Hauppauge Xfones Virtual Surround Headphone
Quick Installation Guide for Windows XP, Windows Vista And Mac Operating Systems

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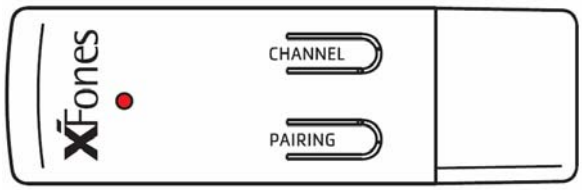
Contents:

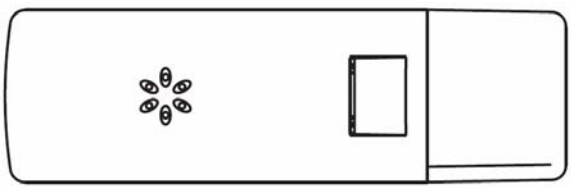
- Head Phone set 1 pc
- USB dongle 1 pc
- AAA Batteries 3 pc's
- Quick Installation Guide (This guide)

USB Features:

- Plug and play
- No software driver required
- Support multiple headphones (broadcast mode)
- Supported operating systems
  - Windows XP, Windows Vista
  - MAC OS9.1, MAC OS10.4.3



Top view

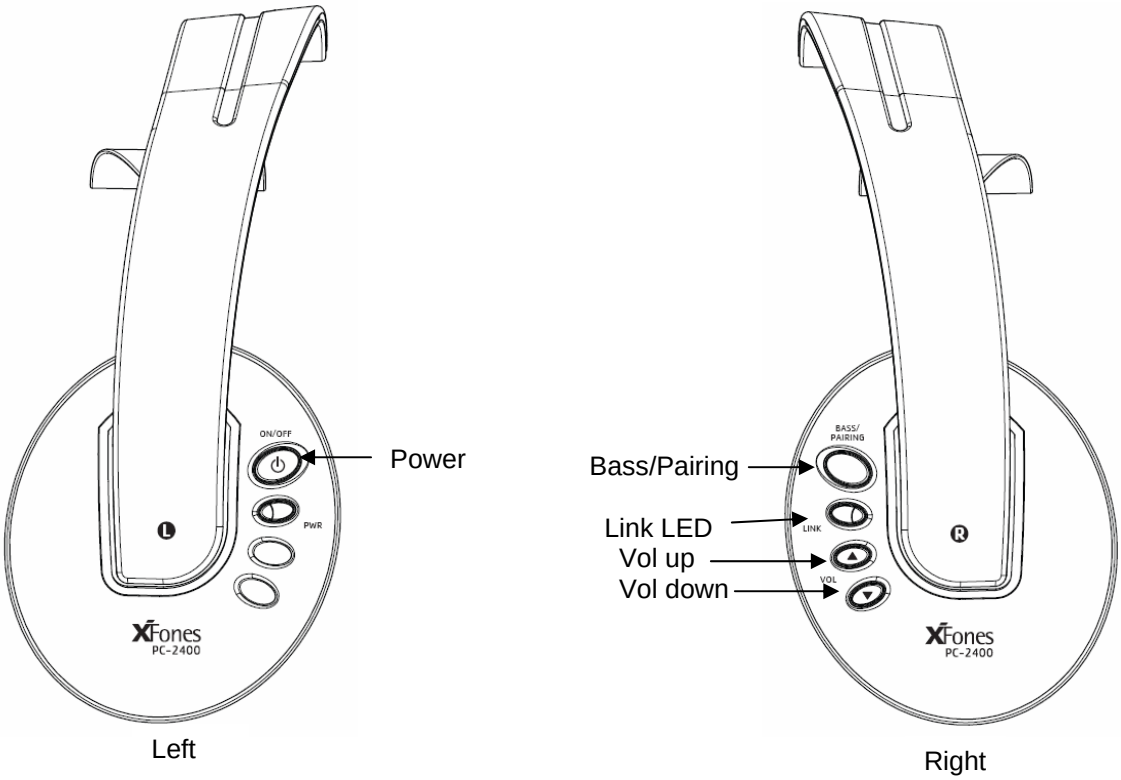


Bottom view

Headphone Features:

- Auto power off when there is no music transmission

- Digital volume control
- Bass boost control



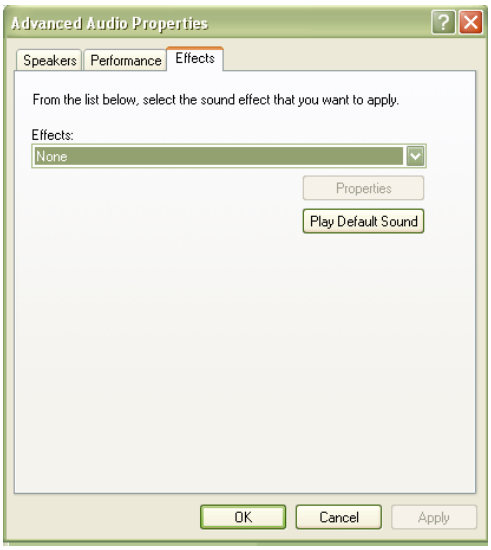
Link LED Indication:

Stationary GREEN:	Headphone is linked with USB
Stationary RED:	Headphone is not linked with USB
Flashing RED:	Headphone enters pairing mode
GREEN blink twice:	Bass boost is activated
GREEN blink once:	Bass boost is deactivated

Installing the Hauppauge Xfones under Windows XP:

1. Close all various media player applications such as Window Media Player, iTune, Real Player and etc before plugging in the USB Dongle in the PC/laptop. Windows will detect the USB Dongle automatically.
2. To verify whether the device is working, select Control panel→Sound and Audio Devices→Audio Tab. Default device for sound playback should be "**USB Audio Device"** as shown in the figure below.

