

TRUE MOBILITY™
WIRELESS SYSTEMS
SWM7000 2.4 GHz Systems

SWM6000 915 MHz Systems

Antenna Distribution Amplifier
Model SWA6SS
Operating Guide

for SWM7000 & SWM6000 receiver models:

SW71-R, SW72-R, & SW72-NDR
SW61, SW62, & SW62-NDR

Included with the SWA6SS
Antenna Distribution Amplifier System

<u>Qty</u>	<u>Item Description</u>
12	RF Cables (40 cm, TNC)
8	RF Terminators
1	Operating Guide
1	Power cord

Notes about your system

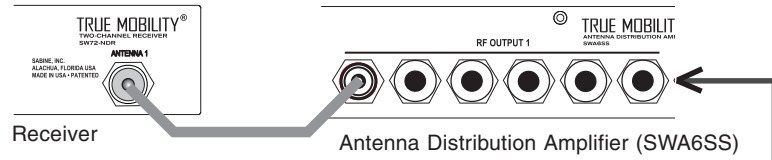
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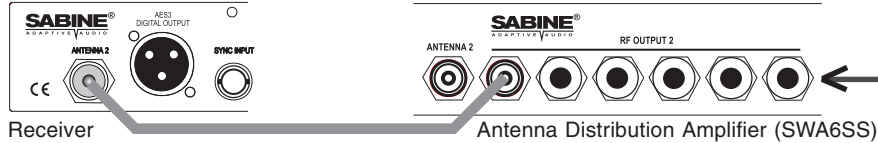
Antenna Distribution Amplifier Quick Setup

Connection Quick Setup

- 1 Connect receiver Antenna 1 input to **any RF Output 1** connector on the SWA6SS. Remove the RF Terminator if necessary.



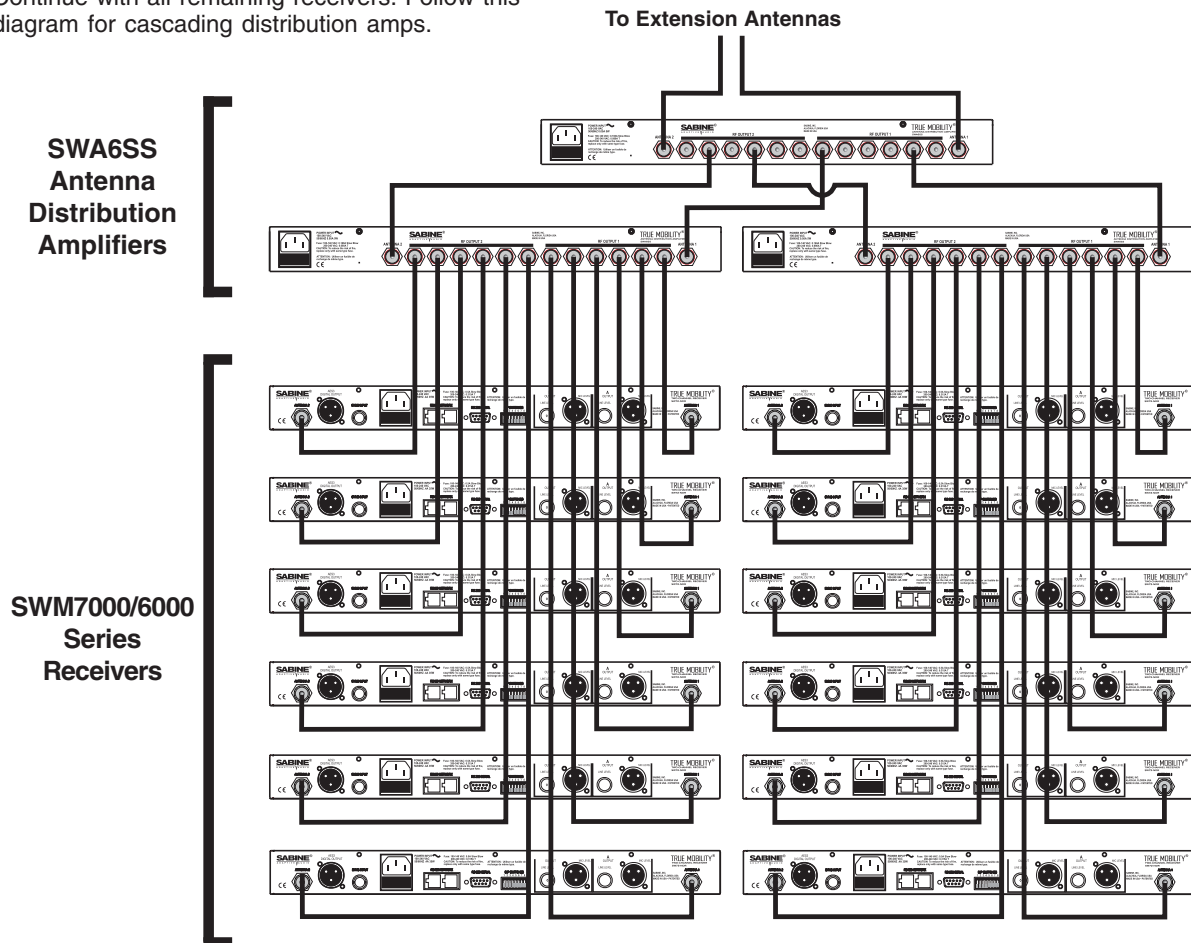
- 2 Connect any receiver Antenna 2 to **any RF Output 2** connector on the SWA6SS.



