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Answer ID	534
Products	Wireless Systems L Series LX Series LX88 Performance Gear (PG) PGX SC Series SLX T Series T88 U Series (UHF Series) UC Series UHF-R ULX Series UP UT Series VP WH / WL Microphones
Category	Which should I buy?
Date Created	12/24/2000 09:40 AM
Last Updated	02/28/2002 09:21 AM

Auctioneers system

Question

What type of system would I need to conduct an auction of 200-300 people with 2 auctioneers with 2 cordless headsets?

Answer

To use two wireless headsets at the same time, you will need two complete wireless systems. If you are using the systems within an 50 miles radius of your home base, then the T series or UT series would be a good choice. If you travel outside of a 50 mile radlus, then we would recommend using frequency agile ("re-tunable") systems such as the ULX or UC series.

These wireless systems must be connected to a PA system.

You may see a comparison of all of our wireless systems at:

<http://www.shure.com/selectionguides/sel-wirelessfeatures.html>

How well did this answer your question?

100%
 75%
 50%
 25%
 0%

Users who viewed this answer have also viewed

- * Quality of headset vs SM87 cordless -- vocal sounds
- * Wireless system for a juggler/magician
- * Wireless for a Tour Guide and Tourists
- * T Series Frequency Selection
- * SM83A vs. MX183

Previously Viewed Answers

- * Broadway type headworn
- * RF Frequencies on a military base
- * Wireless system for a juggler/magician
- * Economical wireless for panel discussion
- * Wireless mics for Karaoke

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Answer ID
2153
Products
Wireless Systems UC Series
Category
Which should I buy?
Date Created
11/29/2001 01:42 PM
Last Updated
12/05/2001 12:26 PM

Choosing a wireless mic for DJ work

Question

I need your help! I am a mobile disc jockey from San Jose California (San Francisco Bay Area). I would like to know which unit would you recommend for my area? I do walk around a good distance when in use. Help! Your advice would greatly be appreciated! I'm confused about the UHF and VHF.

Answer

At 11/29/2001 01:54 PM we wrote - Simple. Get the UC system. It can be retuned within 30 seconds to any of 100 different frequencies. This allows you to use a new frequency anytime you encounter local interference as you move from gig to gig.

<http://www.shure.com/wlucidx.html>

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Email Answer

How well did this answer your question?

100% 75% 50% 25% 0%

Users who viewed this answer have also viewed

- [VPL93 for use in San Francisco](#)
- [Wireless mic frequency](#)
- [wireless system suggestion for a church](#)
- [LX Receiver was stolen - need to replace](#)
- [Grand Piano Miking question - Damper Pad Noise](#)

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- [UC Frequency Selection in Dallas](#)
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Answer ID	1823
Products	Wireless Systems T Series
Category	Repair / Parts / Service
Date Created	09/25/2001 10:33 AM
Last Updated	09/25/2001 12:59 PM

Print Answer

Email Answer

Protecting body pack antenna in aerobics

Question

I am an aerobics coordinator a Fitness World in Durham NC. We have been using your products for 5 plus years now and are very satisfied. I know the life span for a headset microphone is only 3 months but we seem to have more trouble with the receiver pack antenna. I really think it is the belt packs that my instructors are using but it has become increasing difficult to find packs that don't scrunch up the antenna. Can we order and replace the antenna separately ourselves? Do you have any suggestions for longer life? Our microphone # is WH20QTR I'm not sure what the receiver pack # is, sorry.

One other thing, I need a bulk of microphone covers do you sell those in a big pack (5 plus)?

Thanks for your help. I hope this isn't too hard to understand.

Answer

First, the bodypack is called a transmitter. The larger box that sits near your mixer/amplifier is called the receiver.

It is possible for you to order new body pack antennas from our Parts Department (800-516-2525), but they would have to be soldered onto the PC Board by a qualified technician. If you know anyone that is handy with a soldering iron, they should be able to handle it.

When you purchase new wireless systems, you may want to consider a system such as the UT series. The antenna on the UT series is only about 3 inches long, so it may hold up better for you. The UT series operates in a different frequency range, so it uses a shorter antenna. Unfortunately, this shorter antenna can NOT be used on your current systems.

You might want to try using the WA570A Neoprene belt pouch. In our experience, placing the bodypack in this pouch helps shield the antenna from breaking as often. The antenna must still stick out of the pouch and hang down, stretched out. The pouch simply protects the area where the antenna enters into the bodypack.

<http://www.shure.com/accessories/wa570.asp>

Microphone windscreens can be purchased from our Parts Department at 800-516-2525 or 847-866-2699.

How well did this answer your question?

100% 75% 50% 25% 0%

Users who viewed this answer have also viewed

- Instrument cable for SC1
- Low volume from SM58 into a high impedance input
- model 55G?
- Clipping Distortion using PSM400
- Water and weather resistant mics for tropical forest

Previously Viewed Answers

- Which wireless mic system for a stadium?
- Wireless mic frequency
- U.S. wireless systems going to Australia
- UA830 and UA220 with two U4D receivers
- Another church is using the same frequency

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Exhibit O
(Shure Explanation of DTV Transition to
Wireless Microphone Users)



What Digital TV Means to Wireless Microphone Users

The introduction of Digital Television (DTV) service in the U.S. will result in more intensive use of all TV spectrum, both VHF and UHF, as new digital signals come on the air. In addition, the FCC has reallocated four UHF TV channels for use by Public Safety stations, and plans to auction off the remainder of the 700 MHz spectrum for other wireless services.