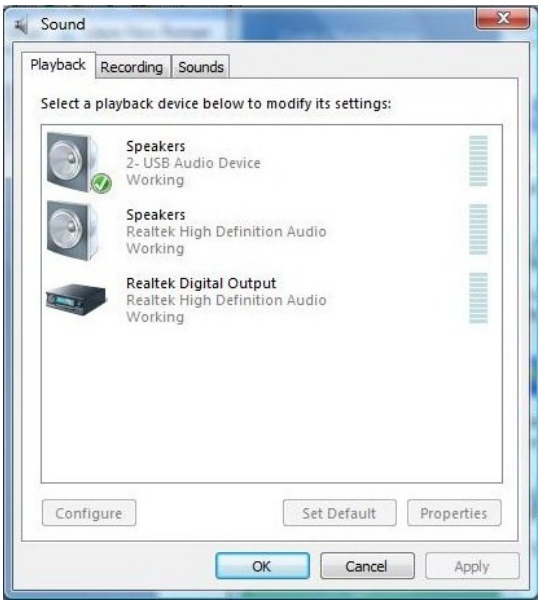
3. Select Button “Volume” to make sure “Mute All” is not activated.
4. Next, select the button “Advanced” to go to Advanced Audio Properties Windows and then select Tab page “Effect”. Select Button “Play Default Sound” and user should be able to hear the Windows Default Sound transmitted to the Headphone.



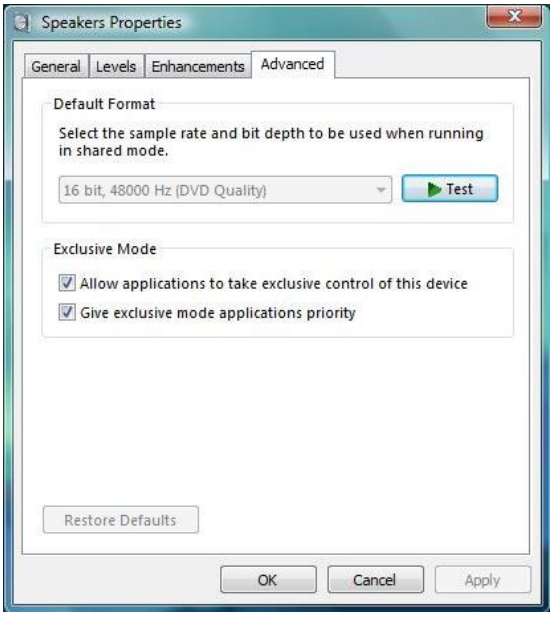
5. Start any Media Player applications such Window Media Player, iTune, Real Play and play a music file. The LED Indicator on the USB Dongle will blink as long as there is an audio transmission.

Installing the Hauppauge Xfones under Windows Vista:

1. Close all various media player applications such as Window Media Player, iTune and Real Player before plugging in the USB Dongle into the system. Windows Vista will detect the USB Dongle automatically.
2. To verify whether the device is working, select Control panel→Sound. Depending on the PC/laptop, all various audio devices available in the system will be displayed. Make sure that “USB Audio Device” is selected as shown in the figure below.



3. Next, select “Properties” button, then tab page “Advanced” and then “Test” to test the Headphone. User should hear Window default sound transmitted on both Left and Right channel.



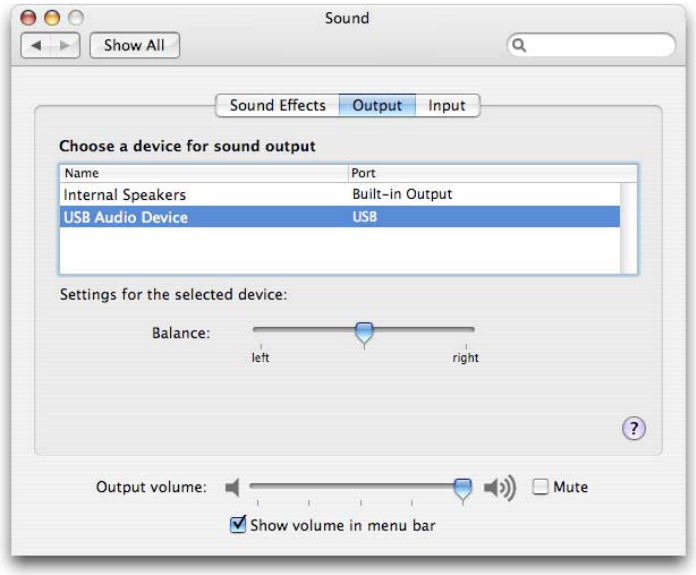
4. Start any Media Player applications such as Window Media Player, iTune, Real Play and play a music file. The LED Indicator on the USB Dongle will blink as long as there is an audio transmission.

Installing the Hauppauge Xfones under MAC OS 9.1 and 10.4.3:

1. Close all various media player applications such as Quick time player, iTune and Real Player before plugging in the USB Dongle into the system. MAC OS will detect the USB Dongle automatically.

2. To verify whether the device is working, Go to Preferences→Sound as shown in the figure below.

3. Under the properties of Sound >> Output tab, depending on the PC/laptop, all various audio devices available in the system will be displayed. Make sure that "USB Audio Device" is selected as shown in the figure below.



Bass Boost

This headphone comes with bass boost control. By default, there is no bass boost.

To turn on bass boost:

- Toggle "BASS/PAIRING" switch from non-bass boost condition. Headphone is in non-bass boost condition upon power up.
- Green LED will blink twice after bass boost is activated.

To turn off bass boost:

- Toggle "BASS/PAIRING" switch from bass boost condition.
- Green LED will blink once after bass boost is deactivated.

