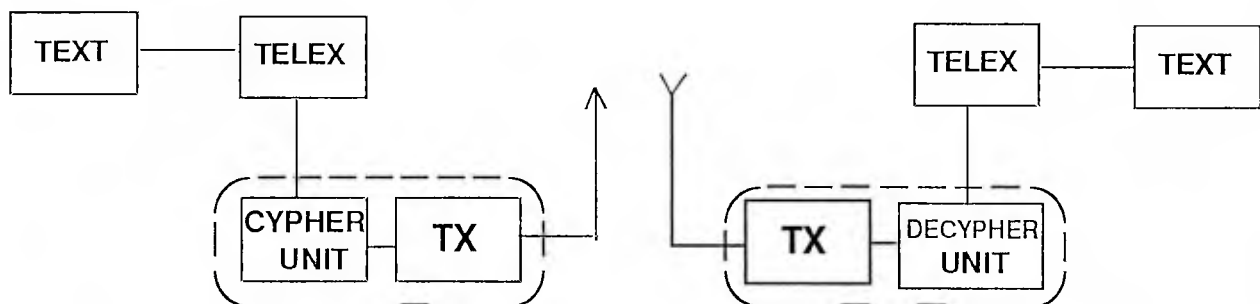
Military field

Commercial range

OFF-LINE



ON-LINE



SCRAMBLER

Analogous keys are normally scramblers where segments of complete parts of a message will be mixed in view of time and frequency. This is not a real cyphering - only a scrambling and easy to decipher for any not authorized people using special computers.

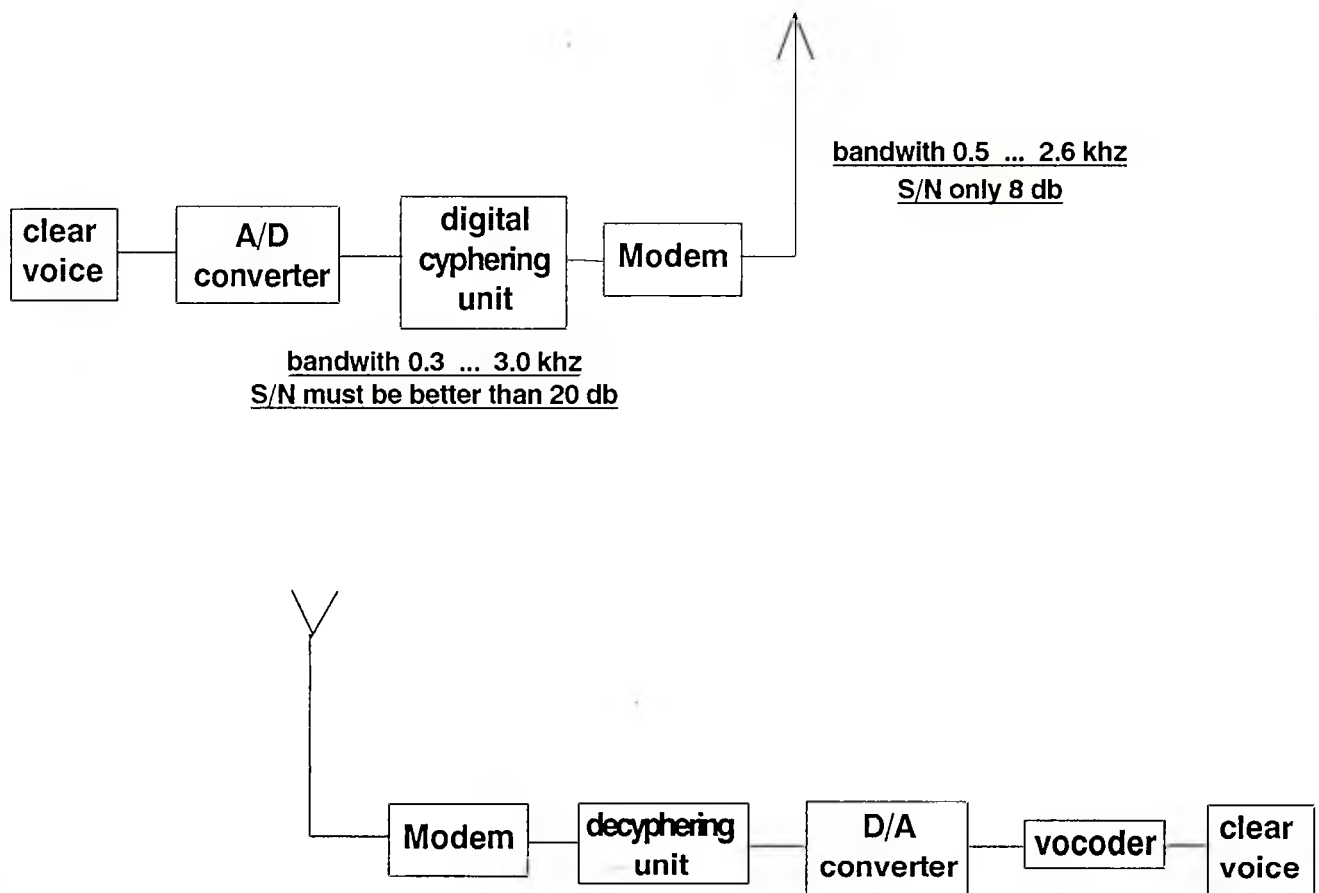
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DIGITAL CYPHERING UNITS

A real cyphering is only possible by digital information.

All our introduced equipment works in this way with a cyphering capacity of 10^{80} possibilities.

e.g.