Examples show RF Terminators installed on unused Outputs

- 3 Connect the supplied RF Terminators to all unused RF Outputs. These terminators are caps with a green collar. Failure to do this may result in poor performance or drop-outs.

- 4 Continue with all remaining receivers. Follow this diagram for cascading distribution amps.



- 5 Connect antennas (extension or standard from a receiver) to Antenna Inputs.

Introduction

The SWA6SS is designed to distribute and amplify the RF signal from a pair of antennas to up to six (6) SWM7000/6000 Series receivers. You can also cascade multiple SWA6SS units to distribute the RF to many more receivers (see block diagram detail on page 4).

Your Sabine Antenna Distribution Amp features very low inter-modulation distortion, high dynamic range and low noise components, and reduces multiple antenna interference in multiple system usage.

Please refer to your SWM7000/6000 Operating Guide for important information about the correct setup of your receiver.

Components

This Antenna Distribution Amp will allow you to connect up to six (6) Sabine SWM7000/6000 receivers to one set of antennas — thus alleviating the “antenna farm” of multiple-receiver antenna placement — and improving reception as well. This setup can be combined with the Sabine Extension Antennas (SWASS-EXT-3) for additionally improved reception. Extension antennas must be purchased separately. Or you can use the standard antennas from your receiver.

Installation Connections

1. Connect receiver Antenna 1 input to any RF Output 1 connector on the SWA6SS. Likewise, connect any receiver Antenna 2 to any RF Output 2 connector on the SWA6SS.
2. Connect Antennas. You may use the supplied dipole antennas from your receivers and mount them either on the front or back of the Antenna Distribution Amp. Make sure the dipoles (small rubber antennas) are mounted so they can “see” the transmitters. To further maintain line of sight, replace the supplied antennas from your receivers with Sabine Extension Antennas (SWASS-EXT-3).
3. Terminate any unused RF outputs. Failure to do this may result in poor performance or dropouts. Your Antenna Distribution Amp comes with 8 RF Terminators. Remove these as necessary to connect receivers, but save them in case you change your configuration later.
3. Turn on Power switch.

NOTE: Using the set up illustrated in step number 4 on page 4 of this operating guide, one pair of SWASS-EXT antennas connected to seven Antenna Distribution Amplifiers will accommodate up to 35 receivers, or 70 audio channels.