Channel Switching Procedures

When experiencing interference on the wireless headphone, users should follow the following procedure to hop to the next RF channel. There are 8 RF channels available in this system.

1. Toggle the "CHANNEL" switch to change to next RF Channel.
2. Repeat step 1 until clear music is heard on the wireless headphone

Install Additional Wireless Headphone Procedures

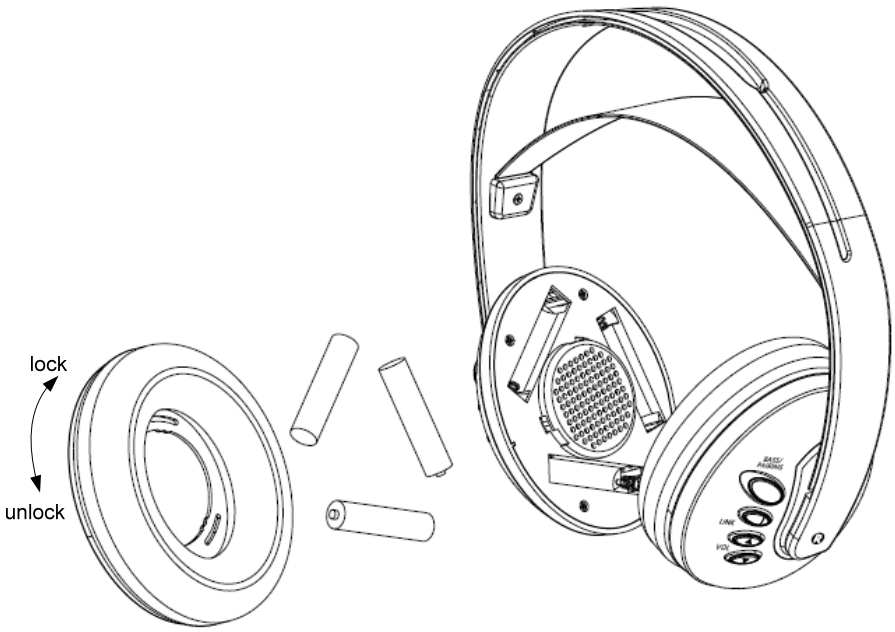
1. Follow "Operating Procedures" to activate wireless audio transmission on USB Dongle.
2. Place the wireless headphone near USB Dongle
3. Turn On the wireless headphone
4. Press and hold "PAIRING" switch on the new wireless headphone until red LED is flashing.
5. Press and hold "PAIRING" switch on the USB Dongle for 3-5sec then release
6. Music is heard from new wireless headphone when it detects the USB Dongle
7. If no Music heard, repeat step 5 onwards again

Headphone Auto-Power off

When there is no music transmission for consecutive 5 minutes, the headphone will be shut off automatically.

Replace Batteries

Batteries are located at the left side of the headphone. Turn anti-clockwise to unlock the ear cushion from the earcup. Replace the used batteries with the new batteries. Align the ear cushion to the latches on the earcup and turn clockwise to lock it. Alkaline batteries if the preferred batteries for this headphone.