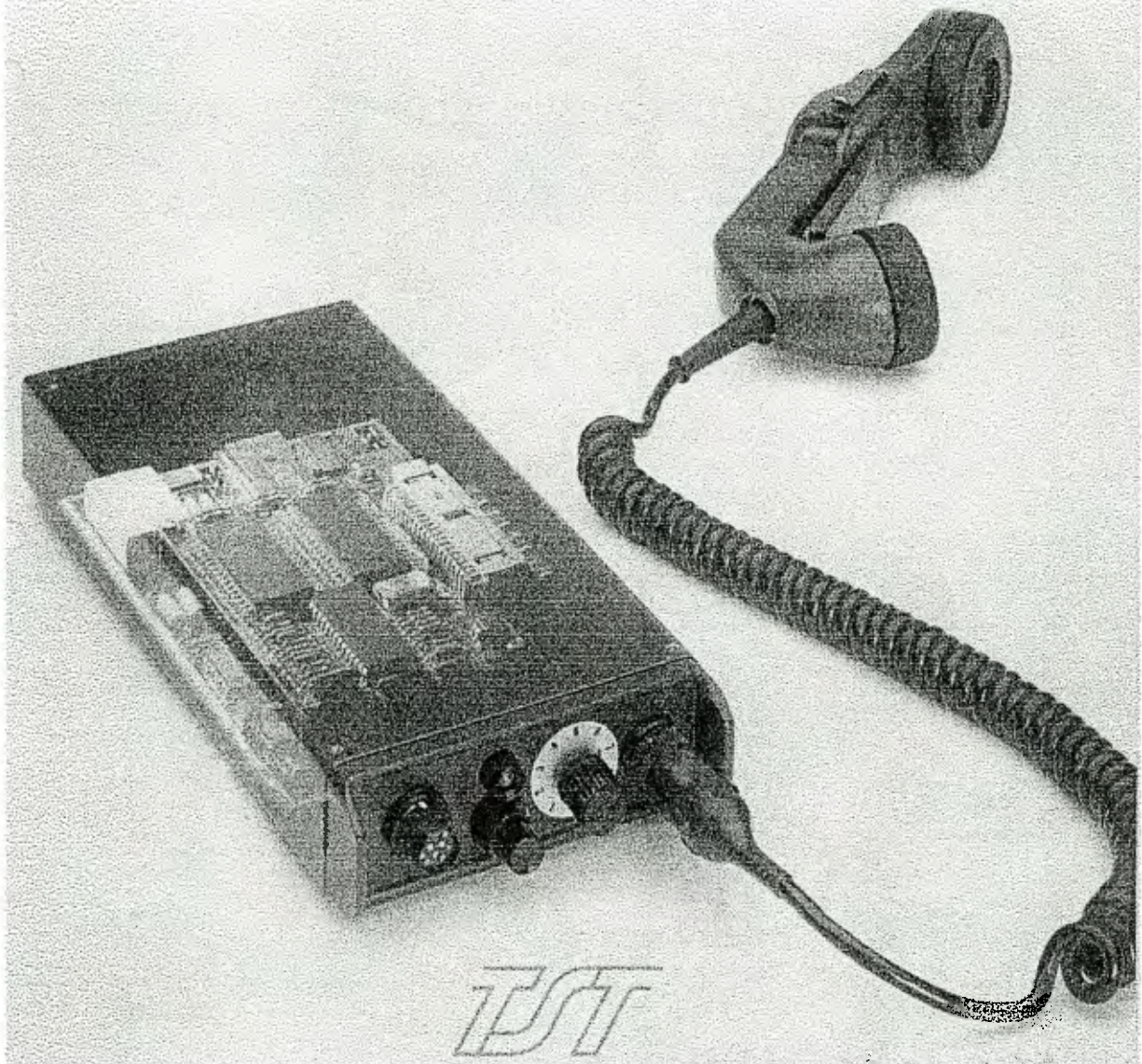


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TST 7698

Miniature Ruggedized Voice Coder/Cipher Set

Dual Coding Process Select:
Telephone/VHF + UHF with Telephone Quality or
HF-SSB Communication with Synthetic Quality



FULL COMPATIBLE TO PRC 77

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TST 7700

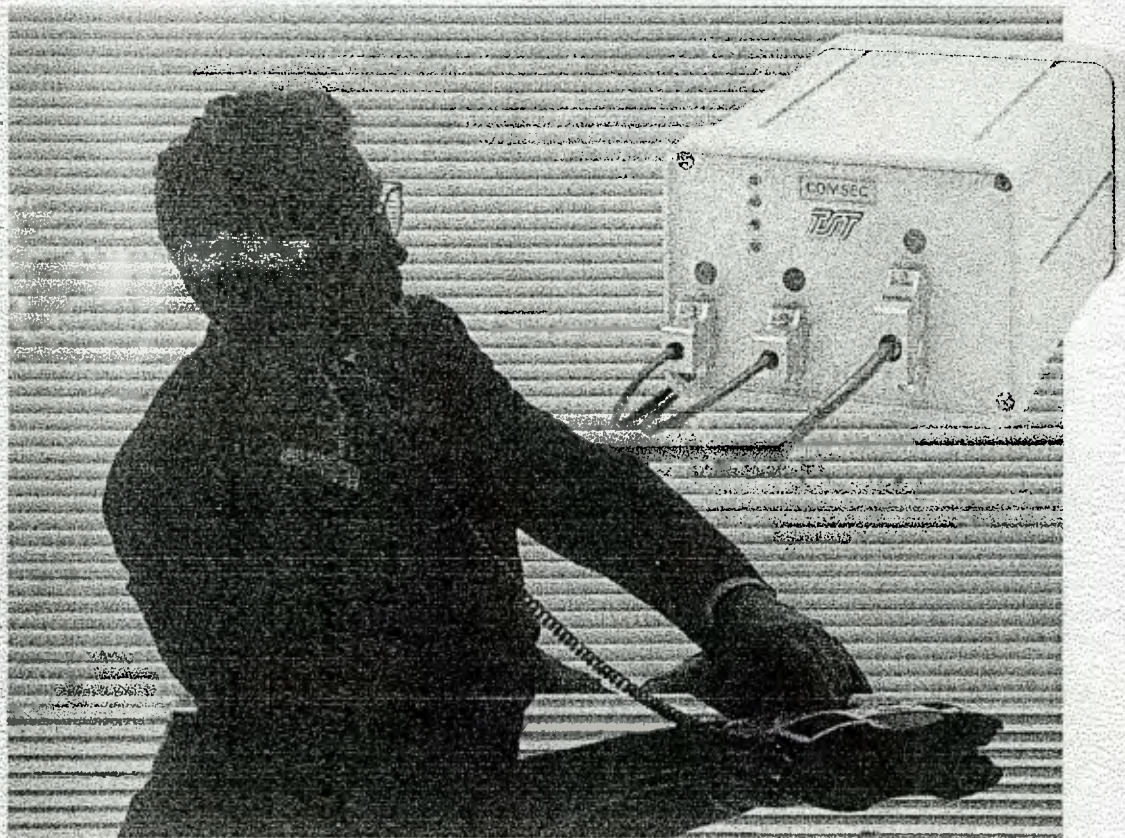
The Secure Telephone

Absolute security thanks to
state-of-the-art voice encryption and
digital transmission technology

Multiple applications
(table model, car telephone, private branch exchange)

Tried and tested in global communications,
also via satellite

Approved by the German PTT



It is incredibly easy for unauthorized persons to listen into telephone conversations. The advanced technology used in public switching systems, especially in car telephones, offers no protection against such eavesdropping.

Information obtained in this way may be misused for criminal purposes by third parties to the detriment of business firms, public authorities and private individuals. By using a secure telephone it is now possible to eliminate this risk and protect confidential conversations effectively.