However, the FCC has ruled that wireless microphones may continue to use all presently unoccupied TV channels until the end of the DTV transition

Here is a brief summary of how the FCC plans to implement Digital Television service:

The FCC has established a "transition period" which will last through February 19, 2009. During this time, existing TV stations will be assigned a second TV channel on which they will begin broadcasting in the new digital format. This means that some television channels that are now vacant may be filled. Wireless microphones operating on these TV channels may or may not encounter interference from the DTV station's signal.

During the transition period, public safety agencies will begin to use TV channels 63 - 64 (764 - 776 MHz) and 68 - 69 (794 - 806 MHz) for two-way radio communications. As these frequencies gradually become busier, wireless microphones operating on these TV channels may encounter occasional interference.

After February 19, 2009, TV channels 60 - 62 (746 - 764 MHz) and 65 - 67 (776 - 794 MHz) will be opened up for use by new commercial wireless services. Licenses for these new services will be awarded by competitive bidding. Some of these auctions have already occurred, but the winners will not be able to use this spectrum until it has been vacated by the television broadcasts.

Wireless microphones may continue to operate on all of these frequencies, just as they do now. However, wireless microphones that operate on frequencies above 698 MHz should not be used after February 19, 2009.

In order to determine which TV channels will be used for DTV broadcasts in your area, you may wish to refer to the FCC's Sixth Report and Order; DTV allocations. A complete list of U.S. cities and TV channel allocations appears in the Appendix of this report, beginning on page B-6. This document can be downloaded from the FCC's web site, at: <http://www.fcc.gov/dtv>. Additionally, the Shure Wireless Frequency Finder (www.shure.com/frequency) includes DTV channel listings for every city in the United States.

Users who experience interference from DTV will notice the same performance issues caused by other forms of interference, namely increased signal dropouts, decreased operating range, and undesired noises. Wireless microphones that are used indoors, with line-of-sight between transmitter and receiver, may operate normally depending on the strength of the interfering signal. Wireless microphone users who do experience interference (whether from a DTV station or another user) have the same option that has always been available: change the operating frequency of the wireless system.

Frequency-agile systems can be retuned by the user; fixed-frequency systems, depending on their age, can be reworked by Shure's Service Department at moderate cost.

Effective use of wireless microphones has always required awareness of the primary users (television stations, wireless data services, etc.) in a particular city or area. Knowing which frequency ranges are occupied in your local area will become even more important as use of the RF spectrum increases. Used knowledgeably, Shure wireless systems will remain valuable - and legal - audio tools for years to come.

Exhibit P

(Frequency Finder Tools from Shure and
Sennheiser)



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■ **TECH SUPPORT** Pro Audio Home > Tech Support > **Wireless Frequency Finder**

Comparison Charts

Find An Answer

Audio Resource Center

Wireless Frequency Finder

Educational Articles

Magazines And Newsletters

Wireless Mic Remote

Antennas Tool

Cable Selector

Noise Identifier

Wireless Frequency Finder

This selection guide provides recommended frequencies and the estimated number of compatible systems for all Shure Wireless Systems and PSM Wireless Systems. Shure Applications Engineering updates these lists regularly.

[Change city/zip code](#) [Hide Frequencies](#)

City: **WASHINGTON**

Series: **PSM400**

Local Television Channels (50 mile radius):

Call Letters	City, State	Channel	Distance	Active
WNVC	FAIRFAX, VA	<u>56</u> analog (722 to 728 MHz)	10 miles	On Air
WNVC	FAIRFAX, VA	<u>57</u> digital (728 to 734 MHz)	10 miles	On Air
WBAL-TV	BALTIMORE, MD	<u>59</u> digital (740 to 746 MHz)	35 miles	On Air

Use these recommended Frequencies:

Band	Max # of transmitters	Recommended Frequencies
HF	3	<u>8</u> (734.175), <u>9</u> (738.225), <u>A</u> (739.625)
X1	6	Best Practices & Channel Selection for X1 band

Search WASHINGTON for a different Shure wireless product:

Select One:

This program calculates a simple best group based on active and scheduled TV stations. It might be possible to use other frequencies that are not listed or to use a larger number of frequencies by combining groups or accessing Master Lists. Call Shure Applications at 800-516-2525 or 847-600-8440 for assistance.

HELP

Partial city names are allowed. An asterisk (*) wildcard is allowed at the beginning or end but is not necessary. Thus, searching for 'Angeles' or '*Angeles' will both return 'Los Angeles'.

Suggested frequencies for group/channel settings reflect a worst case scenario, assuming all TV channels are active, analog and digital. In the short term, more compatible frequencies may be possible, especially when working indoors, and as distance from the broadcast transmitter increases.

As a rule, a wireless system should NOT operate on the same frequency as a local TV station. The signal strength of a television transmission is many times stronger than that of a wireless system, and will result in interference. Only recommended, unoccupied frequencies should be used. For more information on how Shure wireless products work, please see our [Introduction To Wireless Systems](#) publication.

Shure wireless microphones and PSM systems designed for use in the United States operate on standard VHF (TV channels 7-13, 174-216 MHz) and UHF, TV channels 14-69, 470-806 MHz, frequencies. Most U.S. cities have any number of local television stations, whose operating frequencies must be taken into account before choosing a wireless system frequency.

Shure regularly assists in wireless frequency selections of a specific and detailed nature. For further assistance in the selection and compatibility of wireless frequencies and products, please contact our [Applications Engineering Group](#).

We have [detailed frequency compatibility charts](#) for Shure wireless systems, which also provide a cross-listing of Shure frequency codes with actual broadcast frequency.

If you haven't been there yet, try our [Frequency Reference Guide Help File](#).