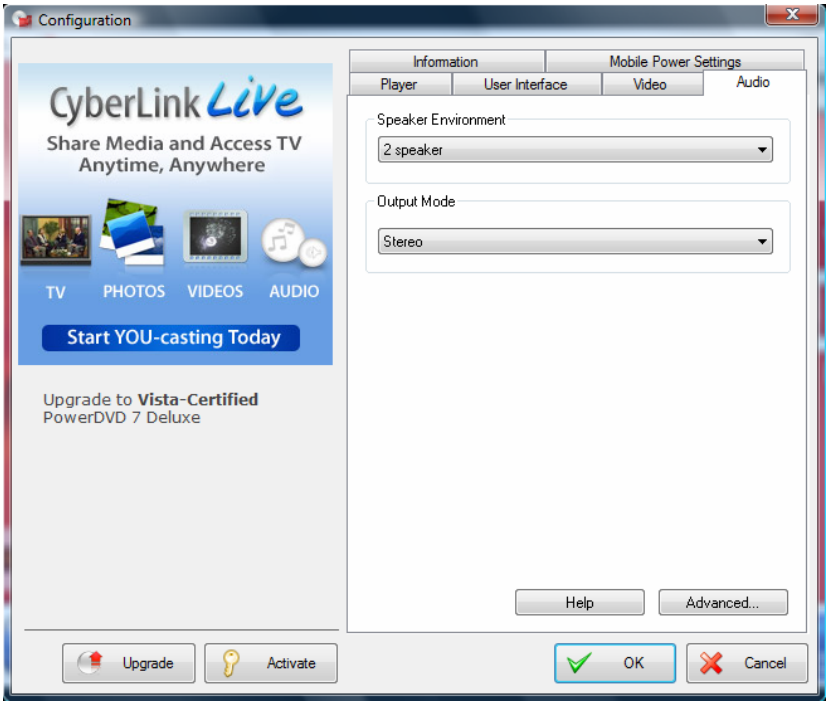


Setting Up Virtual Surround Headphone

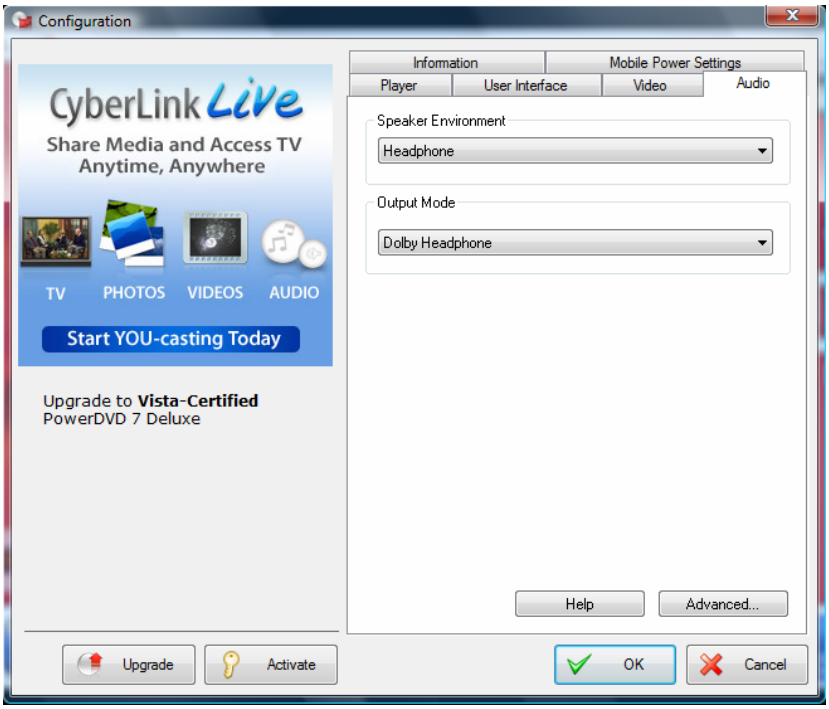
1. Install PowerDVD software provided (if not installed).
2. Run PowerDVD software.

3. Select configuration (as shown in the diagram below)

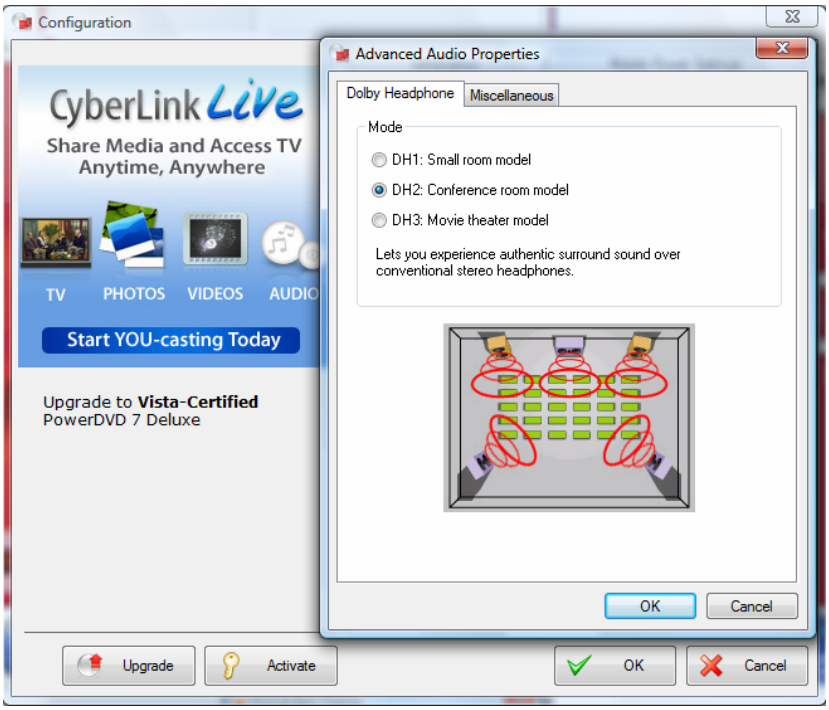
4. Select Audio tab



5. Select “Headphone” from Speaker Environment. Select “Dolby Headphone” from Output Mode.



6. Select Advance to configure Dolby Headphone. User can choose one of the 3 prefix options.



FAQ

Problem	Possible cause	Solution
USB does not turn on (no light)	USB is spoilt	Contact an authorized service centre
USB light does not blink after playing music	Windows does not switch to USB device	Follow installation guide describe above
Headphone does not turn on	Power switch is not toggled	Toggle power switch
	Batteries are weak	Change batteries
	Headphone is spoilt	Contact an authorized service centre
No sound from Headphone	Source not playing	Plug USB dongle onto PC Run music software from PC and play
	Volume is turned to minimum	Turn up volume
	Batteries are flat	Change batteries
	USB is not detected (red light seen on mute from headphone). This is due to interference from other electronics devices	Toggle CHANNEL switch on USB dongle to hop to next channel
	Audio output muted	For Windows user, select "Volume Control" from Start Menu. Un-mute "Mute all" check-box
	USB is not paired	Follow "Install Additional Headphone" procedure describe above * USB & Headphone is pre-paired in factory.
USB dongle plug-in, but sound come from PC speaker while playing audio CD	Windows does not switch to USB device	Stop playing. Unplug USB dongle from PC. Follow installation guide describe above.
Wifi not working after installing USB dongle	Wifi and USB dongle uses same frequency channel	Toggle CHANNEL switch on USB dongle to hop to next channel. Windows should reconnect to wifi automatically after few tens of second. In the case that windows does not

reconnect to wifi automatically, users should perform manual repair.

XP: Choose Control Panel → Network connections → Wireless LAN devices → Right click → repair

Vista: Choose Control Panel → Network and Internet → Network and Sharing Center → Connect to a Network → choose the desired network to connect.

Helpful Hints:

In case of music distortion, select another frequency channel for the USB transmission. The distortion could be the result of interference caused by other equipment using same frequency channel in your house or neighbourhood.

Notes:

- Audio may be interrupted due to the reflected waves when an object crosses or approaches the space between the USB transmitter and wireless headphone.
- Wireless transmission may be interfered by other electronics devices, e.g. microwave.

CE Statement:

Dispose of batteries according to local regulations. Do not dispose as household waste.

FCC Notices

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.