THE LATEST DEVELOPMENT FOR CYPHERING
VOICE AND DATA

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Each telephone in the TST 7700 range features 8 processors. With its individually selected encryption keys and the enormous number of variants (1083) which these produce, the TST 7700 guarantees absolute security.

The encryption algorithm has been tested and approved by the German Information Security Agency (GISA).

Private telephone calls e.g. are not possible in a TST 7700 communication network !

TST 7700 in a car telephone system ↗



Optional accessories:

The cipher keys are generated at random in the key management system TST 0708 and programmed on a small RAM card via a serial interface to a PC with special software. Each participant in the protected network is given one of these cards. These permit the entering of the cipher keys into the TST 7700 by means of the key injector TST 0706 in a few seconds only.

Key Management unit TST 0708



Key Card

(B) TRANSJAM - THE MOBILE BROADBAND JAMMER
Theoretical Introduction.
(Mr. DONALD SALOMON)

(C) SATURN-T Satellite Communication System and
IPS-360 Satellite Navigation System. .
Theoretical and Practical Demonstration.
(Mr. ROLF ACHTZNICK)

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GLOBAL POSITIONING SYSTEM

The GPS system based on a 24-satellite constellation; six orbits each with 4 satellite

Each satellite completes one orbit around the earth in a little under 12 hours and is at a altitude of about 20 000 Km (10 800 nautical miles)

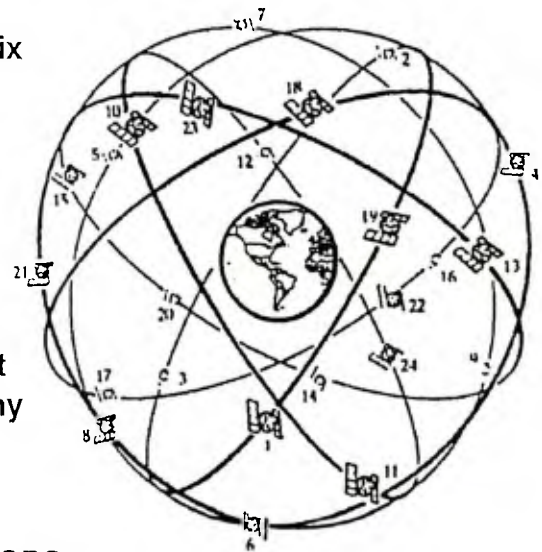
The objective of having the satellites arranged in this manner is to ensure that, at any time, the signals from at least five satellites can be received simultaneously at any point on or near the surface of earth, including polar regions.

The GPS receiver IPS-360 automatically selects up to 4 GPS satellites and evaluates latitude, longitude and altitude with an measuring accuracy of 30m - 100 m.

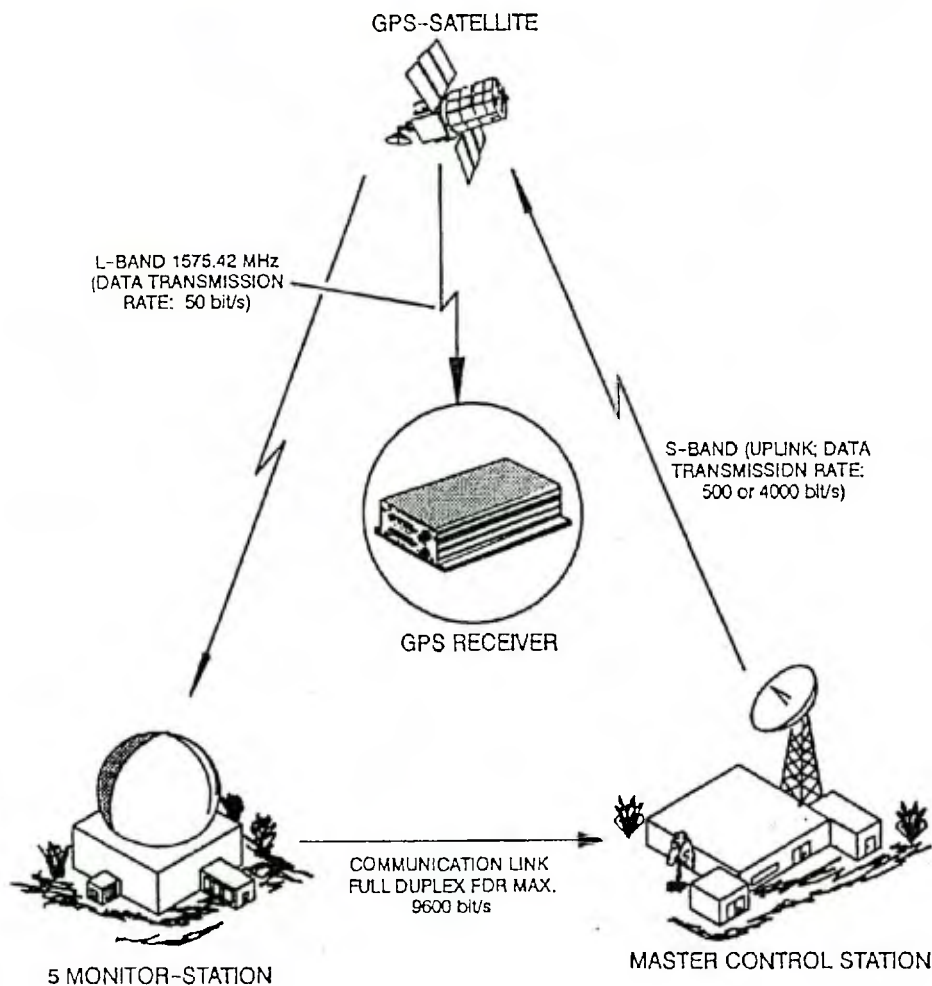
The signal format is C/A code for civilian purposes. This is a special code to differ between military and commercial application.

Frequency: 1575.42 Mhz

Signal strength: -166dBw



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THE CONTROL SEGMENT

The control Segment consists of a master control station in Colorado Springs and have five monitor stations and three ground antennas located throughout the world.

The monitor stations track all GPS satellites in view and collect ranging information from the satellite broadcasts. The monitor stations send the information they collect from each of the satellites back to the master control station, which computes extremely precise satellite orbits.

The information is then formatted into updated navigation messages for each satellite. The updated information is transmitted to each satellite via the ground antennas, which also transmit and receive satellite control and monitoring signals.