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Find Frequencies



City:

State:

Zip:

Start:

End:

Radius: Miles

Att.:

Display:

Device:

Found 13 possibly usable channels.

Database updated on June 24, 2008 at 4:25am EST

TV	MHZ	CALL	TYPE	STAT	CITY	ERP	DIST	PRX
19	500-506	Vacant			Vacant		Vacant	
44	650-656	W50DE	TA		Martinsburg, WV		64.04 mi	
44	650-656	WIAV-LD	LD	CP	Washington, DC	0.1 kW	9.93 mi	-92.8 dBm
44	650-656	Vacant	LD	APP	Lake Shore, MD	1 kW	23.67 mi	-90.4 dBm
53	704-710	Vacant			Vacant		Vacant	
55	716-722	Vacant			Vacant		Vacant	
61	752-758	Vacant			Vacant		Vacant	
63	764-770	W28BY	TX	LIC	Baltimore, MD	6.92 kW	34.76 mi	-86.7 dBm
64	770-776	Vacant			Vacant		Vacant	
65	776-782	Vacant			Vacant		Vacant	
68	794-800	Vacant			Vacant		Vacant	
69	800-806	WQAW-LP	TX	APP	Lake Shore, MD	0.469 kW	40.95 mi	-100.2 dBm
69	800-806	WQAW-LP	TX	LIC	Lake Shore, MD	39.8 kW	40.95 mi	-80.9 dBm

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Exhibit Q
(Tuning Scheme from Sennheiser User
Manual for G2 Evolution Wireless System)

 SENNHEISER



working
with

evolutionwireless 



Steps for Auto Tuning evolution wireless G2 Systems

1. On the receiver, press SET to enter menu. Press up/down buttons to select Bank. Press SET and choose a desired Bank to scan.
2. Press up/down buttons to select Scan. Press SET. "START" is displayed. Press SET. The receiver will display channels being scanned, and then display the quantity of available channels within that Bank. Press SET.
3. Press POWER to exit the menu. The frequency chosen will be displayed.
4. On the transmitter, press SET to enter the menu. Press the up/down buttons to select Bank. Press SET and select the same Bank as selected on the receiver.
5. Press SET, then press up/down buttons to select channel. Select the same frequency as displayed as on the receiver. Press SET. Press POWER.

How To Use the Following Charts

These charts represent the tuning scheme of each range and are for reference in determining the suitability of a particular range for your geographic location.

Frequency Range A 518-554 MHz									
US TV Channel	Ch. 22 (518-524 MHz) Ch. 23 (524-530 MHz) Ch. 24 (530-536 MHz)			Ch. 25 (536-542 MHz) Ch. 26 (542-548 MHz) Ch. 27 (548-554 MHz)					
	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank U
1	518.150	529.850	530.150	536.550	542.350	553.850	520.775	538.775	519.500
2	518.850	528.950	531.150	538.350	543.150	552.850	521.500	540.000	522.500
3	519.750	528.150	531.650	538.750	543.650	552.450	526.100	549.500	528.500
4	520.950	526.950	532.250	539.850	544.650	551.750	528.025	551.000	538.500
5	521.950	526.550	532.950	540.450	545.850	550.850	530.975	518.300	539.500
6	522.450	525.550	533.850	541.450	546.750	550.250	532.500	519.000	546.500
7	523.250	525.050	534.650	537.500	547.450	549.050	533.700	522.025	551.500
8	523.850	524.450	535.850	541.900	547.850	548.550	536.025	524.700	518.750
9	524.950	533.650	526.050	519.350	550.850	542.850	549.700	526.300	527.250
10	529.450	535.450	539.650	521.650	553.750	540.350	550.100	533.500	553.250
11	532.050	538.950	548.850	522.350	537.850	535.250	553.500	541.100	553.750
12	534.050	542.950	551.350	522.850	534.150	533.350	552.975		
13	538.950	547.150	552.750	524.850	532.450	530.550			
14	541.350	550.750	544.550	525.750	527.650	529.250			
15	545.550	553.050	522.050	524.200	519.550	525.050			
16	549.450	518.650	520.150	534.900	520.150	522.150			
17	552.750	519.350	519.750	534.150	522.050	521.350			
18	553.150	520.100	518.500	518.500	520.100				
19	546.800	521.400	529.300	522.500	525.900				
20	533.100	538.400	538.600	533.400	532.900				

Frequency Range B 626-662 MHz									
US TV Channel	Ch. 40 (626-632 MHz) Ch. 41 (632-638 MHz) Ch. 42 (638-644 MHz)			Ch. 43 (644-650 MHz) Ch. 44 (650-656 MHz) Ch. 45 (656-662 MHz)					
Channel	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank U
1	661.850	650.150	649.750	638.350	637.850	626.150	627.250	632.225	656.025
2	660.950	651.150	649.250	638.850	637.450	627.050	627.750	632.975	657.500
3	660.550	651.650	648.550	640.050	636.750	627.750	644.250	646.300	660.500
4	659.350	652.250	647.950	640.950	636.150	628.550	647.500	648.975	660.900
5	658.550	652.950	647.050	641.650	635.150	629.150	635.500	626.775	634.225
6	657.950	653.850	646.250	642.450	634.350	629.650	641.750	628.000	636.500
7	657.450	654.650	645.150	643.450	633.150	630.850	654.750	660.000	638.100
8	656.450	655.850	644.150	643.850	632.250	631.850	656.500	661.500	640.025
9	650.950	647.850	637.850	648.150	629.450	634.750	659.250	629.100	626.225
10	647.250	642.950	634.750	650.450	627.250	639.250	649.750	636.700	628.900
11	643.050	637.450	631.150	655.850	644.850	642.850	630.750	638.300	646.500
12	640.850	636.050	628.750	656.450	647.450	645.350	631.500	653.100	661.700
13	638.150	633.450	626.250	660.650	648.950	647.150	661.900		
14	637.450	629.350	661.850	661.750	651.450	650.850			
15	633.150	626.150	661.450	626.550	656.750	653.650			
16	631.450	661.250	657.550	627.850	659.950	654.050			
17	629.150	660.850	654.950	629.750	661.350	659.950			
18	626.350	628.500	627.300	632.750	661.850	661.250			
19	627.400	634.900	629.300	633.600	628.100	632.900			
20	631.000	638.800	635.400	644.500	631.500	636.900			