CAUTION: Change or modification not expressly approved by the party responsible for compliance could void the user’s authority to operate this equipment.

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, theuser 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.

CAUTION:
Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning:
The equipment complies with FCC RF exposure limits set forth for an uncontrolled environment. The equipment must not be co-located or operating in conjunction with any other antenna or transmitter.

Revision History

Revision	Change Reason	Date	By Who	Remarks
0.1	Draft	2 Mar 07	Erwin	1st proposal
0.2	LED behavior and optional software	12 Mar 07	Erwin	2nd proposal
0.3	Putting top and bottom layout	14 Mar 07	Erwin	3rd proposal
0.4	Add in EEPROM and BOM tags	18 June 07	Ken Lim	4th proposal
0.5	Update Document Revision	11 July 07	Ken Lim	Update spec

ECN No.	Date	By

1. FEATURES

- USB 1.1 full-speed compliant stereo audio transmitter.
- Uncompressed audio transmission.
- Plug-and-play USB Audio transmitter.
- Support 8 KHz, 11.025 KHz, 44.1 KHz and 48 KHz sampling rates for 2 channels playback.
- Compatible with Win98 SE/ WinME/ Win2000/ WinXP and MacOS 9.2.1/MacOS10.2 without additional driver.
- 2.4GHz GFSK Transmitter with 8 selectable channels.
- There are buttons for channel select and ID Training.
- The LED will light up upon power up and it will blink when audio streams come in
- USB type A interface.
- Typical 15m indoor range.
- (Assembly Option) From your PC, there will be a software to directly control the Channel select, ID training and ERROR IN signal.

2. APPLICATIONS

- Low-cost and high-performance Wireless USB Audio transmitter

3. Quick start

The USB Transmitter works with Windows 98, Windows ME, Windows 2000, Windows XP, Mac OS 9 and Mac OS X (with the latest fixes from Apple).
It is a plug-and-play Audio transmitter.

4. BLOCK DIAGRAMS

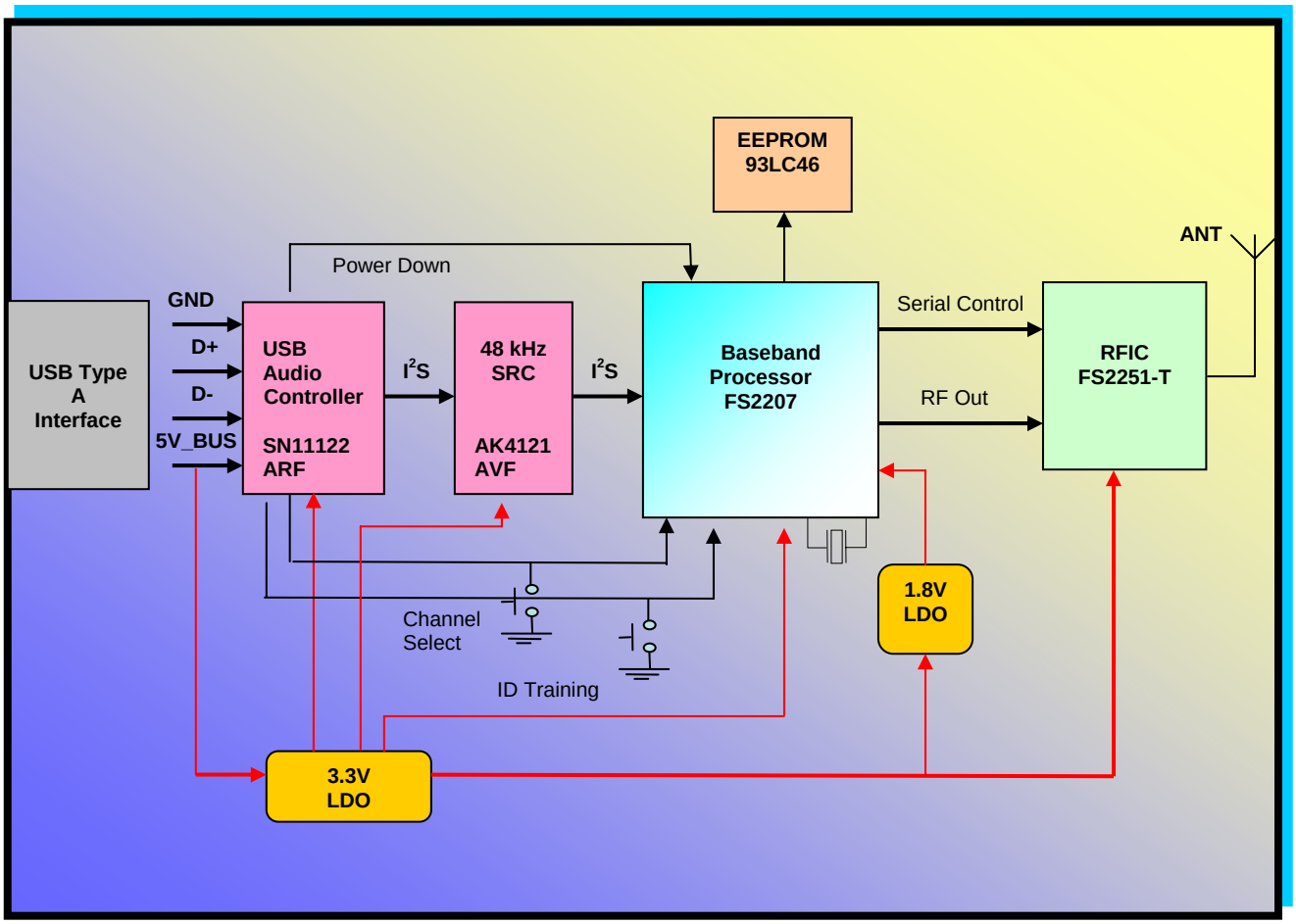


Figure (1) : Wireless USB Audio Transmitter Block Diagram

5. ELECTRICAL SPECIFICATIONS

Specifications are guaranteed by design and characterization. PCB material used is FR4 4 layers of 1.0mm thickness or equivalent