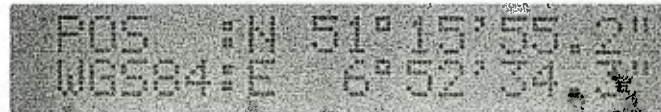
GPS-receiver IPS-360 determines:

- its own position
- the storage up to 100 way points
- the planning and storage of up to 9 routes with destination
- distance to a stored way point
- direction of motion
- speed of motion (max 530 knots/980 Km/h) with a precision of 0,3 knots/0,56 Km/h

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5 different modes are available:

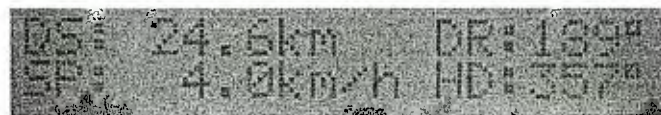
POS (positioning) mode: the actual position in longitude and latitude



POS : N 51° 15' 55.21"
WGS84 : E 6° 52' 34.34"

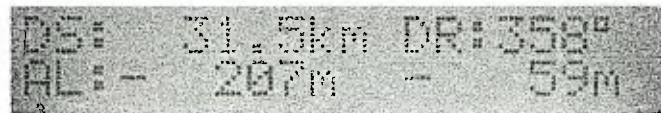
WGS
WORLD-STANDARD-
GEODETTIC-SYSTEM

NAV (navigation) mode: display the exact distance to a planed destination



DS: 24.6km DR: 189°
EF: 4.0km/h HD: 357°

TRACK mode: gives information about direction and position both in view of your original position and in view of latitude/longitude. In addition it indicates the covered distance and the altitude.



DS: 31.5km DR: 358°
AL: - 207m - 59m

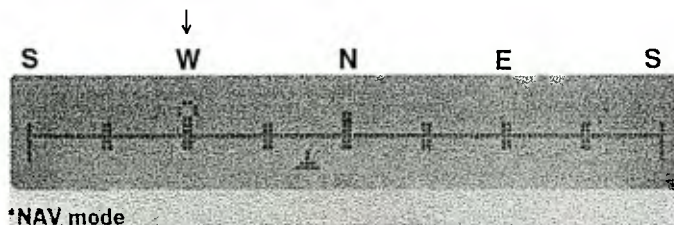
TIME mode: display of world-time in UTC or local-time; the exact date and weekday



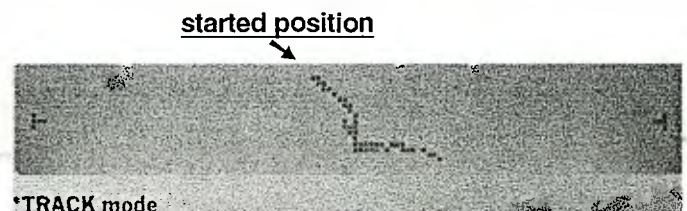
1991.12.18. (WED)
12:40:43 LOCAL

EDIT mode: storage and recalling of up to 100 way- or destination points

direction to next WP/MP = 0



↑
deviation HD = ▲



present position

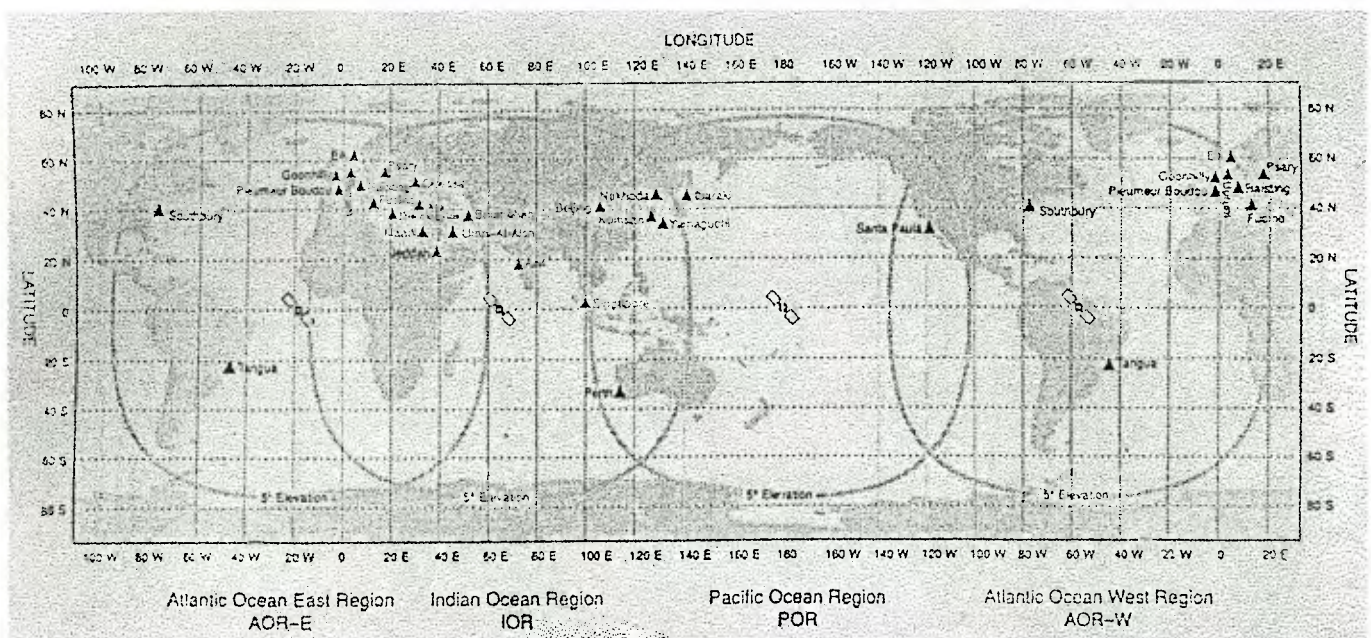
- in addition to all modes you have the possibility to see your real route in relation to the ideal route in a graphic mode -

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The INMARSAT system

was installed for a worldwide rapid and reliable communication system for telex, data and voice transmission.

To fulfill this task 4 satellites in a geostationary orbit above the equator at approximately 35 700 km altitude.



Telephone calls

5. CES-number table

Atlantic Ocean Region - West		Atlantic Ocean Region - East		Indian Ocean Region		Pacific Ocean Region	
No.	CES	No.	CES	No.	CES	No.	CES
0211	Goonhilly	1011	Ala	0611	Arvi	1111	Beijing
0111	Southbury	1211	Burum	1011	Ala	0311	Ibaraki
		0411	Eik	1111	Beijing	0411	Kunsan
		0511	Fucino	1411	Boumehen	0211	Perth
		0311	Maadi	0411	Eik	0011	Santa Paula
		0711	Odessa	1511	Jeddah	1011	Singapore
		1111	Pleumeur Boudou	0711	Odessa		
		1611	Psary	0211	Perth		
		1511	Raisting	1611	Psary		
		0111	Southbury	0511	Thermopylae		
		1411	Tangua	0311	Yamaguchi		
		0611	Umm-Al-Aish				

6. Operator assisted telephone calls

- ① Follow step ① in para. 1.

