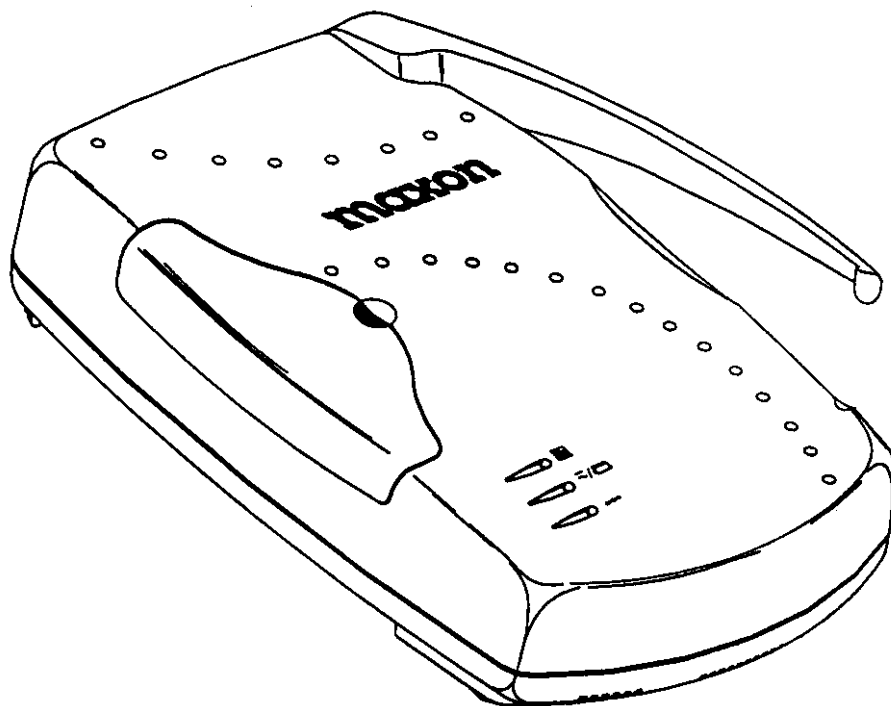


APPENDIX 5

USER'S GUIDE

TWENTY-SIX (26) PAGE USER GUIDE FOLLOWS THIS SHEET

USER GUIDE
FCC ID: F3JSAU800E
APPENDIX 5



maxon[®]
A World of Communications

SAU-800E
User Guide

Personal Information

Important Safety Instructions

When using your telephone equipment, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

1. Do not use this product near water, for example, near a bath tub, wash bowl, kitchen sink or laundry tub, in a wet basement or near a swimming pool.
2. Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
3. Do not use the telephone to report a gas leak in the vicinity of the leak.
4. Use only the power cord and batteries indicated in this manual. Do not dispose of batteries in a fire. They may explode. Check with local codes for possible special disposal instructions.

SAVE THESE INSTRUCTIONS

SAU-800E User Guide i

DEALER

COMPANY NAME: _____

CONTACT NAME: _____

ADDRESS: _____

PRODUCT

DATE OF PURCHASE: _____

MODEL NUMBER: _____

SERIAL NUMBER: _____

ATTACH SALES RECEIPT HERE



SAU-800E

User Guide

Introduction

Introduction

Your new SAU-800E (Fixed Cellular Line Access Unit) is designed to provide quality voice communications using practically any regular wireline telephone. Using the same technology as digital cellular telephones, your SAU-800E, in conjunction with a cellular service provider, is a state of the art alternative to traditional wireline service.

All conditions and specifications
are subject to change without notice.

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Safety

The following is a guide to safe, environmentally sound and efficient use of the SAU-800E.

Electronic Life Supporting Devices and Medical Devices

DANGER: The operation of any radio transmitting equipment, such as the SAU-800E, may cause interference with medical devices. The signal you transmit can interfere with the operation of medical equipment used for treatment, communication, monitoring or analysis.

Before using the SAU-800E in conjunction with life supporting devices such as cardiac pacemakers, defibrillators, insulin diffusion pumps and related instruments, contact your physician.

DO NOT use the SAU-800E in locations bearing warning signs that caution against radio transmission, and always request permission before using the unit near medical equipment.

Electronic Devices

Most modern electronic equipment is shielded from RF signals. However, certain electronic equipment may not be shielded against RF signals from your SAU-800E. Some digital wireless phones may interfere with some

types of hearing aids. In the event such interference occurs, you should consult your service provider.

Emergency Calls

The operation of your SAU-800E is dependent on radio signals, cellular and landline telecommunication networks. Therefore, the SAU-800E cannot guarantee a connection under all conditions - it is important that you never rely exclusively on any cellular product for emergency communications.

Electrical Shock

The SAU-800E uses internal voltages/currents that could pose possible electric shock hazards, which could result in bodily injury. For your safety, DO NOT attempt to open the SAU-800E for any purpose other than replacing the battery (refer to *Battery Information (Optional Accessory)*).

Precautions

Unplug the SAU-800E from the electrical outlet and remove the internal battery should one or more of the following occur:

- If the AC power supply, its cord or plug is damaged or frayed.
- If liquid has been spilled into the SAU-800E, or it has been exposed to water or rain.

Safety

- If the SAU-800E has been subject to an extreme physical blow.
- If the SAU-800E does not operate normally according to these instructions, and the Troubleshooting Guide within this User Guide has not solved the problem.
- If the unit exhibits a distinct change in performance that is not documented in these instructions.

Under any of these conditions, DO NOT attempt to service the SAU-800E yourself, as this could result in risk of fire or personal injury.

Exposure to Radio Frequency Signals

Your SAU-800E is a low power radio transmitter and receiver. When it is ON, it receives and also sends out Radio Frequency (RF) signals.

In August, 1996 the Federal Communications Commission (FCC) adopted new guidelines for evaluating human exposure from mobile and portable devices, such as cellular telephones and personal communication devices. The new guidelines incorporate limits for Maximum Permissible Exposure (MPE) in terms of electric and magnetic field strength and power density for transmitters operating at frequencies between 300 kHz and 100 GHz. Limits are also specified for

SAU-800E User Guide 2

localized ("partial body") absorption. These guidelines are consistent with ANSI C95.1 (1992) (American National Standards Institute) safety standards which have been adopted by both the U.S. and international standards bodies. These standards are based on comprehensive and periodic evaluations of the relevant scientific literature. For example, over 120 scientists, engineers, and physicians from universities, government health agencies, and industry reviewed the available body of research to develop the ANSI Standard (C95.1).

Your SAU-800E meets and/or exceeds this FCC standard. However, if you want to limit RF exposure even further you can:

- Keep your body more than 20 centimeters away from the SAU-800E when it is on.
- Use an extension phone located in another room.
- Use a remote antenna located 1 meter or more from the telephone

The long term characteristics or the possible physiological effects of Radio Frequency electromagnetic fields have NOT been investigated by U.L.

Radio Frequency Energy and Explosives

DO NOT store nor operate the SAU-800E in the same area where flammable liquids, gases, or explosive materials are stored.