General Information on Antenna Placement

Antennas used with the Antenna Distribution Amp should be placed in an open area within visual range of the intended microphone locations. Note that the range of a True Mobility transmitter is about 100 meters, but that structural objects can reduce that range. Extension antennas are recommended to maintain good reception when the antenna divider is located far from the transmitters.

Antenna Placement Cautions

- ❖ Since the installation of the antennas influences the operating efficiency of the receiver, the most important rule is to minimize the distance between receiving antenna and transmitter for better reception and performance. Make sure the antennas can “see” the transmitters.
- ❖ **Placing Extension Antennas:** When you mount the extension antennas on a stand or on a wall, make sure the short end of the triangle is up.
- ❖ In order for the system to be effective, **both extension antennas should be in a good pickup position at all times** but separated by about ten or fifteen feet if the antennas are within 100 or so feet. Separate them about 20 to 25 feet in very large rooms or fields. If you put the antennas too far apart, i.e., at opposite ends of the room, or in separate rooms, to improve coverage, diversity is defeated and you will get dropouts. In other words, diversity is more important than coverage. If you mount the **extension antennas in the ceiling**, the

Antenna Distribution Amplifier Installation Cautions

antennas metallic backplane must be orientated parallel to the floor and the antennas must not be blocked by pillars, lights or similar obstructions. Aim the hole in the plastic cover toward the podium.

- ❖ **Do not daisy-chain extension antennas** together in series. Receivers and the antenna distribution amp are only designed to use one antenna on each side.
- ❖ **Extension Antenna Cables:** Use coax cable to connect the extension antennas to the receiver or to the ADA. See the chart on the previous page for cable specifications. Use the SWATNC-N step-down cable to connect thicker RG8 cables to the extension antenna.
- ❖ The SWASS-EXT extension antennas add between -44 and +44 signal strength to overcome cable loss. **Bad crimp connections are a common cause of dropouts.** Check them carefully!
- ❖ Keep the system away from electrical-noise sources (electric motors, refrigerators, arc welders, etc.). Place the Antenna Distribution Amp at least 1.5 meters above floor level. Keep all transmitters at least 3 meters away from a receiver antenna.
- ❖ As a general precaution, keep 2.4 GHz cordless telephones, microwave ovens, WLAN antennas and 2.4 GHz wireless video camera transmitters twice the distance from your Sabine wireless microphone system antennas as that of your Sabine 2.4 GHz transmitters.

General Installation Cautions

1. **Power Supply** — Be sure to plug your unit into an appropriate power source.
2. **Antenna Shorting** — Be careful not to allow the antenna to come in contact with metal surfaces (antenna divider case, other wires, cables, etc.).
3. **Receiver to Antenna Distribution Amplifier cables** — Keep these cables as short as possible. It is recommended to use the cables supplied with your Antenna Distribution Amplifier.
4. **Extension Antenna cables** — For best results, use high quality coaxial cable with a 50 Ohm impedance. Specifications will vary by cable manufacturer. See the chart for recommended cables on page 8. For best results, use cable with minimal attenuation. The longer your cable, the more you will reduce the 100-meter range between transmitter and receiver antenna. A well-placed pair of extension antennas will eliminate trouble spots and generally improve overall performance of the wireless.

Common Sources of RF Interference

Since Marconi and others pioneered the first radio broadcasts, the radio spectrum has become increasingly crowded with a huge diversity and variety of RF sources. The strength, frequency, location, and timing cycles of these RF sources create a shifting pattern of interfering and overlapping frequencies and coverage patterns, which can render the use of radio microphones a difficult and unpredictable business.

The typical sources of interference for conventional wireless mics can be high-powered broadcasters such as radio stations and TV transmitters, or other short-range wireless devices, including multiple radio microphones operating at the same location (either by design, or by coincidence), that operate in proximate (or harmonically related) bands. Less commonly, interference may arise from spurious outputs emitted by electronic equipment (notably computers, printers, or similar devices with digital clocks), faulty electrical equipment, neon signs, dimmers and lighting controllers, and so forth.