After receiving a short dialling tone:

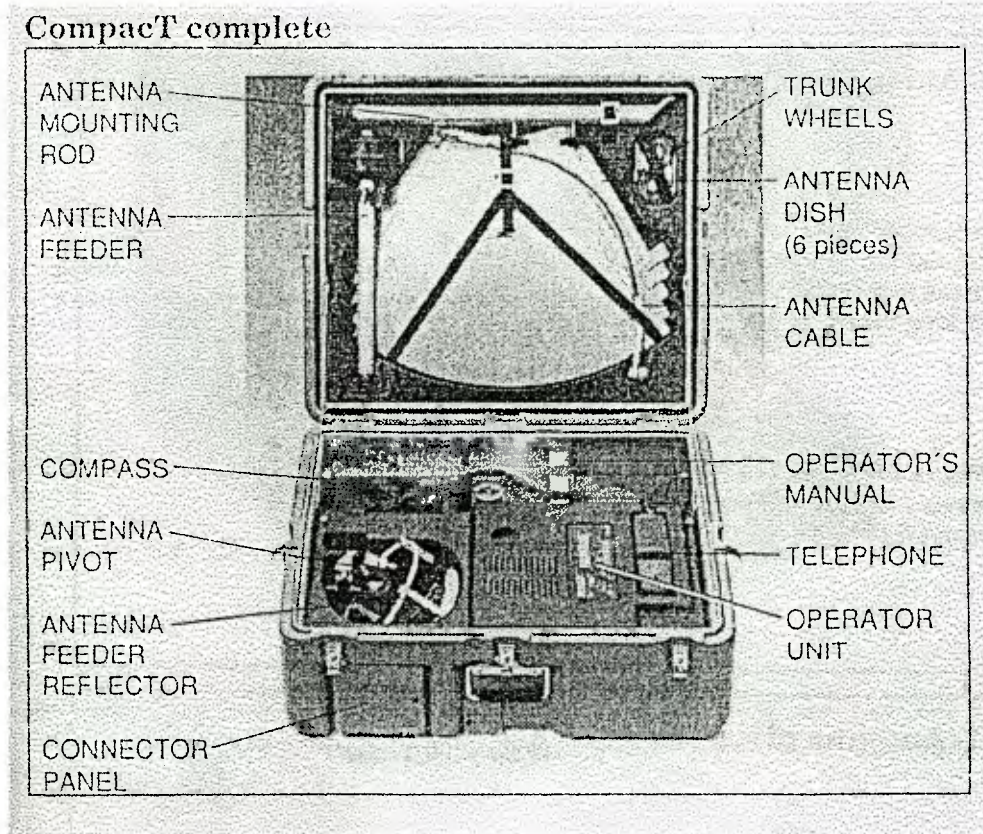
- ② Dial according to the table below:

Dial	Service
11††	International call
13††	National call
34††	Person to person call
35††	Collect call
36††	Credit card call
37††	Time and charges requested at end of call
	Other services provided:
12††	International information service
14††	National information service
33††	Technical assistance
38††	Medical assistance
39††	Maritime assistance
41††	Meteorological reports
42††	Navigational reports
43††	Ship position report
91††	Automatic telephone test
92††	Commissioning test

NOTE! Not all CES provide every service listed above.
For more information, contact technical assistance
on CES (33††)

Saturn Compact

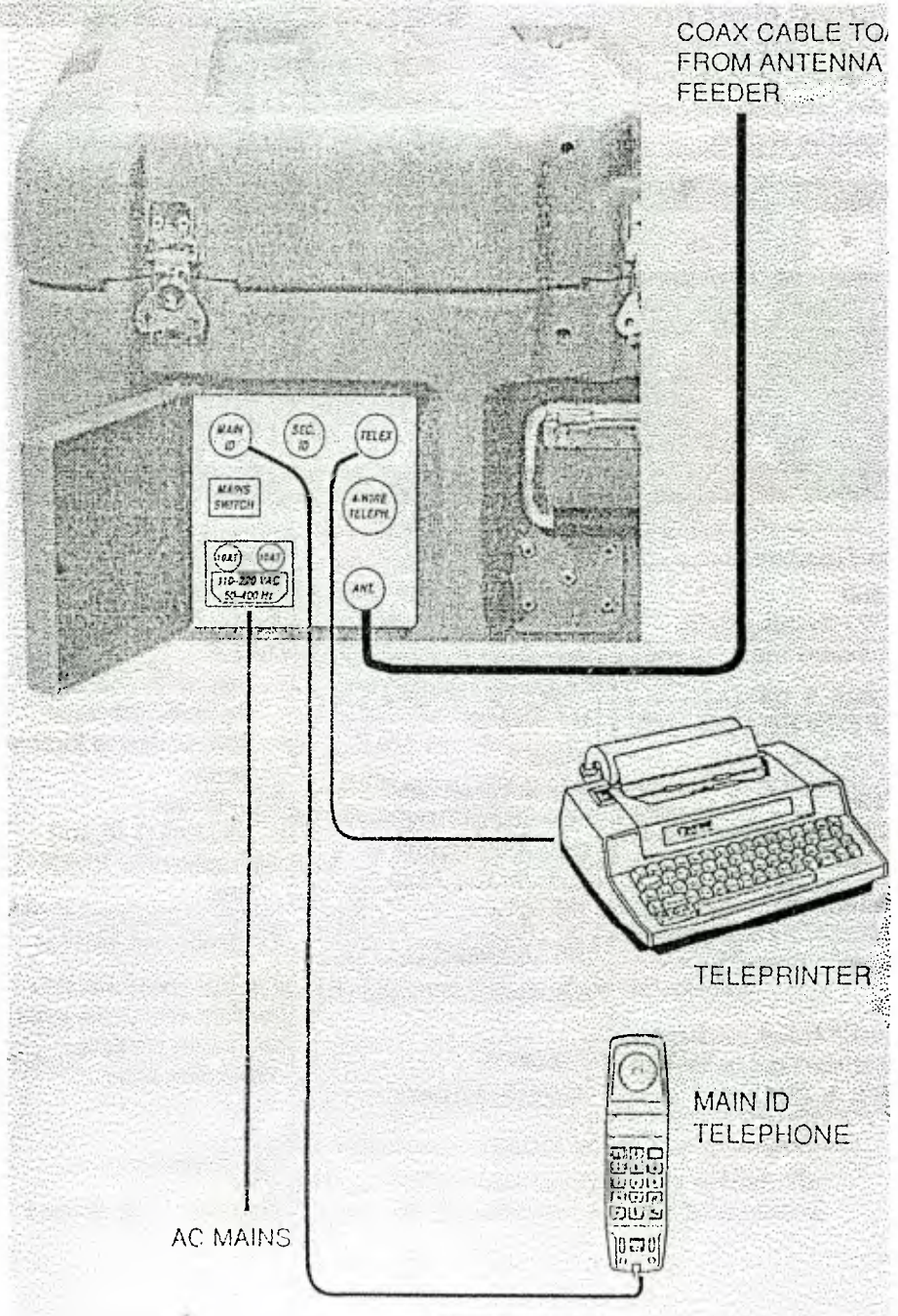
- The Saturn CompactT provides a quickly established and reliable link from areas where other telecommunications are poor, unreliable or non-existent.
- Direct connection to the international telephone and telex networks is obtained via the INMARSAT satellite system.
- full duplex
- simple installation which takes not more than 5-10 minutes
- one light-weight, rain resistant, moulded polyethylene trunk contains the entire system which can be carried as luggage; total weight is only 35 kg