Frequency Range C 740-776 MHz									
US TV Channel	Ch. 59 (740-746 MHz) Ch. 60 (746-752 MHz) Ch. 61 (752-758 MHz)			Ch. 62 (758-764 MHz) Ch. 63 (764-770 MHz) Ch. 64 (770-776 MHz)					
Channel	Bank 1	Bank 2	Bank 3	Bank 4	Bank 5	Bank 6	Bank 7	Bank 8	Bank U
1	745.850	746.150	757.850	758.150	769.850	770.150	760.500	740.900	749.100
2	745.450	747.050	757.450	758.850	769.150	771.150	763.250	744.775	749.900
3	744.550	747.550	756.450	760.050	768.550	771.650	767.750	746.225	751.000
4	743.850	748.150	755.950	760.650	768.050	772.250	769.750	748.500	754.025
5	743.050	749.150	755.350	761.650	767.050	772.950	740.250	752.025	765.500
6	742.050	750.350	754.150	762.150	766.650	773.850	742.750	757.700	767.000
7	740.850	751.050	753.350	763.050	765.450	774.650	747.750	758.500	768.225
8	740.350	751.850	752.450	763.850	764.650	775.850	750.750	764.500	740.000
9	753.850	745.750	751.750	766.450	763.750	769.750	743.750	769.500	742.300
10	754.950	754.150	746.650	770.050	759.550	764.350	744.500	772.500	770.775
11	760.350	757.350	742.850	773.150	756.550	761.750	754.500	772.900	773.900
12	760.950	759.950	740.650	774.450	754.250	756.650	775.500	774.100	774.300
13	763.550	765.150	764.350	740.150	750.150	753.550	746.025		
14	767.150	766.850	765.650	744.850	745.150	749.150			
15	769.250	771.950	770.250	745.250	742.450	745.750			
16	772.350	774.450	772.950	748.950	740.250	742.450			
17	773.750	741.650	775.750	756.150	775.450	740.150			
18	775.650	740.300	741.100	742.000	741.400	741.100			
19	741.600	755.700	744.100	743.100	746.900	746.400			
20	747.200	764.000	747.500	752.800	753.700	755.300			

Exhibit R

(Wireless Microphone Systems Capable of
Using Frequencies in the 700 MHz Band)



SLX Wireless System Specifications

SHURE SLX WIRELESS

Sound installations and working bands need powerful wireless tools that can be set up quickly and used fearlessly. Shure's rugged SLX UHF Wireless Systems more than deliver with innovative setup features, exceptional wireless clarity, and legendary Shure microphones. Offering up to 20 compatible systems in a single installation, SLX smoothly integrates into houses of worship, lecture halls, conference rooms, and mobile gear cases.

SYSTEM FEATURES

Auto Frequency Selection

- Locates a clear channel instantly

Auto Transmitter Setup

- Infrared link automatically synchronizes the transmitter and receiver

Shure's patented Audio Reference Companding

- Delivers crystal-clear audio transmission, far superior to conventional wireless technology

RECEIVER FEATURES

- Detachable 1/4 wave antennas
- Backlit LCD
- Rack-mount hardware included
- 1/4" and XLR audio outputs
- Frequency and power lockout
- Volume control on rear of unit
- Rugged metal construction

HANDHELD AND BODYPACK TRANSMITTER FEATURES

- Choice of Shure handheld microphones
- Bodypack works with headworn, lavalier and instrument microphones and cables
- Timed backlit LCD
- Frequency and power lockout
- 2 AA batteries (included) provide 8 hours of continuous use
- 100m (300 ft.) operating range
- Battery fuel gauge

ARCHITECT'S SPEC

The wireless system shall operate in the UHF band between 524 MHz and 865 MHz, with the specific available frequency range being dependent on the user's locale. Effective range of the system, receiver to transmitter, shall be 100 meters (300 ft.), under optimal conditions. Each system shall allow selection of over 960 operating frequencies across 24 MHz of bandwidth in order to avoid RF interference. Optimal frequencies shall be selected automatically, ensuring that individual systems run at their highest level of performance, and that multiple systems in simultaneous use do not interfere with one another.

An infrared signal beamed from the receiver shall be used to synchronize the frequency between the transmitter and the receiver. The process of synchronizing the system shall be simple and instantaneous.

Each transmitter shall be powered by two AA batteries. Transmitters shall have a power on-off/mute switch, as well as a timed backlit LCD showing frequency group and channel, locked/unlocked status, and battery strength. Available transmitters shall include a bodypack for use with guitars, basses, and other electric instruments, as well as lavalier, headset or instrument microphones, and a handheld transmitter for vocals. The bodypack shall include a 3-position switch and the handheld transmitter shall include a 2-position switch to compensate for higher- or lower-gain devices. Both transmitters shall feature an easily accessible infrared port for system synchronization.