Frequencies from the SAU-800E can interfere with blasting operations. DO NOT operate the SAU-800E near areas where blasting operations are in progress or in areas posted "Turn off two-way radio".

Ventilation Requirement

The SAU-800E has several slots and openings on the enclosure in order to protect it from overheating. To ensure adequate ventilation, these slots and openings must never be covered or blocked. To reduce the possibility of blocking the slots and openings, DO NOT place the unit on surfaces such as a bed, sofa, rug, or other similar surface, nor place anything on the unit. DO NOT push any object through the slots and openings in the cabinet. The object may touch dangerous voltage points or cause damage to the SAU-800E which could result in risk of fire or electrical shock.

Battery Safety

CAUTION: Your SAU-800E unit contains a lead-acid battery (optional accessory). Some countries and states forbid disposal with household waste - call your local solid waste station for disposal instructions.

Additional safe handling of the battery includes the following:

NEVER open the battery pack.

DO NOT short the battery contacts together.

NEVER dispose of the battery in an open flame or incinerator.

Only use approved batteries (YUASA or YUASA-EXIDE Model NP2-12). Using other batteries will void your warranty and could cause damage or injury.

Antenna Safety

Use only the supplied or an approved replacement antenna. Unauthorized antennas, modifications or attachments could damage the phone and may violate FCC Regulations and/or IC Standards.

DO NOT touch the antenna unnecessarily when the SAU-800E is in use. Contact with the antenna affects the call quality and may cause the unit to operate at a higher power level than otherwise needed.

Safety

Getting Started

Getting Started

Make sure that the following items are enclosed in your original SAU-800E carton(s):

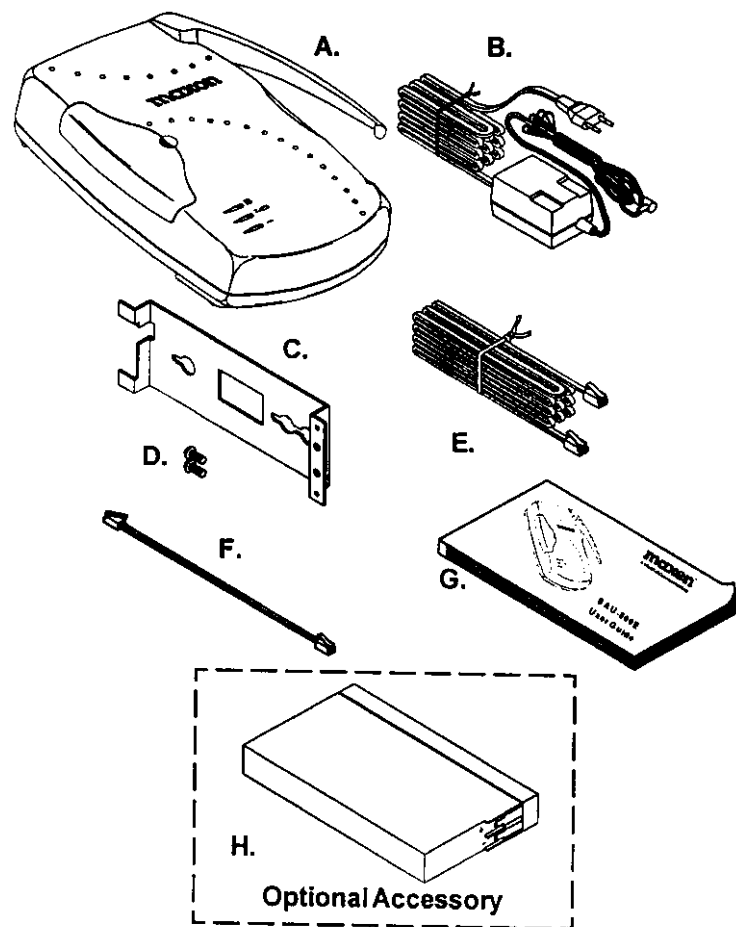
- A. SAU-800E Unit
- B. AC Power Supply
- C. Wall Mounting Bracket
- D. Bracket Screws
(2 pc. - M4 x 6mm, self-tapping Phillips™ head)
- E. 6' Telephone Cable (for desktop use)
- F. 8" Telephone Cable (for wall mount use)
- G. This User's Guide
- H. 12V Battery Pack (optional)

If any parts are missing, please contact your dealer or service provider.

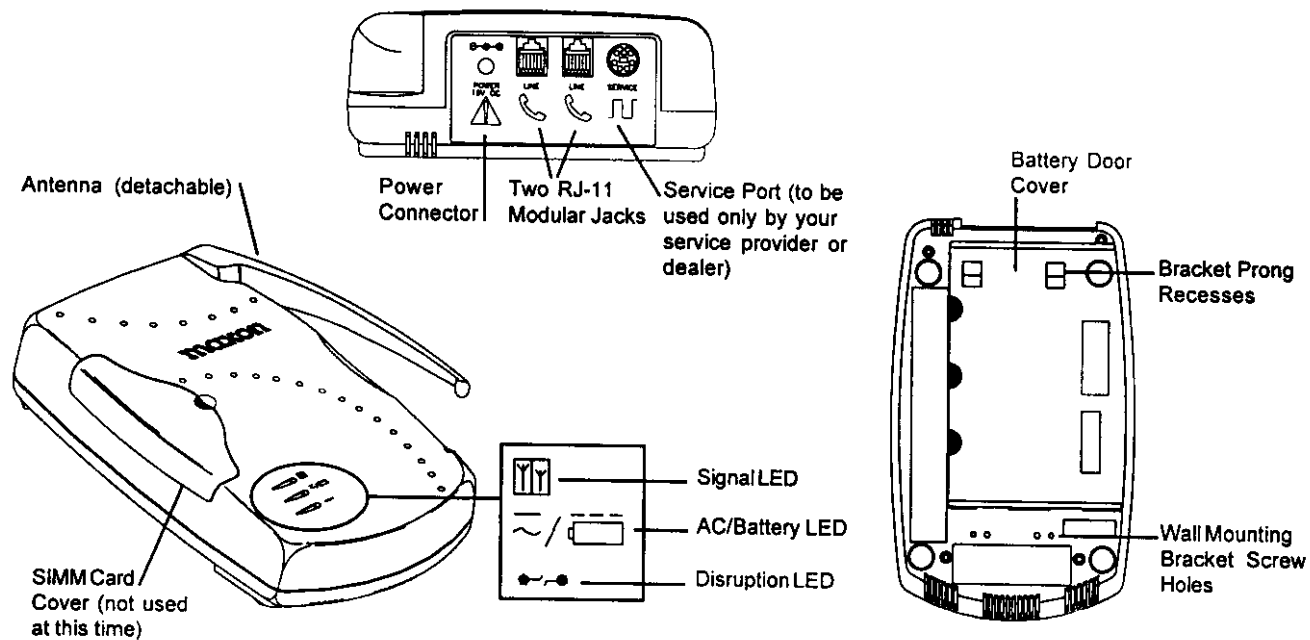
For convenience, please retain the SAU-800E's original carton and packing material in case of a return or needed warranty work.