Your first step in checking for interference should be utilizing the Scan function in the SWM7000/6000 Remote Control Software. RF scanning will reveal potential RF sources in your location and allow you to make an informed choice of channels to use. The scanner can scan for long periods of time and will give you a report of RF activity over time for each of the 70 channels available on your 2.4 GHz system or, the 34 channels on your 915MHz system. See **Section 13.4.2.5 RF Scan** of the SWM7000/6000 Operating Guide for more details on RF scanning.

Antenna Distribution Amplifier Installation Cautions

1. Microwave ovens

In the vast majority of situations, interference from microwave ovens will not affect performance of your SWM7000 series microphone systems. Since barriers such as walls work to block interference, a microwave oven will likely present a problem only when located in fairly close proximity within the same room as the wireless receiver (or reception antenna). See caution below.

Commercial quality microwave ovens present a bigger potential problem. They sweep over a wider band of frequencies than the limited band affected by consumer units, and use two magnetron tubes which alternate to avoid inactivity during a power cycle. Fortunately, Sabine systems are only affected by such ovens in close proximity to receiver antennas. That protection, plus the availability of 70 different RF channels to choose from, makes serious interference problems arising from microwave ovens avoidable and unlikely. See caution below.

2. Wireless Local Area Networks (WLANS)

These computer network devices allow computers to connect via wireless devices that act as both receivers and transmitters. These low-powered transceivers often have selectable channels and can utilize the entire 2.4 GHz band. In general, Sabine microphones should not be affected by these WLANS because their spread spectrum technology does not present a problem for the Sabine Smart Spectrum™ system. See caution below.

3. Cordless phones

These home telephones broadcast at very low power and should not present interference problems for your Sabine wireless. This is especially true if the telephone uses spread spectrum technology. See caution below.

4. Wireless Video Cameras

Certain wireless video cameras (X10, for example) use the 2.4 GHz band. These devices are also very low power and, in general, should not present a problem when using the SWM7000 system. See **Section 5 Receiver Operation** for methods of optimizing clear reception and minimizing interference. See caution below.

Antenna Placement Caution

As a general precaution, keep 2.4 GHz cordless telephones, microwave ovens, WLAN antennas and 2.4 GHz wireless video camera transmitters twice the distance from your Sabine wireless microphone system antennas as that of your Sabine 2.4 GHz transmitters.

Coaxial Cable Attenuation Table				10 Meter Attenuation (in dB)	Maximum Practical Distance (Using SWASS-EXT-2 set for +22 dB boost, in meters)	Connector Type
Cable Type	Belden #	Insulation	Center Conductor			
RG58	9203	Polyethylene	#20 Stranded	-16.29	14	TNC
RG58/AU	9311	Foam Polyethylene	#20 Stranded	-11.10	20	TNC
RG212/U	9861	Polyethylene	#15.5 solid, silver plated	-6.11	36	N
RG8/U	9913	Semi-solid Polyethylene	#10 solid	-2.50	88	N
RG142	83242	Teflon	#18 solid, silver plated	-6.54	34	TNC

Cautions & Warranty

Warning! This equipment must be earthed.

Caution! Risk of electric shock. Do not open.

Caution! Shock hazard. Do not remove covers. No user serviceable parts inside. Refer servicing to qualified service personnel.

Warning! To reduce the risk of fire or electric shock, do not expose this product to rain or moisture.

Attention! Cet appareil doit être relié à la terre.

Attention! Risque de choc électrique; ne pas ouvrir.

Attention! Risque de choc; ne pas ôter les capots. Aucune pièce accessible à l'intérieur. S'adresser à un technicien qualifié.

Attention! Pour réduire le risque d'incendie ou de choc électrique, ne pas laisser l'appareil sous la pluie ou à l'humidité.

Achtung! Dieses Gerät muss schutzgeerdet sein.

Achtung! Gefahr eines elektrischen Stromschlags. Gehäuse nicht öffnen.

Achtung! Gefahr eines elektrischen Stromschlags. Gehäuse nicht öffnen. Keine von Benutzer zu bedienenden Teile im Geräteinneren. Überlassen Sie das Gerät zu Servicezwecken nur geschultem Fachpersonal.