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6. Feeder reflector

Fasten the reflector on top of the feeder by means of the knurled screw.

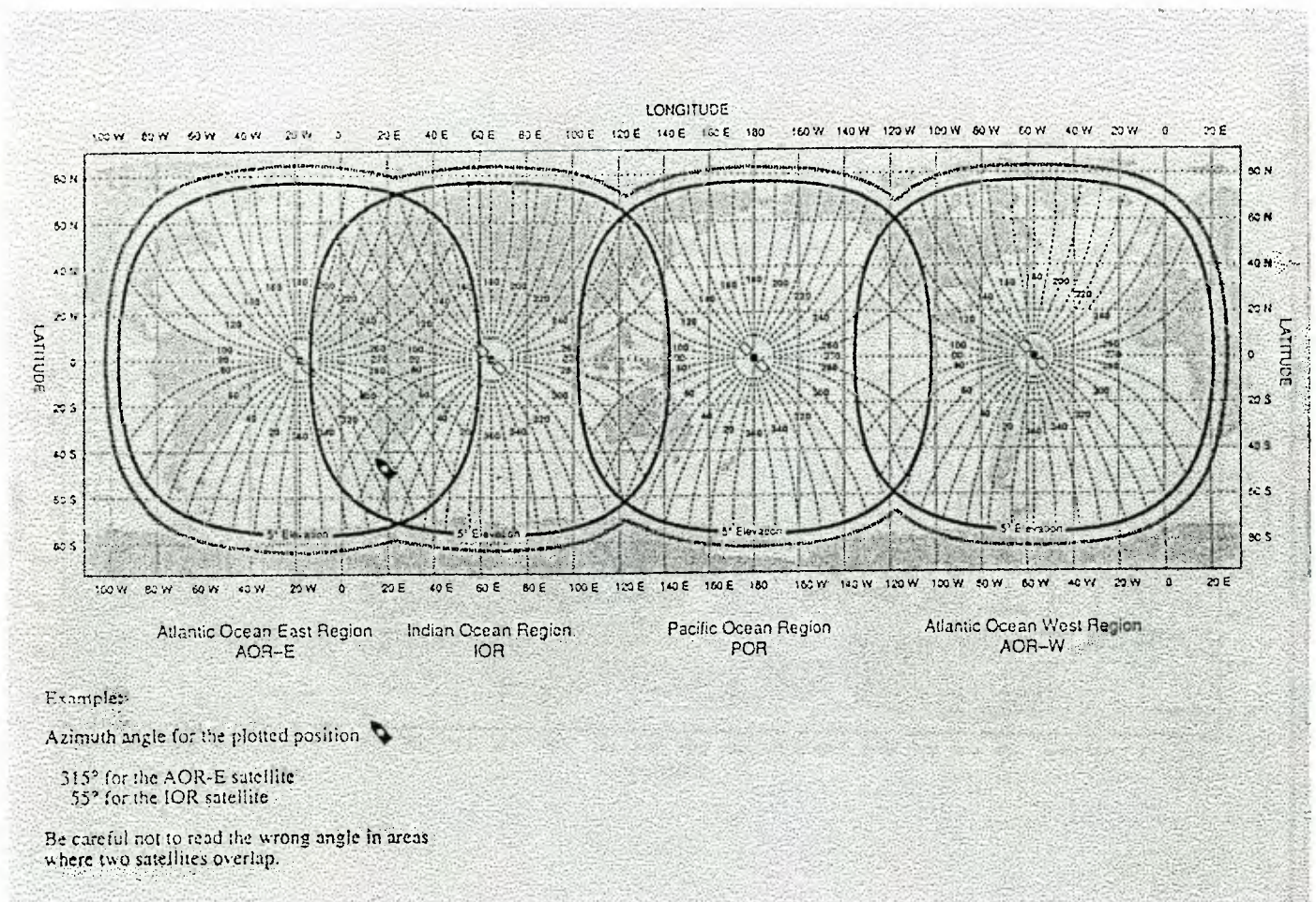


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The Saturn CompactT handles following traffic:

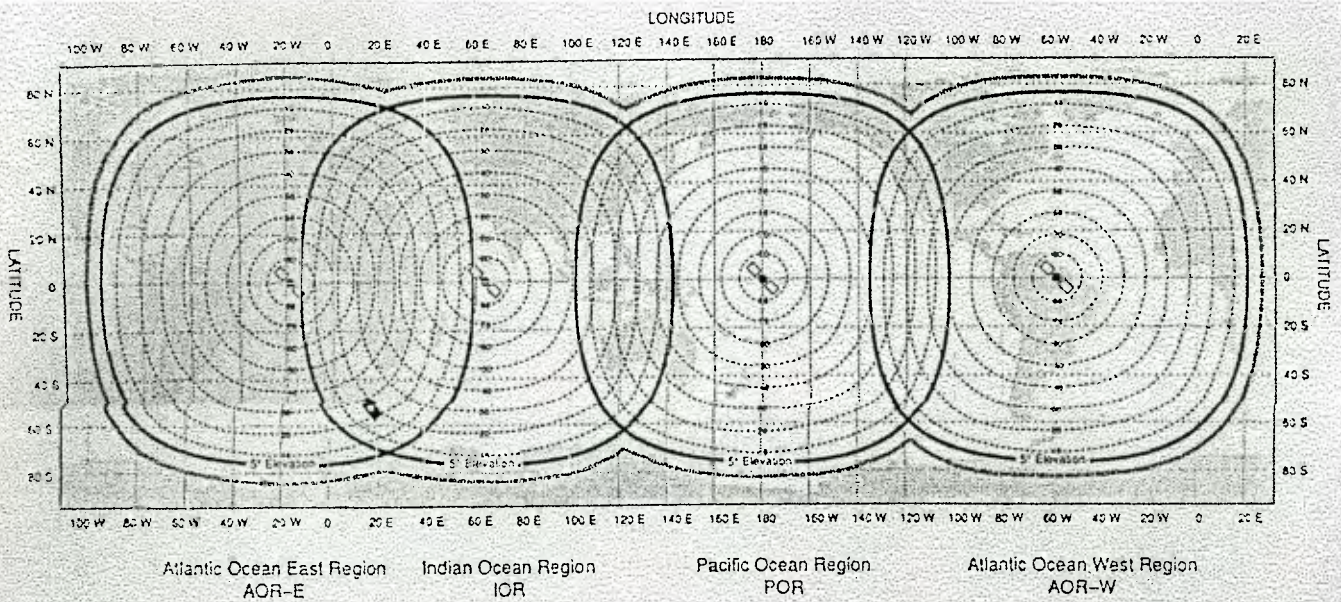
- Telephone calls
- Data/Facsimile
- Telex
- Telex broadcasts
- News broadcasts etc.
- Weather map, broadcasts
- Requesting a channel to be assigned

