



Converge 560/590

USER'S MANUAL



TECHNICAL SUPPORT

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MAX WIRELESS INSTALLATION AND OPERATION MANUAL

CLEARONE PART NO. 800-153-560 NOVEMBER 2005 (REV. 1.0)

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COMPLIANCE

The following paragraphs present all of the required compliance and declaration of conformity information.

FCC PART 15/ICES-003 COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules and Industry Canada ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

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.

Changes or modifications not expressly approved by ClearOne Communications could void the user's authority to operate the equipment.

FCC PART 68 COMPLIANCE

US:FBIBR00BRAV Ringer Equivalence Number (REN): 0.0B(ac)

This equipment complies with Part 68 of the FCC Rules Requirements adopted by ACTA. On the mixer unit of this equipment contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this information must be provided to your telephone company.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is part of the product identifier that has the format US:AAAEQ##TXXXX. The digits represented by ## are the REN without a decimal point (e.g. 03 is a REN of 0.3).

If this equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order for you to make the necessary modifications to maintain uninterrupted service.

This equipment uses an RJ-11C jack that is used to connect this equipment to the premises wiring and telephone network. This RJ-11C jack complies with the applicable FCC Part 68 Rules and Requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 Rules and Requirements adopted by the ACTA. A compliant telephone cord and modular plug is provided with this product. It is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

If you experience problems with this equipment, contact ClearOne Communications, 1825 Research Way, Salt Lake City, Utah 84119, or by phone at (800) 945-7730 for repair and warranty information. If the equipment is causing harm to the telephone network, the telephone company may request you disconnect the equipment until the problem is resolved.

No user-serviceable parts are contained in this product. If damage or malfunction occurs, contact ClearOne Communications for instructions on its repair or return.

Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. This equipment cannot be used on telephone company provided coin service.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

Electrical Safety Advisory

This equipment uses AC power which can be subjected to electrical surges, typically lightning transients which are very destructive to customer terminal equipment connected to AC power sources. The warranty for this equipment does not cover damage caused by electrical surge or lightning transients. To reduce the risk of this equipment becoming damaged it is suggested that the customer consider installing a surge arrestor.

IC COMPLIANCE

IC: 1970 A-RAV

Ringer Equivalence Number (REN): 0.0B(ac)

NOTICE: The term "IC" before the certification/registration number signifies that Industry of Canada technical specifications were met.

This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

The REN is used to determine the number of devices that may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to obtain the maximum RENs for the calling area. The REN for this product is listed above.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the companies inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by ClearOne Communications. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

NEW ZEALAND COMPLIANCE

In the event of main power failure, the Converge 560/590 equipment will become inoperative with regard to making telephone calls.

Also, all persons using the Converge 560/590 for recording telephone conversations shall comply with New Zealand law, which requires that at least one party to the conversation be aware that the conversation is being recorded. In addition, the principles enumerated in the Privacy Act of 1993 shall be complied with in respect to the nature of any personal information collected, the purpose of this collection, how it is used, and what is disclosed to any other party.

JAPANESE COMPLIANCE

The DC resistance of the PSTN line is restricted to $1700 - 308 = 1392$ Ohms.



Conformity of the equipment with the guidelines below is attested by the CE mark.

EC Declaration of Conformity

Application of Council Directive(s): 1999/5/EC Radio equipment and Telecommunications Terminal Equipment (R&TTE) Directive

Manufacturer's Name: ClearOne Communications

Manufacturer's Address: 1825 West Research Way
Salt Lake City, Utah 84119 U.S.A.

Model Name: Converge 560, Converge 590, Converge 560 Wired &
Converge 590 Wired

Model No.: 910-153-560 through 910-153-595

Standard(s) to which Conformity is declared:

89/336/EEC "Electromagnetic Compatibility (EMC) Directive":

EN 55022: 1998 (Emissions) Information technology equipment - Radio disturbance characteristics - Limits and methods of measurement.

EN 301489-1 & EN 301489-3 (Converge 560 & Converge 590) ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.

EN 55024: 1998 (Immunity) (Converge 560 Wired & Converge 590 Wired) Information technology equipment - Immunity characteristics - Limits and methods of measurements.

EN 61000-3-2:1995/A1/A2:1998
EN 61000-3-3:1995 Part 3: Limits - Section 2: Limits for harmonic current emissions.
Section 3: Limitation of voltage fluctuations and flicker in low voltage supply systems for equipment with rated current up to and including 16 A.

EN 61000-4-2: 1995/A1:1998 Electrostatic Discharge

EN 61000-4-3: 1996/A1:1998 Radiated RF Immunity

EN 61000-4-4: 1995 Electrical Fast Transients

EN 61000-4-5: 1995 Lighting Surge

EN 61000-4-6: 1996 Conducted RF Immunity

EN 61000-4-11: 1994 Voltage Dips and Voltage Interruptions

73/23/EEC "Low Voltage Directive (LVD)":

IEC 60950-1: 2003 Safety of Information Technology Equipment, Including Electrical Business Equipment.