Absolute Maximum Rating

Symbol	Parameter	Min.	Max	Units
VCC	Supply Voltage (USB)		6.0	V
$T_{storage}$	Storage Temperature @ Humidity 10%-75%	-20	70	°C
V_{ESD}	ESD Contact Discharge (Human Body Model Per EN6100-4-2 Test Std)			KV

Recommended DC Operating Conditions

Symbol	Parameter	Min.	Typ	Max	Units
VCC	Supply Voltage (USB)	4.5	5.0	5.5	V
VCC Ripple	Peak To peak Ripple (USB)			200	mV
T_{amb}	Operating Temperature	0	25	60	^{o}C

Power Consumption (VCC=3.3 V, 25°C)

Symbol	Parameter	Condition	Min.	Typ	Max	Units
Tx-Icc	Transmitter Module			80mA		mA

Digital Characteristic (VCC=3.3V, 25°C)

Symbol	Parameter	Condition	Min.	Typ	Max	Units
I_{iL}	Low Level Input Current (input buffer)	V_{in}=0V	-5		5	µA
I_{iH}	High Level Input Current (input buffer)	V_{in}=3.3V	-5		5	µA
CMOS-V_{iL}	Low Level Input Voltage	CMOS level			0.825	V
CMOS-V_{iH}	High Level Input Voltage	CMOS level	2.145		3.6	V
TTL-V_{eil}	Low Level Input Voltage	TTL level			0.8	V
TTL-V_{iH}	High Level Input Voltage	TTL level	2.0			V
CMOS-V_{oL}	Low Level Output Voltage	I_{oL}=2mA or 8mA			0.4	V
CMOS-V_{oH}	High Level Output Voltage	I_{oH}=-2mA or -8 mA	2.8		3.3	V
TTL-V_{oL}	Low Level Output Voltage				0.4	V
TTL-V_{oH}	High Level Output Voltage		2.4			V

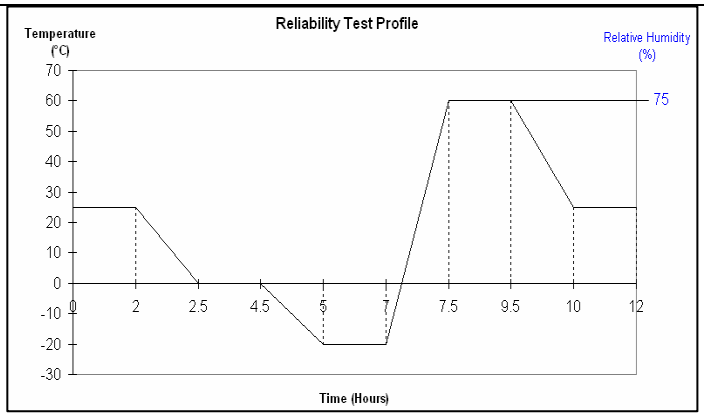
RF TX Section (VCC=3.3V, 25°C)

Parameter	Condition	Min.	Typ	Max	Units
Operating Frequency		2400		2483.5	MHz
Channel Number	Is programmable Recommended setting : 8channels		8		
BT Index	GFSK Modulation		0.5		
Transmission Power (without antenna)	No Data In condition	8	10	11	dBm
Channel Frequency setting	Peak Power Position under no Data in measurement setting: RBW : 30KHz VBW : 30KHz Span : 5MHz Maximum Hold : ON		2405.376 2415.616 2425.856 2436.096 2446.336 2456.576 2466.816 2477.056		MHz
Channel Spacing			10.24		MHz
Data Rate			6		Mb/sec
Transmission BW	@ -20dB position on either side of the peak Reference level measurement setting : RBW 100KHz, VBW 100KHz, Maximum Hold		6	7	MHz
Frequency Deviation		0.8	1	1.20	MHz
Indoor Operating Range	Subject to clean RF environment and no obstacle in between transmitter and receiver		10	20	M

6. Document Review

	EEPROM rev	EEPROM doc	BOM rev	Gerber rev
Jupiter rev 2	MSW062004_TX_rev3.dat	MSW062004_TX_rev3.doc	Jupiter2_BOM_rev6.xle	EE062001_GB_rev3.zip