Um Brandgefahr oder das Risiko eines elektrischen Schlags auszuschließen, das Gerät vor Nässe und Feuchtigkeit schützen.

Advertencia! Este equipo debe estar conectado a tierra.

Precaución! Riesgo de descarga eléctrica. No abrir.

Precaución! Riesgo de descarga eléctrica. No desmontar las tapas. Piezas interiores no reparables por el usuario. Reparable sólo por personal cualificado.

Advertencia! Para reducir el riesgo de incendio o de descarga eléctrica no exponga este producto a la lluvia o humedad.

FCC Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference; and (2) This device must accept any interference received, including interference that may cause undesired operation. Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio 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 the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

Japanese EMI Compliance Statement

この装置は、第二種情報装置
(住宅地域又はその隣接した地域において使用されるべき情報装置)
で住宅地域での電波障害防止を目的とした情報処理装置等電波障害
自主規制協議会 (VCCI) 基準に適合しております。
しかし、本装置をラジオ、テレビジョン受信機に近接してご使用に
なると、受信障害の原因となることがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Canadian Compliance Statement

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la class B prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.



WARNING!



The True Mobility Antenna Distribution Amp is designed to operate from standard AC power. Please be sure the power in your area is compatible with the power requirements marked on the rear of the unit. Using the wrong input voltage may cause permanent damage to the unit and will void the warranty.

Operating Voltages:

100-130 VAC, 50/60Hz, 0.100A 250 Slow Blow Fuse
or
200-240VAC, 50/60Hz, 0.050A Type T Fuse

The True Mobility Antenna Distribution Amplifier is supplied with one of the following AC power cords:

Japan	100 VAC	United Kingdom	240 VAC
U.S./North America	120 VAC	Australia	240 VAC
Continental Europe	230 VAC		

1. Read all safety and operating instructions before using this product.
2. All safety and operating instructions should be retained for future reference.
3. Obey all cautions in the operating instructions and on the unit.
4. All operating instructions should be followed.
5. Use only shielded audio and data cables.
6. This product should not be used in the presence of moisture or rain, or near any water, i.e., a bathtub, sink, swimming pool, wet basement, etc.
7. This product should be located so that its position does not interfere with proper ventilation. Do not use in direct sunlight. Do not place flat against a wall or in a built-in enclosure that will impede the flow of cooling air.
8. This product should not be placed near a source of heat such as a stove or radiator.
9. Connect only to a power supply of the type marked on the unit adjacent to the power entry module.
10. Never break off the ground pin on the power supply cord.
11. Power supply cords should always be handled carefully. Never walk or place equipment on power supply cords. Periodically check cords for cuts or signs of stress, especially at the plug and the point where the cord exits the unit.
12. The power supply cord should be unplugged when the unit is to be unused for long periods of time.
13. Care should be taken so that objects do not fall and liquids are not spilled into the unit through the ventilation holes or any other openings.
14. This unit should be checked by a qualified service technician if:
 - A. The power supply cord or plug has been damaged.
 - B. Anything has fallen or been spilled into the unit.
 - C. The unit does not operate correctly.
 - D. The unit has been dropped or the enclosure damaged.
15. The user should not attempt to service this equipment. All service work should be done by a qualified service technician.

CAUTION - Implanted cardiac pacemakers or AICD devices:

Any source of RF (radio frequency) energy may interfere with normal functioning of the implanted device. All wireless microphones have low-power transmitters (less than 0.05 watts output) that are unlikely to cause difficulty, especially if they are at least a few inches away. However, since a belt-pack transmitter typically is placed against the body, Sabine suggests attaching it at the belt, rather than in a shirt pocket where it may be immediately adjacent to an implanted medical device. Note also that any medical-device disruption will cease when the RF transmitting source is turned off. Please contact your physician or medical-device provider if you have any questions, or experience any problems with the use of this or any other RF equipment.