Note: Before installing or using your SAU-800E, please read all instructions in this guide. If you have any questions concerning the installation or use of your SAU-800E, contact the dealer where you purchased your SAU-800E.

SAU-800E User Guide 4



Getting To Know Your SAU-800E



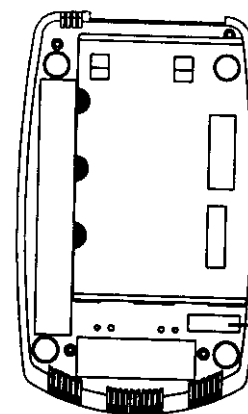
Serial Number • Security

Serial Number

Should you need to contact your network operator or service provider with questions about your SAU-800E, you will need to provide them with the serial number. This is located on the back of the SAU-800E on a label above the bar code (see figure at right). The ideal time to record the serial number is prior to installing the unit. Record the serial number in the back of this guide, and store this guide (along with your sales receipt) in a safe place for future reference.

Security

If your SAU-800E becomes lost or stolen, you must notify your network operator or service provider as soon as possible - they can block your SAU-800E from any unauthorized use. This is important as you may be liable for the cost of unauthorized calls until your SAU-800E is reported lost or stolen. The network operator or service provider will need the serial number of your SAU-800E in order to block it from unauthorized use.



Serial number

SAU-800E Installation and Connection

Existing Telephone Service

The SAU-800E is designed to provide quality voice communications using practically any regular wireline telephone. The SAU-800E can also be used to provide additional lines of service to a home or office that currently has wireline service.

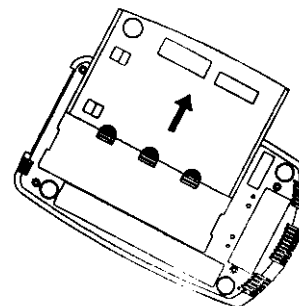
To test for existing telephone service, plug a telephone into the telephone jack that you are wanting to use for the SAU-800E. Listen for a dial tone, and follow the telephone's instructions for placing a call. If no dial tone is heard while trying to place a call, the SAU-800E unit can be used. If a dial tone is heard, you already have some type of telephone service - contact your service provider or dealer for instructions on what you should do.

Battery Installation (Optional Accessory)

Note: The following procedure applies only if a battery is supplied with your SAU-800E; or you purchase a battery in the future.

Before installing the SAU-800E, you will need to install the battery. Procedures follow:

1. Ensure that nothing is connected to the SAU-800E.
2. Place a soft cloth on a flat surface, such as a table.
3. Turn the SAU-800E upside down onto the soft cloth and orient the SAU-800E such that the three semi-circular/ridged cover release latches are facing toward you. Refer to diagram below.

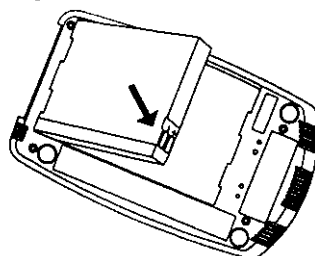


4. Remove the battery cover by pressing the semi-circular/ridged cover release latches and sliding the cover away from you (moving toward the edge opposite you). Slide the cover completely out and off the unit.
5. Turn or rotate the battery so that the silver terminals on the battery will align with the battery terminals located in the SAU-800E battery compartment.

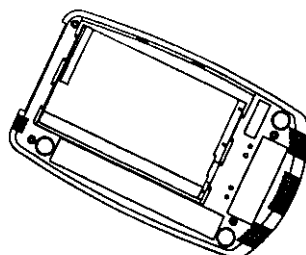
Installation and Connection

Installation and Connection

Refer to diagram below.

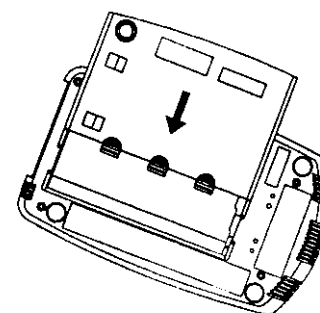


6. Insert the end of the battery closest to the terminals into the compartment first, and pull gently on the battery strap (if provided) so that the strap will lay flat underneath the battery pack. Press the battery into the compartment to fit flush with the bottom of the housing. Refer to diagram below.



7. Slide the battery cover back into place (making sure that the battery strap lays flat) and ensure the latches lock securely. Refer to diagram.

SAU-800E User Guide 8



Battery Charging

The SAU-800E contains a built-in battery charger. It will automatically restore battery to nearly full charge within 24 hours of AC power being restored or applied. No external charger is necessary.

Where to Install the SAU-800E

Before installing the SAU-800E, you will need to determine a mounting location - either on a flat horizontal or vertical wall surface. You should consider the following in determining a suitable mounting location for your SAU-800E:

- Place the SAU-800E in the highest location that is practical and convenient. Avoid placing the SAU-800E in a basement. Generally, the radio signal or received signal strength will be better near an exterior wall or window and on higher floors in a home or office.

- If you wish to place the SAU-800E on a flat horizontal surface, such as a desktop, table, stand, etc., make sure the surface is stable, so that the unit cannot fall and be damaged.
- Place the SAU-800E near an electrical outlet or where AC power is available.
- If you wish to use the SAU-800E to drive your home or office telephone lines, place the SAU-800E near a modular telephone wall jack that is connected to other modular telephone jacks within your home or office.
- DO NOT place the SAU-800E near objects that generate a large amount of heat (radiators, space heaters, baseboard heaters, portable heaters, ovens, fireplaces, etc.). Placement of the SAU-800E near these locations could possibly damage the exterior cabinet and effect the performance of the SAU-800E.
- DO NOT place the SAU-800E near liquids, near sinks, kitchen counter tops or tables, bathtubs, swimming pools, wet basements, etc.
- DO NOT place the SAU-800E in direct sunlight, (such as by a window). Direct sunlight can cause the exterior finish to fade, and possibly cause the SAU-800E to malfunction.
- DO NOT place the SAU-800E where the temperature will be below -15°C (+5°F) or above +50°C (+122°F). Temperatures beyond these ranges could damage

the SAU-800E.