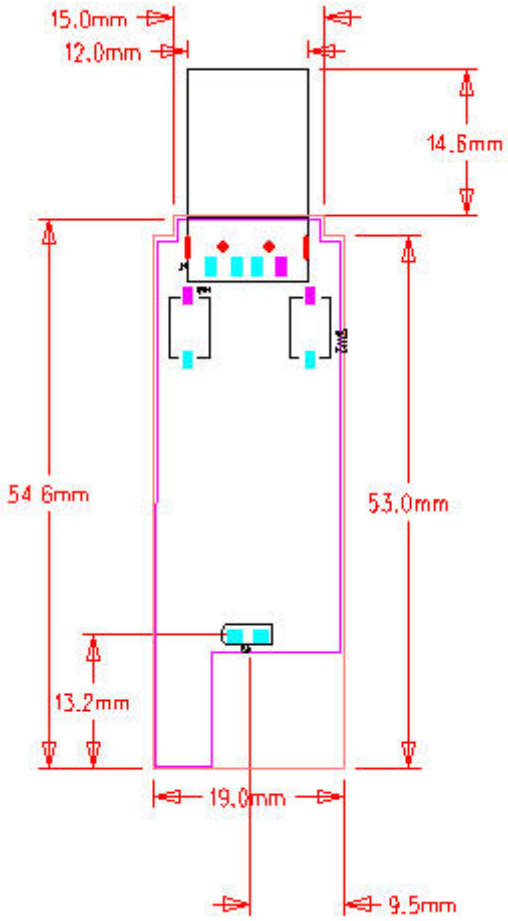
7. Reliability Measurement Result

	Test Items	Test Conditions	Test Method
1	Temperature & Humidity Operation Test	 Temperature : -20 to 60 C Humidity : 75% RH Temperature Cycle : 24 Hrs	1. Check System performance with blocking Test 2. Test Result : Passed
2	High Storage Temperature with Humidity	Storage at +85°C, at 90% RH (reach 95%) for 48 Hrs.	Test Result : Passed
3	Low Storage Temperature with Humidity	Storage at -40°C (Chamber can only reach minimum temperature of -38°C) at 90% RH (reach 95%) for 48 Hrs.	Test Result : Passed
4	24 hours Operation Test	Power up both TX and RX at room temperature for 24 hours with continuous audio input signal	Test Result : Passed

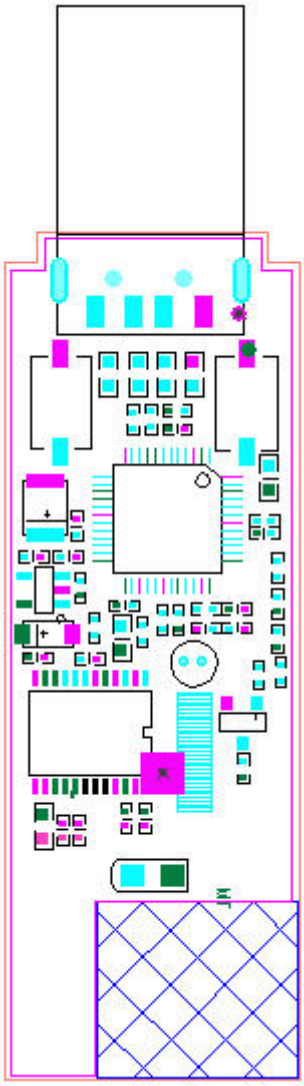
8. Marking Requirements (To be Updated)

9. MECHANICAL DIMENSION

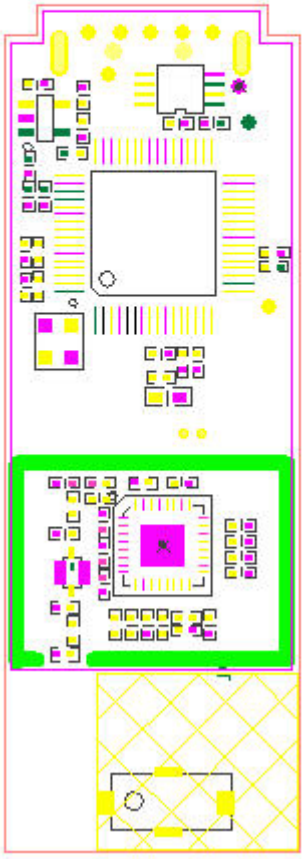
- **Top side's Mechanical Parts & Dimension**