Cautions & Warranty

THIS LIMITED WARRANTY VALID ONLY WHEN PURCHASED AND REGISTERED IN THE UNITED STATES OR CANADA. ALL EXPORTED PRODUCTS ARE SUBJECT TO WARRANTY AND SERVICES TO BE SPECIFIED AND PROVIDED BY THE AUTHORIZED DISTRIBUTOR FOR EACH COUNTRY.

Ces clauses de garantie ne sont valables qu'aux Etats-Unis et au Canada. Dans tous les autres pays, les clauses de garantie et de maintenance sont fixées par le distributeur national et assurée par lui selon la législation en vigueur.

Diese Garantie ist nur in den USA and Kanada gültig. Alle Export-Produkte sind der Garantie und dem Service des Importeurs des jeweiligen Landes unterworfen.

Esta garantía es válida solamente cuando el producto es comprado en E.U. continentales o en Canada. Todos los productos que sean comprados en el extranjero, están sujetos a las garantías y servicio que cada distribuidor autorizado determine y otorgue en los diferentes países.

ONE-YEAR LIMITED WARRANTY/REMEDY

SABINE, INC. ("SABINE") warrants this product to be free from defects in material and workmanship for a period of one (1) year from date of purchase PROVIDED, however, that this limited warranty is extended only to the original retail purchaser and is subject to the conditions, exclusions and limitations hereinafter set forth:

CONDITIONS, EXCLUSIONS AND LIMITATIONS OF LIMITED WARRANTIES

These limited warranties shall be void and of no effect if:

- The first purchase of the product is for the purpose of resale; or
- The original retail purchase is not made from an AUTHORIZED SABINE DEALER; or
- The product has been damaged by accident or unreasonable use, neglect, improper service or maintenance, or other causes not arising out of defects in material or workmanship; or
- The serial number affixed to the product is altered, defaced or removed; or
- The power supply grounding pin is removed or otherwise defeated. In the event of a defect in material and/or workmanship covered by this limited warranty, Sabine will repair the defect in material or workmanship or replace the product, at Sabine's option; and provided, however, that, in any case, all costs of shipping, if necessary, are paid by you, the purchaser.

THE WARRANTY REGISTRATION CARD SHOULD BE ACCURATELY COMPLETED, MAILED TO AND RECEIVED BY SABINE WITHIN FOURTEEN (14) DAYS FROM THE DATE OF YOUR PURCHASE.

In order to obtain service under these warranties, you must:

- Bring the defective item to any Authorized SABINE DEALER and present therewith the ORIGINAL PROOF OF PURCHASE supplied to you by the AUTHORIZED SABINE DEALER in connection with your purchase from him of this product. If the DEALER is unable to provide the necessary warranty service, you will be directed to the nearest other SABINE AUTHORIZED DEALER which can provide such service. OR:
- Email customerservice@sabine.com to obtain a RETURN AUTHORIZATION NUMBER (Returns will NOT be accepted without a RA#) Write the RA# on the package.
- Ship the defective item, prepaid, to:
SABINE, INC.
13301 NW US HIGHWAY 441
ALACHUA, FL 32615-8544

Include therewith a complete, detailed description of the problem, together with a legible copy of the original PROOF OF PURCHASE and a complete return address. Upon Sabine's receipt of these items: If the defect is remedial under the limited warranties and the other terms and conditions expressed have been complied with, Sabine will provide the necessary warranty service to repair or replace the product and will return it, FREIGHT COLLECT, to you, the purchaser.

Sabine's liability to the purchaser for damages from any cause whatsoever and regardless of the form of action, including negligence, is limited to the actual damages up to the greater of \$500.00 or an amount equal to the purchase price of the product that caused the damage or that is the subject of or is directly related to the cause of action. Such

purchase price will be that in effect for the specific product when the cause of action arose. This limitation of liability will not apply to claims for personal injury or damage to real property or tangible personal property allegedly caused by Sabine's negligence. Sabine does not assume liability for personal injury or property damage arising out of or caused by a non-Sabine alteration or attachment, nor does Sabine assume any responsibility for damage to interconnected non-Sabine equipment that may result from the normal functioning and maintenance of the Sabine equipment.