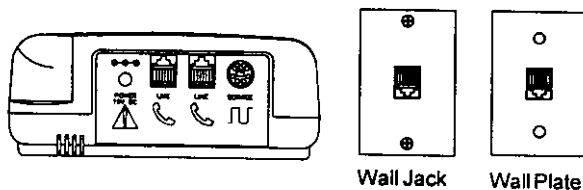
- Placement of the SAU-800E near a television set is not recommended as the SAU-800E may cause interference.
- Use of cordless telephones with the SAU-800E is permissible. However, you may want to keep the cordless telephone base and handset away from the unit, as they may interfere with each other.
- Computers can occasionally cause interference with the SAU-800E. If the sound quality of your unit degrades when switching on a computer, move the SAU-800E further away from the computer components. You may also want to plug in the AC power supply of the SAU-800E into an outlet that is different from the computer.
- Microwave ovens can occasionally generate interference with the SAU-800E. If the sound quality of your SAU-800E degrades when switching on a microwave oven, move the unit further away from the oven. You may also want to connect the unit's AC power supply into an outlet different from the oven.
- DO NOT place the SAU-800E near radio transmitters (Citizen Band radios, amateur radio, etc.). You may also want to connect the SAU-800E's AC power supply into another outlet that is different from the radio transmitter.

Installation and Connection

Installation and Connection

Modular Jack Requirements

The SAU-800E provides two RJ-11 type modular jacks for connecting phones to your SAU-800E. They are also used for connecting the SAU-800E to a wall jack or wall plate in your home or office.



It is possible that another type of jack or bare wire connections could be used as an alternative - if this is the case, please contact your dealer or local service company for the appropriate adapters and instructions for their use.

CAUTION: DO NOT plug your SAU-800E into a wall jack, wall plate or another phone that has existing service from the telephone company. This may damage the SAU-800E. To test for existing telephone service, plug a telephone into the telephone jack that you are wanting to use for the SAU-800E. Listen for a dial tone, and follow the telephone's instructions for placing a call. If no dial tone is heard while trying to place a call, the SAU-800E unit can be used. If a dial tone is heard, you already

have some type of telephone service - contact your service provider or dealer for instructions on what you should do.

Desktop Installation

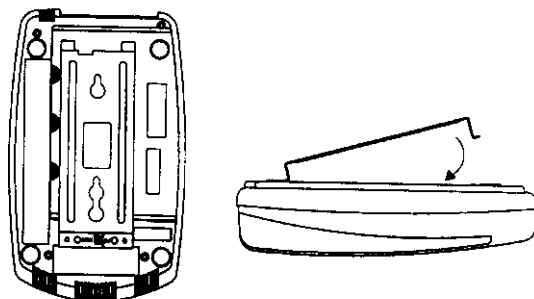
Installing your SAU-800E on a desktop is very easy. Simply place the SAU-800E on the desktop (or any flat, stable horizontal surface). Then read the section titled *Connecting the SAU-800E to Your Telephone(s)*.

Wall Mount Installation

For the SAU-800E to be wall mounted, you must have an installed telephone wall plate (this plate is not provided with the SAU-800E). If you do not have an installed telephone wall plate, you will need to hire a general contractor to route the needed telephone wire and install the wall plate. Before installing the SAU-800E on a wall, verify that AC power is available and/or an internal battery (optional accessory) is installed. (Refer to the section titled *Battery Installation (Optional Accessory)*). For this installation, you will need a small, Phillips™ head screwdriver.

1. Place a soft cloth on a flat surface, such as a table.
2. Turn the SAU-800E upside down on the cloth, and orient the unit such that the slots on the front are facing you.
3. Take the wall mounting bracket and locate the flat

surface with two small holes on one end of the bracket. This is the bottom of the bracket.

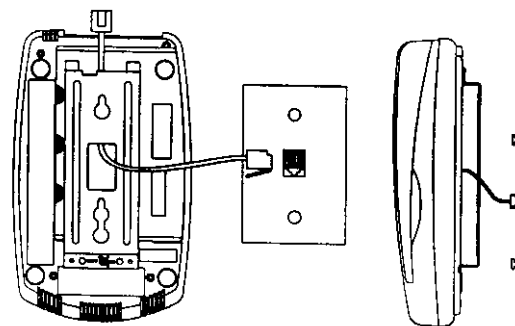


On the opposite end you will see two small, rectangular prongs. This is the top of the bracket. Place these prongs into the top of the battery cover into the prong recesses, and let the opposite end of the bracket touch the bottom portion of the unit.

4. Align the bracket holes to those in the SAU-800E, and using the provided screws, tighten the bracket securely to the unit.

CAUTION: Do not use screws other than those provided with your SAU-800E. If you lose the provided screws, you may substitute two M4, self-tapping Phillips™ head screws of lengths between 5-8 mm maximum. **DO NOT** under any circumstances, install screws longer than 8mm.

5. Taking the SAU-800E bracket assembly in hand, route the **short** telephone cable (provided) through the small opening in the top of the bracket, between the prongs (see diagram below). Pull the telephone cable through the rectangular opening in the middle of the bracket.



6. Plug the end of this short telephone cable into the wall plate and gently pull on the free end of the cable to remove any slack. Place the mounting holes of the bracket over the wall plate posts.
7. Slide the SAU-800E firmly into place by gently pushing downward until you feel the SAU-800E stop moving and lock into position.
8. Insert the free end of the telephone cable into one of the RJ-11 jacks on the top of the SAU-800E.

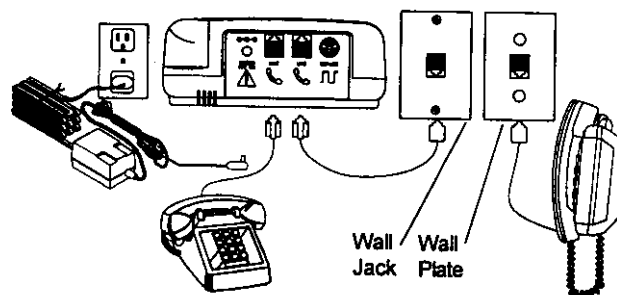
Installation and Connection

Installation and Connection

Connecting the SAU-800E to Your Telephone(s)

The SAU-800E may be connected to up to 4.0 Ringer Equivalency Number (REN) loads. The actual number of telephones which may be connected, however, depends upon the load each telephone provides. Telephone manufacturers usually stamp the value of the telephone load on the telephone itself (typically on the bottom).

On phones registered for the U.S., these numbers usually appear written as: "REN:1.0B" or "REN:0.3A" or as "RINGER EQUIVALENCE: 1.0A". You can ignore the "A" or "B" designations and only count the actual number values shown. Make sure that after adding up the RENs on all the telephones, the count does not exceed 4.0. Connecting the SAU-800E to your telephone(s) is relatively easy. The following diagram shows a typical installation for two phones.



SAU-800E User Guide 12

Note: You should have determined the mounting location of the SAU-800E and have installed the unit previous to connecting the telephone(s).

1. Verify that the antenna provided with the SAU-800E is pointing up (vertically). If you are using an external antenna, attach the antenna connector to the SAU-800E.
2. Plug the AC power supply adapter into the "POWER" jack (located on the back of the SAU-800E), and then into an AC wall outlet.

WARNING: Verify that the AC voltage in your home or office matches the rated AC input voltage of the SAU-800E power supply.

WARNING: Use only the AC power supply that was provided with the SAU-800E. Use of any other AC power supply could damage the SAU-800E and void your warranty.

WARNING: Do not overload your electrical wall outlet or electrical extension cords as this can result in the risk of fire or electrical shock.