Direction (azimuth angle) map



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Height (elevation angle) map



Example:

Elevation angle for the plotted position ↙

24° for the AOR-E satellite
17° for the IOR satellite

Be careful not to read the wrong angle in areas where two satellites overlap.

(D) NBQ - Protection suit with mask and filter.
Theoretical and practical demonstration.
(Mr. ECKHARD ROSE)

(E) M-FAX400-FAX-Monitoring System.
Theoretical and Practical Demonstration
(Mr. DONALD SALMON)

M-FAX 400 PROVIDES UNIQUE FAX INTERCEPT CAPABILITY

The M-FAX 400 represents the most advanced facsimile intercept system available. It provides the user with a small, flexible, surveillance tool that will intercept, display and record fax transmissions between all types of fax systems using signals obtained from a wide variety of signal surveillance assets. The major features of the M-FAX 400 System are list below.

Accommodates virtually any signal source

Can be remotely operated

Single PC card is IBM compatible

Handles multiple input lines

Multi-tasking Capability

Handles Non-Standard Fax Protocols

Can Intercept without Handshake Signals

Has Automatic File Management

Users get Software Updates

THE CHALLENGE

Worldwide use of facsimile transmission terminals has continued its rapid growth as the result of improved technology in both devices and transmission systems. Almost any type of document, note or drawing can be transmitted rapidly and economically over public telephone networks to virtually anywhere in the world. The emergence of cellular telephone systems and portable facsimile devices will combine to maintain this growth for the foreseeable future.

FAX Transmissionis:

Simple

Reliable

Economical

Rapid

Reasonably Secure

Many of the signal reconnaissance systems now in place do not have the capability to intercept, analyze, and display most facsimile transmissions. The intercept problem is complex because of transmission speed, high data storage requirements, terminal communication procedures, and the use of proprietary terminal protocols between terminals made by the same manufacturer.

FAX Transmission
Schemes Include:

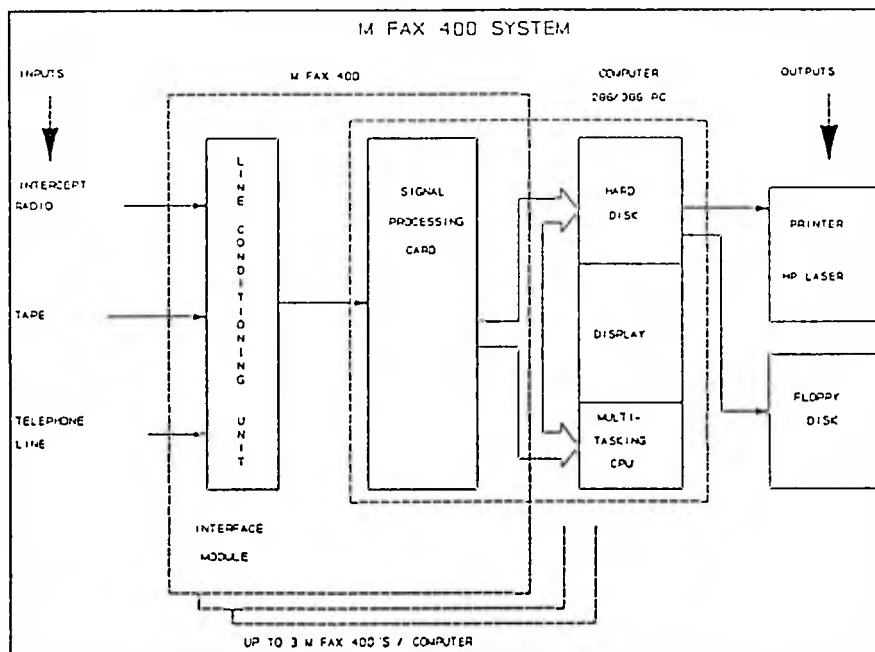
Traditional Long line Telephony
Microwave Links
Satellite Links
Tactical radio
Cellular telephone

THE SOLUTION

The M-FAX 400 has been developed by our signal surveillance specialists who understand all aspects of facsimile signals and transmission systems. Starting in 1987, they began a development program that has resulted in a line of superior information intercept products. The M-FAX 400 is the culmination of these efforts.

Since it was designed to be compatible with all types of line monitoring and receiving systems, it can be added to your current intercept system with very little effort. Even better, the major part of the M-FAX product resides on an IBM PC/AT compatible board that provides a simple, reliable interface to most existing systems.

SYSTEM DESCRIPTION



M-FAX 400 Block Diagram

The M-FAX 400 consists of the following elements:

Signal Processing Card, IBM PC/AT compatible computer with display and hard/floppy drives (not included in price), Line Conditioning Unit and Software Package

OPERATION

All M-FAX systems are operated from a computer keyboard under complete menu control. As a result, operators can be fully trained to use the system in just a few hours. No prior computer knowledge is necessary. An example of a typical menu appears below:

```
*** MFax device no:2 ***  
F1-Select Active Target  
F2-Select Displayed Target  
F3-Switch Fax Sound On  
F4-Start Auto Print  
F5-Start Multipage Autoprint  
F6-BackUp Target  
F7-Restore Target  
F8 Erase Target  
Esc-Skip  
Atl X-Exit to dos
```

INITIAL MENU

EASY TO USE MENUS

Using the menu system, the operator creates specific, unique file names, and the system then performs all the functions (automatic collection, demodulation, recognition, storage plus operator controlled display, analysis, filing/storage, retrieval and printing). The system is designed as a "multi-tasking system", where it is possible to receive a facsimile while simultaneously analyzing or printing a previously intercepted facsimile. The system may also be used in a local or remote unattended mode until the storage media (any size desired) is filled with intercepts.