Radio Equipment (Converge 560 & Converge 590):

EN 301 220-1

Electromagnetic compatibility and Radio Spectrum Matters
(ERM); Short Range Devices (SRD); Radio equipment to be
used in the 25 MHz to 1000 MHz frequency range with power
levels ranging up to 500 mW; Part 1: Technical characteristics
and test methods.

Telecommunications Terminal Equipment:

EN 301 437 (CTR-37)

Terminal Equipment (TE); Attachment requirements for pan-
European approval for connection to the analogue Public
Switched Telephone Networks (PSTNs) of TE supporting the
voice telephony service in which network addressing, if
provided, is by means of Dual Tone Multi Frequency (DTMF)
signaling.

ETSI TS 103 021

Access and Terminals (AT); Harmonized basic attachment
requirements for Terminals for connection to analogue
interfaces of the Telephone Networks; Update of the technical
contents of TBR 21, EN 301 437, TBR 15, TBR 17.

We, the undersigned, hereby declare that the equipment specified above conforms to the
above Directives and Standards.

Manufacturer



Signature

Tracy Bathurst
Full Name

VP of Product Line Management
Title

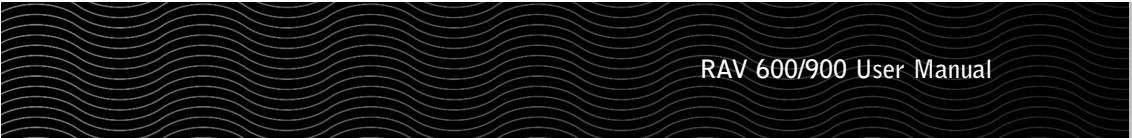
Legal Representative in Europe



Signature

Martin Offwood
Full Name

Managing Director - EMEA North
Title



RAV 600/900 User Manual



ClearOne
You're Virtually ThereSM

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RAV 600/900 Installation and Operation Manual

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Technical Services Group ~ 1-800-283-5936 (USA) ~ 1-801-974-3760

Warranty information can be found on the ClearOne website.

www.clearone.com

Technical Services Group ~ 1-800-283-5936 (USA) ~ 1-801-974-3760

Introduction

1

The RAV 600/900

The RAV product line is the first out-of-the-box room audio conferencing solution with the sound quality and flexibility of a professionally installed system. The RAV includes an audio conferencing mixer that uses distributed acoustical echo-cancelling technology to provide the most intelligible full-duplex audio conference experience possible. Features include:

- Audio mixer for high-quality audio performance in all acoustical environments.
- RF (radio frequency) controller with call controls including auto-answer, flash duration adjustment, ringer adjustment and phonebook with speed dial capabilities.
- Internal telephone hybrid with touch-tone dialing capability.
- Microphone pods provide 360° audio pickup so every participant within the microphone pick-up range can be heard.
- Ceiling- or wall-mount Bose® loudspeakers allow everyone in the room to experience rich, natural sounding audio.

Services and support

If you need additional information on how to install, set up or operate your RAV 600/900, please contact us. We welcome and encourage your comments so we can continue to improve our products and serve your needs.

Technical support

Tel: 1-800-283-5936 (USA) or
1-801-974-3760

Fax: 1-801-974-3669

E-mail: tech.support@clearone.com
Web: www.clearone.com

Sales and customer service

Tel: 1-800-945-7730 (USA) or
1-801-975-7200

Fax: 1-800-933-5107 (USA) or
1-801-977-0087

E-mail: sales@clearone.com

Product returns

All product returns require a return materials authorization (RMA) number. Please contact ClearOne Technical Support before attempting to return your product. Make sure you return all the items that shipped with your product and include a brief description of how the product was being used when the problem occurred.

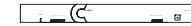
Unpacking

Carefully remove all components of the RAV system from the packaging. Ensure that you received the following items:

RAV 600/900



RF Controller



Audio Mixer



Mic Pods
Qty: 2 with RAV 600
Qty: 3 with RAV 900



Ceiling-Mount Speakers
or
Wall-Mount Speakers



AAA Batteries

Qty: 4



RAV Quick Start Guide



RAV-Ware Software
and Documentation CD



Power Supply



6' Power Cord



Screws/Washer Rack Kit
Qty: 4



12' Telephone Cable



7' RJ-45 Cable



6' USB Cable



25' RJ-45 Cable



12' RJ-45 Cable
Qty: 1 for RAV 600
Qty: 2 for RAV 900



6' RCA Cable
Qty: 2



50' Speaker-Wire
Qty: 2

Figure 1.1 RAV unpacking

Note: Rack mount ears are attached to the Mixer box. Refer to the Quick Start Guide or Chapter 2 of this manual for installation instructions.