Note: Do not allow anything to rest on telephone cords attached to the SAU-800E. Route the AC power supply cord so that it cannot be abused by people walking on it, pets chewing on it, etc.

3. Using standard RJ-11 modular jack connectors, connect the SAU-800E to the desired telephone or modular wall jack (see *Modular Jack Requirements*).

CAUTION: DO NOT plug your SAU-800E into a wall jack or another telephone that has existing service from the telephone company. This may damage the SAU-800E.

Note: The longest length of telephone cabling which can be supported by the SAU-800E is 305 meters (1,000 feet) from the telephone to the SAU-800E unit. If you do not know the length of the telephone cable in your home or office, contact your service provider or dealer.

4. After installing the SAU-800E, follow the instructions of one of the connected telephones to place a call, but do not dial a number. If you hear a dial tone within a few minutes of power-up, the SAU-800E is properly connected and has detected the local

network service provider. You may begin making/receiving telephone calls.

5. If you hear a BEEP - BEEP - BEEP - (... etc.) the SAU-800E has been properly connected, but has not located a network service provider. Adjust the antenna and/or move the SAU-800E to maximize RF reception. If you are still unable to receive a dial tone you should contact your service provider for assistance.
6. If you do not hear audio coming from the telephone, follow the telephone's instructions for placing a call, and listen to the receiver while pressing a few of the number keys on the telephone. If you do not hear tones coming from the speaker, the problem could be 1) a faulty telephone cable, 2) a faulty telephone connector or 3) the SAU-800E may not be powered (dead or missing battery and no power from the AC/DC adapter).

If all of these items have been checked and you still do not have tones coming from the telephone speaker you should return it to your service provider for service and/or assistance.

Operation

SAU-800E Operation

LED Indicators

The SAU-800E has three LEDs (Light Emitting Diodes) to inform you of the status of your SAU-800E unit. They are: Signal, AC/Battery and Disruption.

SIGNAL : This LED indicates the received signal strength from a cellular base station that communicates with your SAU-800E. It has three possible states:

Steady Light: Your SAU-800E and the cellular base station are communicating with each other.

Blinking Light: Communication between the SAU-800E and the cellular base station is working, but it is marginal. This means that you should still be able to place and receive calls, but could possibly experience occasional dropouts in your conversation and even occasional dropped calls. (If you are using the provided antenna and continue to experience this condition frequently, you may want to talk to your service provider about getting an externally mounted antenna to improve your reception).

No Light: Your SAU-800E is not communicating with the cellular base station. This means that

you will not be able to place a call or receive a call on your SAU-800E.

AC/BATTERY : This LED is an indicator of the power source being used by the SAU-800E. It has three possible states:

Steady Light: AC Power is being used to power the SAU-800E.

Blinking Light: The internal battery is being used to power the SAU-800E.

No Light: The SAU-800E is not receiving power from the AC power supply or the internal battery (possibly the battery is completely discharged or not installed). The SAU-800E must have either AC power or battery power to function. In this condition, the SAU-800E will not be able to provide telephone service.

DISRUPTION : The Disruption LED can indicate most, but not all problems that could occur with the SAU-800E. It has two possible states:

Steady Light: The SAU-800E has experienced a malfunction. Service is required for the unit. Call

your dealer for instructions and ask for an RMA (Return Merchandise Authorization) number.

Send the SAU-800E to your dealer with the RMA number clearly marked to the address the dealer specifies. Pack the SAU-800E in the original carton and packing material when you return it for repair. If your original carton and packing material is not available, ask your dealer for instructions how to pack your SAU-800E so that damage will not occur during shipment.

No Light: The SAU-800E is working properly and is being powered by either AC power or the internal battery **OR** the SAU-800E is not receiving power from the AC source or the battery (the SAU-800E cannot operate without some type of power). Refer to the AC/Battery LED indicator description.

Making Calls

Making calls on a telephone connected to the SAU-800E is as simple as placing a call on a standard wireline service. Follow the telephone's instructions for placing a call and press the keys for the number you wish to call. Once you have entered all the digits, press the **#** key to send

the dialed number to the service provider. At this point operation is identical to a wireline phone.

Note: In order for a telephone to be used to place and receive calls with the SAU-800E, the telephone must be a Touch-Tone phone, or a phone that can switch

between "TONE" and "PULSE" settings. For use with the SAU-800E, the phone must be set to "TONE". "PULSE"-only phones can be used to receive calls but cannot be used to place outgoing calls. You will not be able to use advanced features (i.e. Call Forwarding, 3-Way Calling, etc.), when using a "PULSE"-only type phone.

Receiving Calls

Receiving calls on a telephone connected to the SAU-800E is identical to receiving calls with a standard wireline service. When a telephone that is connected to the SAU-800E rings, follow the telephone's instructions for receiving a call.

Advanced Features

Your service provider may support other features such as Caller ID, Call Waiting, Call Forwarding,

Operation



Operation

3-Way Calling and other similar features. If you are interested in using these features, contact your service provider for details.

Data Communications, Modems, Faxes, etc.

If you need these types of services, contact your service provider for details and possible alternative solutions.

Accessories

The following accessories may be ordered from your dealer or service provider:

1. Internal battery
 2. External antenna kit
- 

The SAU-800E Battery (Optional Accessory)

Note: The following section applies only if a battery is supplied with your SAU-800E; or you purchase a battery in the future.

A sealed lead-acid battery will provide backup power in the event of an AC power outage. Under normal usage conditions your battery can be used for up to four years. The battery allows you to place or receive a call if AC power is temporarily lost (known as backup time). The actual backup time will vary with the age of the battery, how many times it has been charged and discharged, and distance from the telephone service provider's RF transmitter/receiver.

When to Replace the Battery

You should consider replacing the battery when any of the following occurs:

- The battery is older than four years
- While AC power is removed from the unit, (unplug the AC power supply from the wall outlet), the battery indicator does not blink every 2-3 seconds
- No sound can be heard out of a connected telephone when the AC power supply adapter

is not powered (unplug the AC power supply from the wall outlet).

Testing the Battery Condition

Condition: The SAU-800E's battery can no longer provide 16 hours or more of standby-time following a full charge (a battery will reach a near-full charge condition after the AC power has been on for 24 continuous hours).

How to test: Disconnect the SAU-800E's AC power supply from the AC wall outlet. Without placing a call, verify that the AC/BATTERY LED continues to blink for 16 hours or more. The actual backup time will vary with the age of the battery, how many times it has been charged and discharged, and distance from the telephone service provider's RF transmitter/receiver.

Battery Replacement

Before installation, make sure that you have purchased a new battery of the correct model/type.

1. Place the antenna into the down position, or if you are using an external antenna, disconnect the antenna.
2. Disconnect the SAU-800E's AC power supply from the wall outlet, and then from the unit itself.

Battery Information (Optional Accessory)

Also, disconnect all telephone lines that are plugged into the SAU-800E.