The receiver shall have a multi-function display showing group, channel, frequency, transmitter battery strength, and locked/unlocked status. The system shall use diversity technology to improve reception, minimize signal dropouts, and achieve the best possible signal-to-noise ratio. The receiver shall include an audio level meter and an infrared port for system synchronization.

The system shall be the Shure SLX Wireless.

SLX WIRELESS SYSTEM SPECIFICATIONS

SPECIFICATIONS

System

Frequency Range and Transmitter Output Level

Band	Range	Transmitter output
H5	518-542 MHz	30 mW
J3	572-596 MHz	30 mW
L4	638-662 MHz	30 mW
P4	702-726 MHz	30 mW
R13	794-806 MHz	20 mW
R5	800-820 MHz	20 mW
S6	838-865 MHz	10 mW
JB	806-810 MHz	10 mW
Q4	740-752 MHz	10 mW

NOTE: This Radio apparatus may be capable of operating on some frequencies not authorized in your region. Please contact your national authority to obtain information on authorized frequencies for wireless microphone products in your region.

Operating Range Under Typical Conditions

100m (300 ft.)

Note: actual range depends on RF signal absorption, reflection, and interference

Audio Frequency Response (+/- 2 dB)

Minimum: 45 Hz

Maximum: 15 kHz

(Overall system frequency depends on microphone element.)

Total Harmonic Distortion (ref. +/- 38 kHz deviation, 1 kHz tone)

0.5%, typical

Dynamic Range

>100 dB A-weighted

Operating Temperature Range

-18°C (0°F) to +50°C (+122°F)

Note: battery characteristics may limit this range

Transmitter Audio Polarity

Positive pressure on microphone diaphragm (or positive voltage applied to tip of WA302 phone plug) produces positive voltage on pin 2 (with respect to pin 3 of low impedance output) and the tip of the high impedance 1/4-inch output.

SLX1 Backpack Transmitter

Audio Input Level

-10 dBV maximum at mic gain position

+10 dBV maximum at 0 dB gain position

+20 dBV maximum at -10 dB gain position

Gain Adjustment Range

30dB

Input Impedance

1 MΩ

RF Transmitter Output

30 mW maximum (dependent on applicable country regulations)

Dimensions

108 mm H x 64 mm W x 19 mm D (4.25 x 2.50 x 0.75 in.)

Weight

81 grams (3 oz.) without batteries

Housing

Molded ABS case

Power Requirements

2 "AA" size alkaline or rechargeable batteries

Battery Life

>8 hours (alkaline)

SLX2 Handheld Transmitter

Audio Input Level

+2 dBV maximum at -10dB position

-8 dBV maximum at 0dB position

Gain Adjustment Range

10dB

RF Transmitter Output

30 mW maximum (dependent on applicable country regulations)

Dimensions (including SM58 cartridge)

254 mm x 51 mm dia. (10 x 2 in.)

Weight

290 grams (10.2 oz.) without batteries

Housing

Molded PC/ABS handle and battery cup

Power Requirements

2 "AA" size alkaline or rechargeable batteries

Battery Life

>8 hours (alkaline)

SLX4 Receiver

Dimensions

42 mm H x 197 mm W x 134 mm D (1.65 x 7.76 x 5.28 in.)

Weight

816 g (1 lb. 13 oz.)

Housing

Galvanized steel

Audio Output Level (ref. +/- 38 kHz deviation with 1 kHz tone)

XLR connector (into 600 Ω load): -13 dBV

1/4 inch connector (into 3000 Ω load): -2 dBV

Output Impedance

XLR connector: 200 Ω

1/4 inch connector: 1kΩ

XLR output

Impedance balanced

Pin 1: Ground

Pin 2: Audio

Pin 3: No signal

Sensitivity

-105 dBm for 12 dB SINAD, typical

Image Rejection

>70 dB, typical

Power Requirements

12-18 Vdc at 150 mA, supplied by external power supply

REPLACEMENT PARTS AND ACCESSORIES

Replacement Parts (all systems)

Microphone Stand Adapter (SLX2)	WA371
Zipper Bag (SLX1)	26A13
Zipper Bag (SLX2)	26A14
Short Rack Bar	53A8571
Long Rack Bar	53A8572
Link Bar	53A8443
Antenna extension cables (2)	95A9023

Replacement Parts (system-specific)

AC Adapter (120 VAC, 60 Hz)	PS20
AC Adapter (230 VAC, 50/60 Hz, Europlug)	PS20E
AC Adapter (230 VAC, 50/60 Hz, UK)	PS20UK
AC Adapter (100 VAC, 50/60 Hz)	PS20J
SM58 Head with Grille (SLX2/SM58)	RPW112
SM86 Head with Grille (SLX2/SM86)	RPW114
BETA 58 Head with Grille SLX2/BETA 58	RPW118
BETA 87A Head with Grille (SLX2/BETA 87A)	RPW120
BETA 87C Head with Grille (SLX2/BETA 87C)	RPW122
Matte Silver Grille (SLX2/SM58)	RK143G
Matte Silver Grille (SLX2/SM86)	RPM266
Matte Silver Grille (SLX2/BETA 58)	RK265G
Matte Silver Grille (SLX2/BETA 87A)	RK312
Matte Silver Grille (SLX2/BETA 87C)	RK312
Belt Clip	44A8030
1/4-Wave Antenna (518-752 MHz)	UA400B
1/4-Wave Antenna (748-865 MHz)	UA400

Optional Accessories

Carrying Case	WA610
Black Grille (SLX2/BETA 58)	RK323G
Black Grille (SLX2/BETA 87A)	RK324G

Antenna Combiners and Accessories

Antennas and receivers must be from the same band.