UNDER NO CIRCUMSTANCES WILL SABINE BE LIABLE FOR ANY LOST PROFITS, LOST SAVINGS, ANY INCIDENTAL DAMAGES OR ANY CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT, EVEN IF SABINE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

THESE LIMITED WARRANTIES ARE IN LIEU OF ANY AND ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR USE; PROVIDED, HOWEVER, THAT IF THE OTHER TERMS AND CONDITIONS NECESSARY TO THE EXISTENCE OF THE EXPRESS LIMITED WARRANTIES, AS HEREIN ABOVE STATED, HAVE BEEN COMPLIED WITH, IMPLIED WARRANTIES ARE NOT DISCLAIMED DURING THE APPLICABLE ONE-YEAR PERIOD FROM DATE OF PURCHASE OF THIS PRODUCT.

SOME STATES DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY LASTS, OR THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU. THESE LIMITED WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

THESE LIMITED WARRANTIES ARE THE ONLY EXPRESS WARRANTIES ON THIS PRODUCT, AND NO OTHER STATEMENT, REPRESENTATION, WARRANTY OR AGREEMENT BY ANY PERSON SHALL BE VALID OR BINDING UPON SABINE.

In the event of any modification or disclaimer of express or implied warranties, or any limitation of remedies, contained herein conflicts with applicable law, then such modification, disclaimer or limitation, as the case may be, shall be deemed to be modified to the extent necessary to comply with such law.

Your remedies for breach of these warranties are limited to those remedies provided herein, and Sabine gives this limited warranty only with respect to equipment purchased in the United States of America. INSTRUCTIONS-WARRANTY REGISTRATION CARD

1. Mail the completed WARRANTY REGISTRATION CARD to:
SABINE, INC.

13301 NW US HIGHWAY 441
ALACHUA, FLORIDA 32615-8544 USA

OR: Register online at www.Sabine.com

- a. Keep the PROOF OF PURCHASE. In the event warranty service is required during the warranty period, you will need this document. There will be no identification card issued by Sabine, Inc.
2. IMPORTANCE OF WARRANTY REGISTRATION CARDS AND NOTIFICATION OF CHANGES OF ADDRESS:
 - a. Completion and mailing of WARRANTY REGISTRATION CARDS - Should notification become necessary for any condition that may require correction, the REGISTRATION CARD will help ensure that you are contacted and properly notified.
 - b. Notice of address changes - If you move from the address shown on the WARRANTY REGISTRATION CARD, you should notify Sabine of the change of address so as to facilitate your receipt of any bulletins or other forms of notification which may become necessary in connection with any condition that may require dissemination of information or correction.
 3. You may contact Sabine directly by telephoning (386) 418-2000.
 4. Please have the Sabine product name and serial number available when communicating with Sabine Customer Service.

Manufactured by: Sabine, Inc.

 13301 NW US Highway 441
Alachua, Florida 32615-8544 USA
Phone: +USA (386) 418-2000
MADE IN USA Fax: +USA (386) 418-2001 © Sabine, Inc. 2003

EC - DECLARATION OF CONFORMITY

CE MARKING

We, the Manufacturer

SABINE, INC.
13301 NW US HIGHWAY 441
ALACHUA, FLORIDA USA

declare that the product

ANTENNA DISTRIBUTION AMPLIFIER
SABINE MODEL SWA6SS

Is in conformity with

Council Directive: 73/23/EEC and 89/336/EEC

Standards to which conformity is declared:

EN 60065: 2001

EN 55022: 1998 Class B

EN 50082-1: 1998

Manufacturer Signature: _____



Date: 28 April, 2003

Name: Doran Oster, President

Register your Sabine products online at www.Sabine.com

Sabine, Inc.
13301 NW US Highway 441
Alachua, Florida 32615-8544 USA
Phone: (386) 418-2000
Fax: (386) 418-2001

SABINE[®]
ADAPTIVE AUDIO