3. If you have installed your SAU-800E using the desktop installation, place a soft cloth on a flat surface, such as a table. Continue with step 9. To remove a wall mounted unit, you will need a small, Phillips™ head screwdriver. Read on:
4. Place a soft cloth on a flat table or surface.
5. Supporting the top of the SAU-800E with one hand, push gently from the bottom of the unit upward until you feel it unlock.
6. Pull the SAU-800E gently toward you. It should come \off the wall plate. **Note:** You will need to unplug the short telephone cable from the unit to the wall plate before completely removing the unit from the wall!
7. Remove the short telephone cable from the bracket by pulling the cable through the small opening between the bracket prongs. Save this cable, you will need it to reinstall the SAU-800E.
8. Place the SAU-800E on the soft cloth, with the bracket side up and the screws toward you. Remove the screws holding the bracket, and remove the bracket.
9. Turn the SAU-800E upside down onto a soft cloth and orient it so that the three semi-circular/ridged cover release latches are toward you.
10. Remove the battery cover by pressing these latches while sliding the cover away from you. Slide the cover completely off.
11. Remove the battery by gently pulling the exposed battery strap (if available) straight up, while steadying the SAU-800E. The battery will loosen from the compartment. **Note:** If the battery strap is not available or is damaged, the battery can also be removed by turning the unit over while holding your hand under the battery compartment (the battery will be facing the floor) and then gently tapping the edge of the unit onto a table top until the battery comes loose. DO NOT drop the battery as this may cause it to leak acid.
12. Follow the instructions in the section titled *Battery Installation (Optional Accessory)* to install your new battery.
13. For replacing the wall mount bracket and re-mounting to a wall, follow the instructions in the section titled *Wall Mount Installation*.
14. Re-connect the telephone lines, following the instructions in the section titled *Connecting the SAU-800E to Your Telephone(s)*.
15. Properly dispose of the used battery by taking it to a battery recycling plant or contact your local solid waste station for disposal instructions.

Cleaning the SAU-800E

WARNING: Always unplug the SAU-800E's AC power supply from the wall outlet for any cleaning. Use a soft cloth dampened (not wet) and a mild soap/water solution for cleaning. DO NOT use any other chemicals on the SAU-800E, such as dust sprays, cleaners, etc. These chemicals could damage the finish on the exterior of the unit. NEVER submerge the unit in water or any liquids. To remove dust from the SAU-800E, a soft, dry cloth or feather duster may be used. After you have finished cleaning the unit, plug the AC power supply back into the AC wall socket.

Cleaning

Troubleshooting Guide

Problem	Possible Cause	Solution(s)
AC/Battery LED off	AC Power supply not connected	Verify that the AC power supply is connected to the SAU-800E and a working AC wall outlet.
	AC Outlet not powered	1. Verify that the AC outlet the SAU-800E is plugged into and is working with another AC powered device, such as a working lamp. If the lamp does not work, the outlet is faulty. Contact an electrician. 2. A power outage has occurred, and either the internal battery has not been installed or is completely discharged. Wait for electrical service to be restored.
	Internal battery not installed (battery is an optional accessory)	The SAU-800E cannot operate without an internal battery during a power outage. Install the battery.
	Battery is discharged (battery is an optional accessory)	The SAU-800E can only operate from the internal battery for a maximum of 20 hours. Either replace the discharged battery with a freshly charged one, or wait for electrical service to be restored.
	Battery is older than four years (battery is an optional accessory)	The battery used in the SAU-800E has a shelf life of up to 4 years. Replace the battery.
AC/Battery LED blinking	AC Power supply not connected	Verify that the AC power supply is connected to the SAU-800E and a working AC wall outlet.

Troubleshooting Guide

Problem	Possible Cause	Solution(s)
AC/Battery LED blinking, <i>continued</i>	AC Outlet not powered	1. Verify that the AC outlet the SAU-800E is plugged into is working with another AC powered device, such as a working lamp. If the lamp does not work, the outlet is faulty. Contact an electrician. 2. A power outage has occurred. The SAU-800E is operating off of internal battery power. Wait for your electrical service to be restored.
Signal LED blinks all the time	Poor reception	1. Antenna is not in the "up" vertical position. 2. Antenna is not connected. 3. Reposition the SAU-800E to see if the SIGNAL LED stops blinking and turns on constantly. Try different locations in your home or office. 4. An external antenna is needed. Contact your service provider for assistance.
Signal LED off	No power to the SAU-800E	Make sure that the SAU-800E has power by looking at the AC/Battery LED.
	Poor reception	1. Antenna is not in the "up" (vertical) position. 2. Antenna is not connected. 3. Reposition the SAU-800E to see if the SIGNAL LED starts to blink, or turns on constantly. Try different locations in your home or office. 4. An external antenna is needed. Contact your service provider for assistance.

Troubleshooting Guide

Problem	Possible Cause	Solution(s)
No sounds from a connected telephone	Problem with telephone	Refer to the telephone's instruction manual for possible solutions. Try a known good telephone.
	No power to the SAU-800E	Make sure that the SAU-800E has power by looking at the AC/Battery LED.
	Phone not connected to the SAU-800E either directly or through a modular telephone jack	Connect the telephone to the SAU-800E directly or connect the SAU-800E to a modular telephone jack in the home and connect the telephone to another modular telephone jack on the same circuit.
	Telephone cable defective	Try a known good telephone cable.
	Modular jack wired incorrectly	Try plugging the telephone directly into the SAU-800E
	You have the SAU-800E plugged into a live PSTN (Public Switch Telephone Network) line	Disconnect the SAU-800E completely from any modular telephone plate or jack. Plug a known working telephone into the modular telephone jack, and try to place a call. If the telephone works, you are connected to some other telephone service and your modular telephone plates and jacks cannot be used with the SAU-800E. You must plug the telephone directly into the SAU-800E for use.
No dial tone, just a BEEP, BEEP, BEEP,...	After the SAU-800E is turned on, it goes into a registration	It can sometimes take up to one minute for the SAU-800E to register with the base station. Wait one minute for the process.

Troubleshooting Guide

Problem	Possible Cause	Solution(s)
No dial tone, just a BEEP, BEEP, BEEP, ... <i>continued</i>	Poor reception	1. Antenna is not in the "up" (vertical position). 2. Antenna is not connected. 3. Move the SAU-800E around to see if the SIGNAL LED stops blinking, i.e. different locations in your home or office. 4. Need external antenna. Contact your service provider for assistance.
Telephone(s) never ring	Telephone's ringer not on	Follow the telephone's instructions for turning on the ringer.
	Too many telephones are connected to your SAU-800E	Add up the RENs on each telephone connected to your SAU-800E. If this total number is greater than 4.0, you will have problems ringing all the telephones properly. Make the number less than 4.0 by removing some of the telephones or changing to telephones with smaller RENs.
	You have not received any telephone calls	Call your service provider and ask them to give you a call to check your service.
Telephone(s) do not ring well	Too many telephones are connected to your SAU-800E	Add up the RENs on each telephone connected to your SAU-800E. If this total number is greater than 4.0, you will have problems ringing all the telephones properly. Make the number less than 4.0 by removing some of the telephones or changing to telephones with smaller RENs.