The supplied 1/4 wave antennas can be used when mounted directly to the UA844. If antennas are remote mounted, 1/2 wave antennas must be used.

Antennas and cables are for use with UA844, and cannot be used with stand-alone SLX receivers.

Passive Antenna/Splitter Combiner Kit (recommended for 2 receivers)	UA221
UHF Antenna Power Distribution Amplifier (recommended for 3 or more receivers)	
U.S.A.	UA844US
Europe	UA844E
UK	UA844UK
1/2 Wave Antenna Remote Mount Kit	UA500
1/2 wave antenna	
H5 Band	UA820H
J3 Band	UA820D
L4 Band	UA820L
P4, Q4 Bands	UA820B
R13, R5, S6, JB Bands	UA820A
25' Antenna Cable	UA825
50' Antenna Cable	UA850
100' Antenna Cable	UA100

SHURE Incorporated <http://www.shure.com>
 United States, Canada, Latin America, Caribbean:
 5800 W. Touhy Avenue, Niles, IL 60714-4608, U.S.A.
 Phone: 847-600-2000 U.S. Fax: 847-600-1212 Intl Fax: 847-600-6446
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 Shure Europe GmbH, Phone: 49-7131-72140 Fax: 49-7131-721414
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 Shure Asia Limited, Phone: 852-2893-4290 Fax: 852-2893-4055

RAD-360 UHF WIRELESS SYSTEM

overview

▶ The Audix RAD-360 is a frequency agile UHF wireless microphone system with 193 selectable frequencies and dual tuner, true diversity receivers. Operating in the UHF band between 638-806 MHz, The RAD-360 is designed for a wide range of professional applications including live performances, regional sound companies, fixed installations, corporate meetings and events, and houses of worship.

The RAD-360 features easy-to-use and easy-to-read menu driven displays in every component of the system. Both the receiver and the transmitter are synthesizer controlled via Phase Locked Loop (PLL) for stable Radio Frequency (RF) signals.

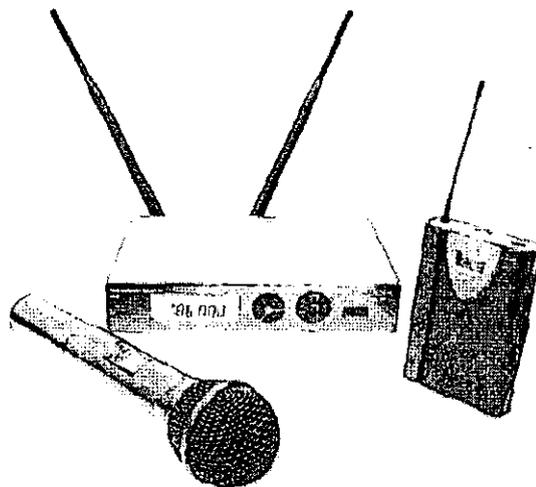
The RAD-360 handheld transmitters are constructed with durable metal housings and feature legendary performance of the OM-series dynamic microphones from Audix—microphones that have set standards in the pro audio industry for clarity, feedback rejection, and dependability. The hand-held transmitters have a convenient gain setting control that will enable a -10, -20, or -30 dB pad to help prevent overload or distortion. The modular design of the

threaded capsule housing assembly means that the user can easily change the transmitter mic capsule from one model to another in a matter of seconds.

The body pack transmitter, constructed of durable ABS composite, is housed in a protective metal cradle. It may be used with lavalier, headset, and specially instrument microphones. A guitar system is also available. Mic/line input adjustments are provided as well as sensitivity/gain control.

The receiver is rack-mountable for either 1 or 2 systems into a standard 19 inch rack with optional rack mount kits. An optional Amplified Antenna Distribution System (ADS-4) is available, allowing up to 4 systems to be run off a

single pair of antennas, and one DC power supply. An optional antenna booster (AB-1), which can be wall-mounted or mic stand mounted, is available to strengthen incoming signals, improve signal to noise ratio, and increase the RF range.



system features

- ▶ **Frequency Agile:** All Audix RAD-360 UHF transmitters and receivers can be programmed for 193 frequencies (in increments of .125 Hz) with the 24 MHz band width of the system being utilized. A total of 12-16 systems can be configured to operate simultaneously, depending on the location and environmental conditions.
- ▶ **Soft-key Controls:** Gain setting and frequency selection are very quick and easy-to-use.
- ▶ **Menu Driven Displays:** All transmitters and receivers feature menu driven LCD displays, which are back-lit and easy-to-read. Information displayed includes frequency selected, audio signal strength, A/B antenna indicator, mute status, RF indicator, battery indicator, audio levels, and lock/unlock status.
- ▶ **Noise Squelch Circuitry:** Analyzes signal quality instead of signal strength. Controls the possibility of annoying sudden "bursts" coming through the receiver.
- ▶ **Surface Acoustic Wave (S.A.W.) Filters:** Help to insure that the system is free from RF interference.
- ▶ **Tone Key Squelch:** Eliminates unwanted noise from entering the system.
- ▶ **Tuned Antennas:** 3/4 Wave antennas are tuned to specific frequencies for RF stability.
- ▶ **Audio Output:** The rear receiver panel includes both balanced (XLR) and unbalanced (1/4") output jacks
- ▶ **RF Level Meters:** Monitors signal strength and optimizes transmitter gain settings
- ▶ **Audio Meters:** Monitors audio levels and helps to optimize transmitter gain settings.
- ▶ **Battery Power Indicators:** Battery power levels can be read from both the receiver and the transmitter.
- ▶ **Set and Lock Function:** Easy to use switches allow frequencies to be easily changed, set, and locked.
- ▶ **Sensitivity Adjustment:** Handheld transmitters feature additional PAD settings of -10, dB -20 dB and -30 dB.
- ▶ **Interchangeable Head Assemblies:** The RAD-360 handheld transmitters feature simple-to-change threaded capsule assemblies. Change or replace capsules in a matter of seconds.
- ▶ **Durable Metal Housings:** All three components of the RAD360—receiver, handheld transmitter, and body pack feature metal housings for additional RF shielding and shock resistance.