If any parts are missing, please call the Technical Support Group at 1-800-283-5936 (USA) or 1-801-974-3760.

Note: ClearOne is not responsible for product damage incurred during shipment. You must make claims directly with the carrier. Inspect your shipment carefully for obvious signs of damage. If the shipment appears damaged, retain the original boxes and packing material for inspection by the carrier. Contact your carrier immediately.

Compliance

FCC Part 15/ICES-003 Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules and Industry Canada ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

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FCC Part 68 Compliance

US:FBIBR00BRAV Ringer Equivalence Number (REN): 0.0B(ac)

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Connection to party line service is subject to state tariffs. Contact the state public utility commission, public service commission or corporation commission for information. This equipment cannot be used on telephone company provided coin service.

If your home has specially wired alarm equipment connected to the telephone line, ensure the installation of this equipment does not disable your alarm equipment. If you have questions about what will disable alarm equipment, consult your telephone company or a qualified installer.

Electrical Safety Advisory

This equipment uses AC power which can be subjected to electrical surges, typically lightning transients which are very destructive to customer terminal equipment connected to AC power sources. The warranty for this equipment does not cover damage caused by electrical surge or lightning transients. To reduce the risk of this equipment becoming damaged it is suggested that the customer consider installing a surge arrester.

IC Compliance

IC: 1970 A-RAV

Ringer Equivalence Number (REN): 0.0B(ac)

NOTICE: The term "IC" before the certification/registration number signifies that Industry of Canada technical specifications were met.

This certification means that the equipment meets certain telecommunications network protective operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

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Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by ClearOne Communications. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

New Zealand Compliance

In the event of main power failure, the RAV 600/900 equipment will become inoperable with regard to making telephone calls.

Also, all persons using the RAV 600/900 for recording telephone conversations shall comply with New Zealand law, which requires that at least one party to the conversation be aware that the conversation is being recorded. In addition, the principles enumerated in the Privacy Act of 1993 shall be complied with in respect to the nature of any personal information collected, the purpose of this collection, how it is used, and what is disclosed to any other party.

European Compliance

Conformity of the equipment with the guidelines below is attested by the CE mark.



EC Declaration of Conformity

Application of Council Directive(s):

1999/5/EC Radio equipment and
Telecommunications Terminal Equipment
(R&TTE) Directive

Manufacturer's Name:

ClearOne Communications

Manufacturer's Address:

1825 West Research Way

Model Name:

Salt Lake City, Utah 84119 U.S.A.

Model No.:

RAV 600 & RAV 900

910-153-100 through 910-153-355

Standard(s) to which Conformity is declared:

89/336/EEC "Electromagnetic Compatibility (EMC) Directive*:

EN 301489-1 & EN 301489-3

ElectroMagnetic compatibility and Radio spectrum
Matters (ERM); ElectroMagnetic Compatibility (EMC)
standard for radio equipment and services; Part 3:
Specific conditions for Short-Range Devices (SRD)
operating on frequencies between 9 kHz and 40 GHz..

EN 61000-3-2:1995/A1/A2:1998

Part 3: Limits - Section 2: Limits for harmonic current
emissions.

EN 61000-3-3:1995

Section 3: Limitation of voltage fluctuations and flicker
in low voltage supply systems for equipment with rated
current up to and including 16 A.

EN 55022: 1998 (Emissions)

Information technology equipment - Radio disturbance
characteristics - Limits and methods of measurement.

EN 61000-4-2: 1995/A1:1998

Electrostatic Discharge

EN 61000-4-3: 1996/A1:1998

Radiated RF Immunity

EN 61000-4-4: 1995

Electrical Fast Transients

EN 61000-4-5: 1995

Lightning Surge

EN 61000-4-6: 1996

Conducted RF Immunity

EN 61000-4-11: 1994

Voltage Dips and Voltage Interruptions

Telecommunications Terminal Equipment:

73/23/EEC "Low Voltage Directive (LVD):"

IEC 60950-1: 2003

Safety of Information Technology Equipment, Including Electrical
Business Equipment.

Radio Equipment:

EN 301 220-1

Electromagnetic compatibility and Radio Spectrum Matters
(ERM); Short Range Devices (SRD); Radio equipment to be used
in the 25 MHz to 1000 MHz frequency range with power levels
ranging up to 500 mW; Part 1: Technical characteristics and test
methods.

Telecommunications Terminal Equipment:

EN 301 437 (CTR-37)

Terminal Equipment (TE); Attachment requirements for pan-
European approval for connection to the analogue Public Switched
Telephone Networks (PSTNs) of TE supporting the voice telephony
service in which network addressing, if provided, is by means of
Dual Tone Multi Frequency (DTMF) signaling.

Manufacturer

Signature

Roger J. Midgley

Full Name

Project Manager

Position

Legal Representative in Europe

Signature

Martin Offwood

Full Name

Managing Director EMEA North

Position

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