Troubleshooting Guide

Problem	Possible Cause	Solution(s)
Poor sound in your telephones, or person on other end of the conversation complains of poor sound	You have too many telephones "OFF-hook"	You will achieve the best audio quality with only a single telephone "OFF-hook".
	Too much cable is connected to the SAU-800E	The SAU-800E can only support up to 305 meters (1,000 feet) of telephone cable.
	Your SAU-800E is located close to electronic devices such as microwave ovens, radios, hair dryers, etc.	Move the SAU-800E away from these devices and make sure that the SAU-800E's AC power supply is powered by a different AC outlet.
	The person on the other end of the telephone conversation is having service problems	Place a call to another individual and see if you hear the same noise and / or problems.
You can receive telephone calls, but you cannot place calls, even though a dial tone is heard	Pulse or rotary phone is being used to place a call	The SAU-800E will only accept tones from a touch-tone compatible telephone. Make sure that the telephone you are using to place a call is touch-tone only or switched to the tone setting.

If the solutions above do not solve the problem with your SAU-800E, contact your dealer or service provider. They will be glad to assist you.

Warranty / Repair Information

For product warranty and repair information, contact your service provider.

Technical Specifications

Operating Temperature Range:	-15° C to +50° C (+5° F to +122° F)
Operating Humidity Range:	0-95%, Non-condensing
Technology:	800 MHz CDMA (Code Division Multiple Access), meeting EIA IS-95-A and IS-98-A standards
Transmit Frequency Range:	824.01 - 848.97 MHz, Wideband Spread Spectrum
Maximum Transmit Output Power:	200 mW
Receive Frequency Range:	869.01 - 893.97 MHz, Wideband Spread Spectrum
Receiver Sensitivity:	-104 dBm @ < 0.5% FER
FCC Identifier:	F3JSAU800E
Battery Requirements:	12V DC, 2.0Ah sealed lead acid battery (Yuasa Exide or Yuasa NP2-12)
Storage Temperature Range Unit w/ Battery Installed:	+40° C to +60° C (+40° F to +140° F)
Unit w/ Battery Removed:	-40° C to + 70° C (-40° F to +158° F)

Storage Temperature Range Battery Only (< 1 month):	-40° C to +60° C (-40° F to +140° F)
(< 12 months):	-15° C to +40° C (+5° F to +104° F)
(> 12 months):	+5° C to +25° C (+41° F to +77° F)
AC Power Supply:	Varies by Country of use Output equals: 19V DC @ 1.1A
Maximum REN Load:	4.0
Maximum Driven Cable Length:	305 meters (1,000 ft.)
Type of Phone Used:	Touch-Tone™
Telephone Interface Connector:	RJ-11
Dimensions:	229 x 152 x 51 mm 9" L x 6" W x 2" D
Weight:	Approx. 3 lbs. (1.4 kg) w/battery

Specifications are subject to change without notice.

Technical Specifications

FCC Notice & IC Statement

FCC Notice

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and radiates radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate this equipment.
- Reorient or relocate the receiving antenna of the device displaying the interference.
- Increase the separation between this equipment and the receiver.
- Connect this equipment into an AC outlet on a circuit different from that to which the receiver is connected.
- Contact your dealer, service provider or an experienced radio/TV technician for help.

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Industry Canada Statement

This device was tested and found to be in compliance with applicable Industry Canada specifications.

Repairs to certified equipment should be made by an Authorized maintenance facility designated by the supplier. Any unauthorized repairs or alterations made by the user to this equipment voids the warranty and will cause the unit to be non-compliant with IC Standards.

APPENDIX 6

TRANSCIEVER ALIGNMENT

FOUR (4) PAGE TEST PROCEDURE FOLLOWS THIS SHEET

TRANSCIEVER ALIGNMENT
FCC ID: F3JSAU800E

APPENDIX 6

The SAU-800E is a CDMA Digital Cellular Receiver/Transmitter covering the frequency range from 824-849 MHz (Transmit) and 869-894 MHz (Receive). The system design and infrastructure normally controls the SAU-800E transmitted power level and frequency within required specifications, however initial alignment is performed to constrain the open-loop output power levels to an acceptable range.

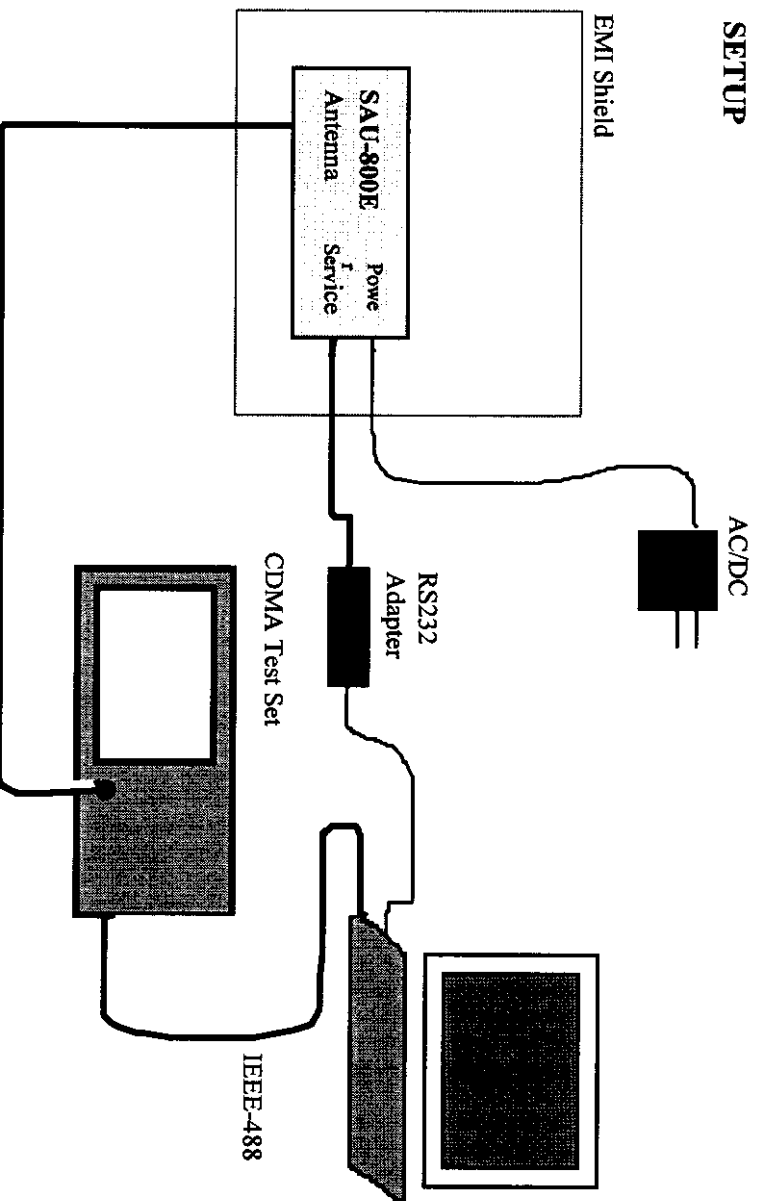
Alignment of the unit is entails loading correction factors into non-volatile memory for setting minimum and maximum transmit power levels and to ensure that open-loop power levels are maintained within the limits specified in IS-98A by entering a table of AGC control settings. This alignment is performed at initial manufacture and after repair or replacement of the RF section or following replacement of the non-volatile memory.