Interchangeable Head Assemblies



Bodypack with ADX-10 lavalier



Bodypack with ADX20-1 condenser



Bodypack with HT-2 headset

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RAD-360 UHF WIRELESS SYSTEM

specifications

Frequency Range	618 MHz-804 MHz
Switchable Frequencies	193 (per system group of 24 MHz spaced .125 Hz apart)
Freq Response	40 Hz-18 kHz (depending on capsule)
Signal To Noise Ratio	>:10dB
Comander System	H1X
Pilot Tone	37.768 kHz

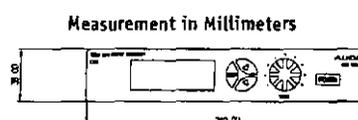
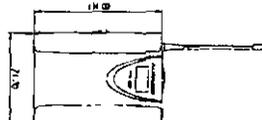
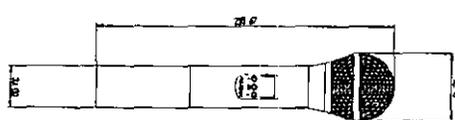
RAD360-R

Receiving System	Dual tuners, true diversity receiver
Image Rejection	50 dB nominal, 45 dB minimum
Signal-to-noise Ratio	13:0 dB at 30 kHz deviation (IEC-weighted), maximum modulation 75 kHz
Total Harmonic Distortion	≤:1% (10 kHz deviation at 1 kHz)
Sensitivity	26 dBµV (S/N 60 dB at 5 kHz deviation, IEC-weighted) <2.5µV
Intermediate Frequency	55.875 MHz, 10.7 MHz
Audio Output (AF Level set at "0")	Unbalanced: 40 mV (at 1 kHz, 10kHz deviation, 10k ohm load) Balanced: 8mV (at 1 kHz, 10kHz deviation, 600 ohm load)
Output Connectors	Unbalanced: 1/4" phone jack Balanced: XLR
Nominal Peak Deviation	Balanced: -24 to +18dBu Unbalanced: -30 to +12dBu (adjustable in 6 dB-steps)
Adjacent Channel Rejection	>:48dB
Intermodulation Spacing	>:48dB
Image Rejection	>:24dB
Power Supply	120V AC 60 Hz; 12-18V DC, 350 mA, with external supply
Dimensions	8.35" (W) x 1.1" (H) x 6.5" (D) 212mm (W) x 38mm (H) x 165 mm (D)
Net Weight	2.32 lbs/1050 g

RAD360-T Handheld Microphone Transmitter

RF Power Output	50 mW Max
Spurious Emissions	Under federal regulations
Battery (not included)	2- AA 1.5 V
Current Consumption	100 mA typical
Battery Life	Approximately 12 hours (depending on battery type and usage)
Max Sound Pressure Level	>:140 dB (depending on capsule)
Dimensions	1.3" diameter body, 2.1" diameter grill x 9.4" (L) 33 mm diameter body, 53.4 mm diameter grill x 238.67 mm (L)
Net Weight (without battery)	12.35 oz/350 g

Measurements



Supplied Accessories

- ▶ ANT-1 3/4 Wave UHF whip antenna (2)
- ▶ PS-110R DC power supply (110 VAC, 12V-350 milliamp.)
- ▶ CC360 Zippered carrying case
- ▶ MC-360T Microphone clip for handheld transmitter

Optional Accessories

- ▶ RM1 Rack mount kit for 1-RAD360R
- ▶ RM2 Rack mount kit for 2-RAD360R
- ▶ CBL-RM1 3' antenna extension cable with BNC connectors
- ▶ ADS-4 Antenna distribution system (for up to 4 systems)
- ▶ AB1 UHF Antenna booster
- ▶ CBL-G360 3' Guitar cable for bodypack

System Components

- ▶ R360 UHF true diversity receiver
- ▶ B360 UHF bodypack
- ▶ T360 UHF hand held transmitter (without capsule assembly)
- ▶ T363 UHF Handheld transmitter with OM3 capsule
- ▶ T365 UHF Handheld transmitter with OM5 capsule
- ▶ T366 UHF Handheld transmitter with OM6 capsule
- ▶ T367 UHF Handheld transmitter with OM7 capsule
- ▶ T363-CA OM3 Capsule assembly for handheld transmitter
- ▶ T365-CA OM5 Capsule assembly for handheld transmitter
- ▶ T366-CA OM6 Capsule assembly for handheld transmitter
- ▶ T367-CA OM7 Capsule assembly for handheld transmitter

Lavalier and specialty microphones for RAD360 Bodypack

- ▶ ADX5 Black omni lavalier with 3' cable
- ▶ ADX10 ADX10 cardioid lavalier with 3' cable
- ▶ HT2 Headset mic with 3' cable
- ▶ HT5 Slim line omni headset microphone-black
- ▶ HT5-BG Slim line omni headset microphone-beige
- ▶ ADX20i ADX20i Instrument mic with 3' cable