INPUT SIGNALS

The system is designed to accept any 4 Khz analog input from a telephone line, intercept radio, or DAT recorder, and has a built-in cable equalizer for remote operation. The system will, on a single PC, monitor up to three simultaneous lines (multi-line). The system will function on all CCITT modulation types up to 9600 baud, and will operate with other selected facsimile systems at higher rates and with special modulation characteristics. The system has been tested over slave line distances of up to 200 Km on good quality standard lines (attenuation -12db.) as well as CCITT M1020 standard lines and through RF intercept receivers.

INTERCEPT INFORMATION

Besides the actual facsimile message (stored on a hard disk, saved on a floppy disk, displayed on the monitor or printed as hard copy) the M FAX 400 automatically provides the following intercept information:

Target Name (designated by operator)

Termination Code (receiving FAX receipt confirmation)

Transmission Subscriber Identification (unique machine identifier)

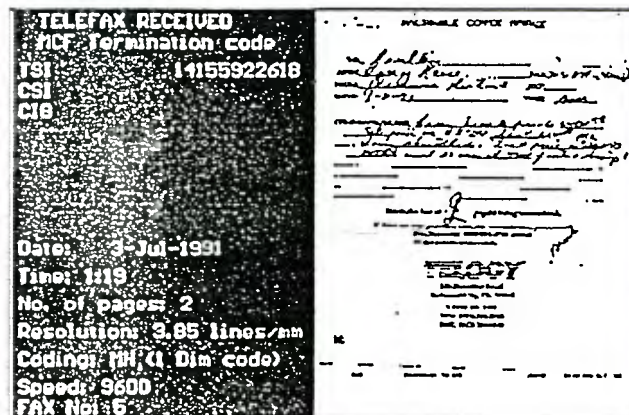
Calling Subscriber Identification

Called Subscriber Identification

Non-Standard Facilities (Non-standard protocols, shows country of origin and manufacturer)

Receiving Facsimile's Product Type & Country Code (shows a

A typical display of an intercepted FAX appears below:



INTERCEPTED FAX

OTHER SYSTEM FEATURES

ACTIVITY LOG

The system also provides a position activity log that is a shortened version of the intercept information listed above.

FILE MANAGEMENT UTILITIES

The system has built-in software file management utilities and display utilities such as a cursor zoom feature for viewing document details or very small fonts and a 180 degree document flip for messages sent upside down.

SIGNAL MONITORING

The operator may monitor input signals for troubleshooting through the use of various technical tools such as a logarithmic signal level meter, line activity indicator, and Vector Eye Quality Monitor (vector oscilloscope) displaying incoming signal constellations with line disturbances in near real time.

COMPUTER REQUIREMENTS:

Computer	PC/XT/AT
CPU	8086, 8088, 80286, 80386
Clock Frequency	Min. 8 Mhz
Hard Disk	Min. 20 Mbyte (w/ 2Mbyte always available)
RAM	640 Kbyte
SLOT	Half-sized standard for PC expansion slots

Printers supported

HP Laser Jet II (1 meg. internal memory) 300 DPI, HP DeskJet Plus (HP 2277A), Epson FX 80.

TECHNICAL SPECIFICATIONS

LINE INTERFACE

- * DC Input Impedance - > 3 M Ohms.
- * AC Input Impedance - > 30 K Ohms. 50Hz-20Khz

POWER SUPPLY:

Voltage: 110-240 VAC 50/60 Hz.
Watts: Dependent on computer

DIMENSIONS:

PC Board half-sized
Interface unit - 3"H X 10"W X 11"D

WEIGHT (less computer): 6 3/4 Lbs.

The M-FAX 400 will recognize and demodulate the following Modem Protocols.
PC/XT/AT

V. 27, 2400 Baud	V. 29, 9600 Baud
V. 21, CH2, 300 Baud	V. 29, 7200 Baud
	V. 27, 4800 Baud

The M-FAX 400 will recognize and demodulate the following FAX Codes, and will also r/d partial transmissions without the initial start of message transmission codes and will readily accept breaks in transmission.

Modified Hoffman	Fine Resolution
Modified Read	T. 30
MMR	Partial Transmissions
Standard Resolution	Non-Standards

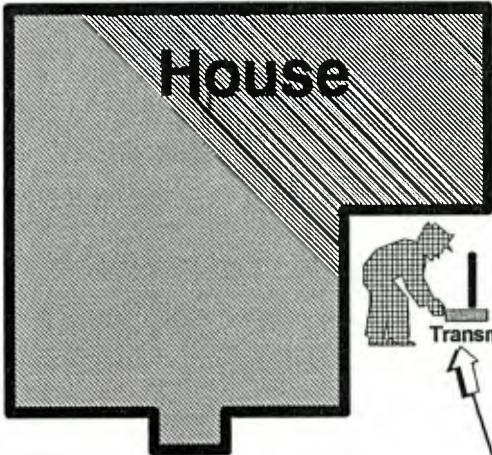
The M-FAX 400 will operate with a dedicated operator or in Autonomous, Multi-Line, or Remote Modes.

DECOTEC S.A.

CH 1701 Fribourg
Case Postale 115 · Rue de Grand-Pré 26
Tel. 037/240761 · Telex 942900 bcm
Cables decotec
Fax 037/241032

(F) TRANSJAM The mobile Broadband Jammer
Practical Demonstration Acc to attached
Demo-Schedule
(THE DECOTEC TEAM)

TRANSJAM Test Range



100 M

50 M

Receiver

Tree Line



150 M

100 M

50 M

25 M

Range Markers

TEST SEQUENCE:

The following matrix will be used to conduct the test in a controlled fashion. It will be used to validate system success for a variety of ranges and vehicle speeds, directions.

Before each test the terrorist transmitter will activate the remote control receiver to ensure the terrorist's system is functioning properly. After this is assured, the TRANSJAM DTJE-910 will be activated to provide positive proof the jamming signal disrupted a fully operational terrorist signal.

When the TRANSJAM DTJE-910 is activated, a set of yellow strobe lights will be activated on the roof of the test vehicle. This will be used to verify when the TRANSJAM DTJE-910 is in operation, either prior to or during the test. The lights are not part of the system, and in no way effect its operation. Their purpose is to ensure test observers are always aware of the TRANSJAM'S operational status.

The observers (Government) will be given the opportunity to operate the terrorist transmitters at any time during the test period.

TEST MATRIX

Stationary Test from the Remotely Controlled Receiver to :		
Vehicle (TRANSJAM activated)	Terrorist Transmitter	Pass
25 M	100 M	
50 M	100 M	
100 M	100 M	
25 M	50 M	
50 M	50 M	