All alignment procedures are performed under software control of the SAU-800E and specialized CDMA Test Equipment. The equipment required to Align the SAU-800E and a description of the procedures is provided below:

EQUIPMENT:

- a. IBM PC Compatible: '386 or higher chipset running MS-DOS 3.1+ (or equivalent DOS environment running under Windows 3.1/Windows 95). & VGA (or equivalent) monitor.
 - w/Keithley Metrabyte KPC-488.2 IEEE-488 Interface Board
 - 1ea IEEE-488 Cable (User determined length)
 - RS-232 Adapter Cable. (9pin to 9pin cable is typical, although configuration of local PC may require a 25pin-to-9pin cable or use of 9pin-to-25pin adapter).
 - SAU-800E RS232 Interface Adapter (9pin-to-circular din adapter with signal conversion from RS232 levels to TTL levels).
- b. CDMA Mobile Test Set (One of the following options):
 1. Tektronix (or Rohde&Schwarz) CMD 80 Digital Radio Communication Tester).Or,
 2. Hewlett Packard HP8924C CDMA Mobile Station Test Set

- c. SAU-800E Calibration Software. (Use software applicable to the particular CDMA Mobile Test Set being used):
 - 1. SAUCAL_T.EXE; Release Version 1.0 {For use with the Tektronix CMD 80}OR,
 - 2. SAUCAL_HEX.EXE; Release Version 1.0 {For use with the HP8924C}
- d. EMI Shielded Enclosure (Optional if testing is performed in a locale where there is no active AMPS stations). The enclosure should provide 50 dB (or greater) attenuation over the TX/RX frequency bands.
- e. AC/DC Power Adapter (18-19 Vdc nominal @ 900 mA minimum; 2.1 mm I.D. 5.5mm O.D.)
- f. Double Shielded Coaxial Cable (Antenna Cable): {Cable loss should be measured prior to testing}.



PROCEDURE:

1. Connect equipment per SETUP Diagram shown above.
2. Power up the PC, CDMA Test Set, and SAU-800E. If necessary, perform any applicable auto-calibration procedures on the CDMA Test Set and let the equipment warm-up per the manufacturer's recommendations.
3. Load and run the applicable calibration software.
4. When the calibration program starts, enter the following data at the screen prompts:
 - Prompt: "SELECT LINE PRINTOUT"; select "PRINTER IS OFF"
 - Prompt: "PUT OPERATOR CODE"; press <ENTER> with no data then press <ENTER> again to confirm.
 - Prompt: "SELECT STOP OR CONTINUE ON FAIL"; select "CONTINUE ON FAIL"
 - Prompt: "TYPE PRODUCTION NUMBER"; type in unit Serial Number, then press <ENTER> to confirm.

The software will then put the CDMA Test Set into REMOTE operation via the IEEE-488 Bus and will communicate with the SAU-800E to monitor its performance and to load calibration data. Upon completion of the test, the program will store the test results in file DATA.TXT on the computer hard disk. This file should be copied to a floppy (Labeled with the Serial Number of the SAU-800E) for future records. A typical report is shown below for reference:

Example DATA.TXT Calibration Report File: {FOR REFERENCE ONLY}

```
Pass 1 ESN Check C50C0002
Pass 2 SW Version PAMK4
Pass 3 Registration Passed
Pass 4 Minimum Transmit Power Calibration -51.79 dBm
Pass 5 Maximum Transmit Power Check 24.63 dBm
Pass 6 Average RX/TX_AGC value at -106 dBm -26.00 684.00
Pass 7 Average RX/TX_AGC value at -95.4 dBm -16.00 676.00
Pass 8 Average RX/TX_AGC value at -84.7 dBm -1.00 604.00
```

Pass 9 Average RX/TX_AGC value at -74.1 dBm 14.00 532.00
Pass 10 Average RX/TX_AGC value at -63.4 dBm 31.00 464.00
Pass 11 Average RX/TX_AGC value at -52.8 dBm 48.00 404.00
Pass 12 Average RX/TX_AGC value at -42.1 dBm 63.00 336.00
Pass 13 Average RX/TX_AGC value at -31.5 dBm 77.00 272.00
Pass 14 Average RX/TX_AGC value at -20.8 dBm 83.00 216.00
Pass 15 CDMA CALIBRATION CHECK @ - 65 dBm -9.85 dBm
Pass 16 Maximum Transmit Power Calibration 23.71 dBm
Pass 17 Minimum Transmit Power Check -51.72 dBm
Pass 18 RX Offset \$66
Pass 19 TX Offset \$8A
Pass 20 Tx 0,0,8,9,9,9,9,9,9,9,9,9,9,8,9,8,8
Pass 21, 7,8,7,9,8,9,8,8,8,9,18,19,19,19,0,0
Pass 22 Rx 5,5,7,8,7,8,8,9,8,9,7,8,7,3,3
Pass 23 Max Power Value: \$99 (153)
Pass 24 Min Power Value: \$89 (137)
Pass 25 Failed Tests:
Pass 26 Program Run Time

5. Alignment is complete after successful termination of this programs (No Fails).

APPENDIX 7

CIRCUITS FOR ESTABLISHING AND STABILIZING
CARRIER FREQUENCY

Frequency stabilization is achieved with a temperature compensated crystal oscillator (TCXO) as a reference oscillator. The reference oscillator maintains the output frequency of 19.68 MHz within ± 1.5 ppm, and PLL.

The crystal oscillator consists of a crystal element, transistor oscillation circuitry, and a temperature compensation network. The network provides the equivalent capacitance deviation for temperature change.

APPENDIX 8

CIRCUITS TO SUPPRESS SPURIOUS EMISSIONS

TRANSMITTER SPURIOUS SUPPRESSION

A ceramic duplexer (DUP101) is employed between the power amplifier and the antenna.

CIRCUITS TO SUPPRESS
SPURIOUS EMISSIONS
FCC ID: F3JSAU800E

APPENDIX 8

APPENDIX 9

SAR TEST DATA

THIRTY-FIVE (35) PAGE SAR TEST REPORT
FOLLOWS THIS SHEET

NOTE:

- a) Test frequency of 825 MHz represented worst-case channel.
- b) Page 16 shows the worst-case coordinates marked on the device outline.

SAR TEST DATA
FCC ID: F3JSAU800E

APPENDIX 9