RAD360-BP Bodypack Transmitter

RF Power Output	50 mW Max
Spurious Emissions	Under federal regulations
Input Connector	3 pin mini-XLR
Input Controls	Mic/line switch, and 20 dB potentiometer
Battery (not included)	2- AA 1.5 V
Current Consumption	100 mA typical
Battery Life	Approximately 12 hours (depending on battery type and usage)
Input Impedance	Mic: 10kOhm Line: 1M0hm
Max Sound Pressure Level	approx. 128-140dB (depending on mic)
Dimensions	2.8" (W) x 4" (L) x 1"(D) 71.3 mm (W) x 104 mm (L) x 27 mm(D)
Net Weight (without battery)	7.5 oz/212 g

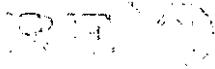
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Clean channel. Clear sound. Clever wireless.™



RECEIVER

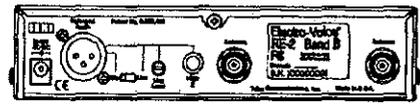
Receiver Type
Frequency Range (RF)
Number of Channels
Modulation
Diversity
RF Sensitivity
Image Rejection
Squelch
Ultimate Quieting
FCC Certification
Power Requirements
Antennas
Dimensions (H x W x D)

Synthesized PLL
 A Band 648 – 676 MHz (TV Channels 43-48)
 B Band 696 – 724 MHz (TV Channels 51-56)
 D Band 798 – 822 MHz
 E Band 841 – 865 MHz
 1112 possible channels
 Programmable in 25 kHz steps
 +/- 40 kHz
 Digital Secure-Phase™ True Diversity
 < 1.0 mV for 12 dB SINAD
 > 60 dB
 Tone Code plus Amplitude
 > 100 dB
 Approved under Part 15
 12 V AC/DC 300 mA
 Detachable 1/4 wave
 1.72" x 7.50" x 5.90"
 43.7 mm x 190 mm x 150 mm



Front

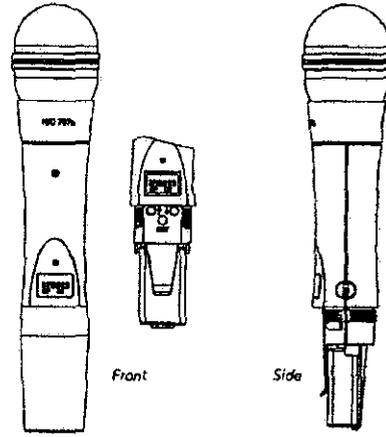
RECEIVER



Back

Frequency Response
Balanced Output (max @ 40 kHz deviation)
Mic Position
Line Position
Unbalanced Output
Distortion
Signal-to-Noise Ratio
Dynamic Range

50 – 15 kHz +/- 2 dB
 -10 dBV
 Adjustable 10 mV-2V RMS
 Adjustable 10 mV-1V RMS
 <1.0%, 0.5% typical (ref 1 kHz, 40 kHz deviat)
 >100 dB A Weighted
 >100 dB



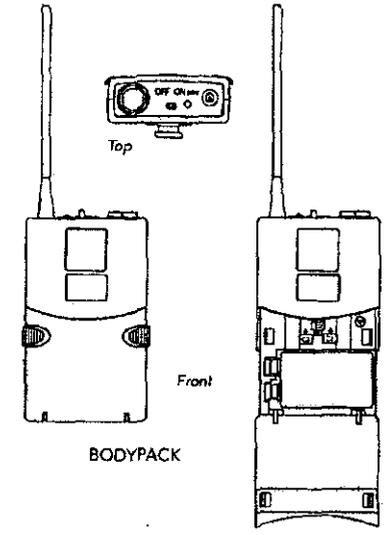
Front

Side

HANDHELD

Radiated Output
Microphone Head Electro-Voice 767a
Microphone Head Electro-Voice 267a
Microphone Head Electro-Voice RE-410
Standard Lavalier Microphone
TA4 Connector Wiring
Audio Gain Adjustment
Power Requirements
Battery Life (Typical)
Bodypack Antenna
Handheld Antenna
Dimensions, Handheld (L)
Dimensions, Bodypack (H x W x D)

30 mW typical
 N/D 767a Supercardioid N/DYM Dynamic
 N/D 267a Versatile Cardioid Dynamic
 RE-410 Classic Cardioid Condenser
 EV RE-90TX MicroMini™
 Omni-Directional Condenser
 Pin 1: Ground; Pin 2 Mic Input;
 Pin 3: +5V bias; Pin 4: +5V bias through a 3kΩ resistor
 40 dB (handheld 26 dB)
 9 Volt Alkaline Battery
 > 8 hours with 9-Volt Alkaline Typical
 Flexible external 1/4 wave
 Internal 1/2 wave
 9.4" (240 mm) long
 3.8" x 2.6" x 0.92"
 96.5 x 66.0 x 23.4 mm



Top

Front

BODYPACK

Radiated Output
Interchangeable Microphone Heads
Bodypack Antenna
Handheld Antenna
Dimensions, Handheld (L)
Dimensions, Bodypack (H x W x D)

Normal 5 mW typical
 High 50 mW typical
 767a Supercardioid N/DYM Dynamic
 RE 510 Supercardioid Condenser
 Detachable Flexible external 1/4 wave
 Internal 1/2 wave
 10.5" (268 mm) long
 Cast Magnesium
 3.8" x 2.6" x 0.92"
 96.5 mm x 66.0 mm x 23.4 mm



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Exhibit S
(Wireless Microphone Systems Operating
Exclusively in the 700 MHz Band)