- **Top and Bottom side's Component Placement**



Top Side



Bottom Side

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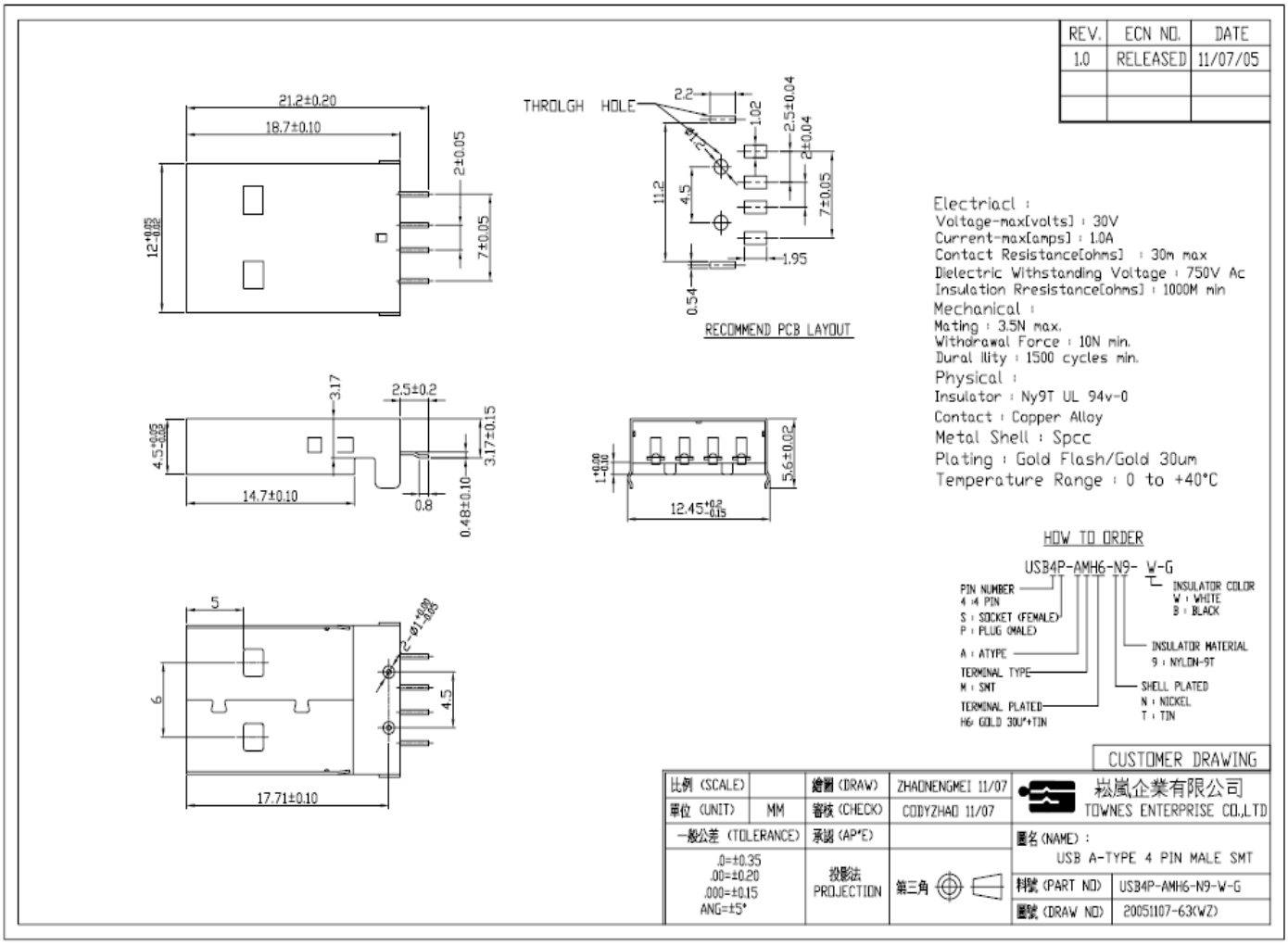
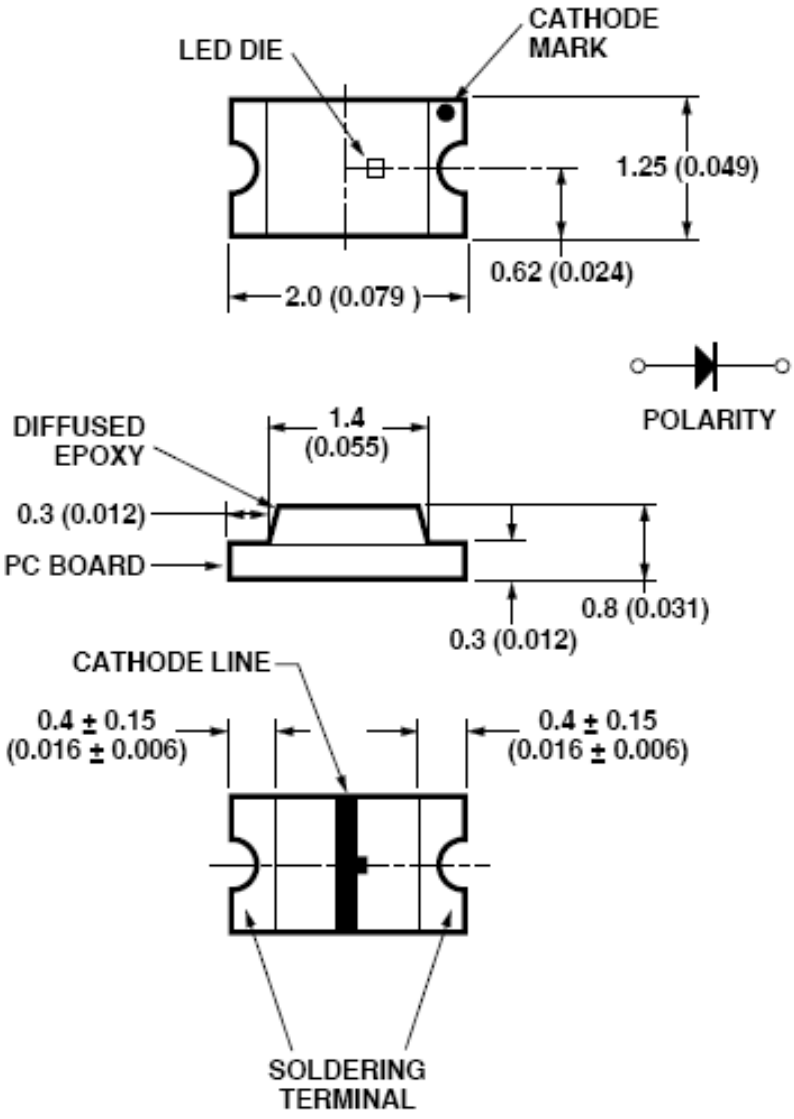
- **Important Mechanical Parts' Dimensions**

USB Connector - USB4P-AMHF-N9-W-G (Townes)



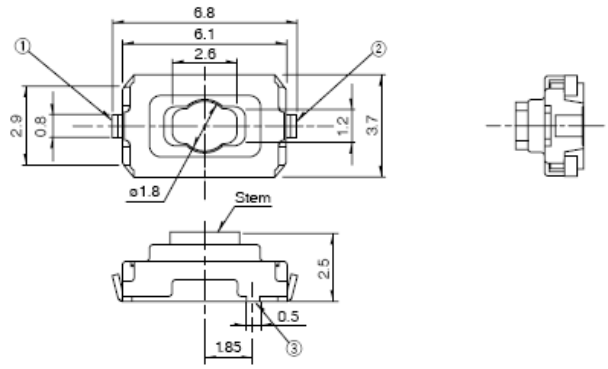
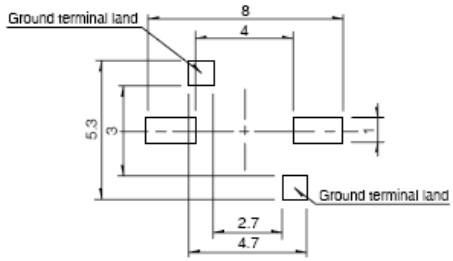
LED - HSMH-C170 (Avago)



HSMx-C170

Tact Switch - SKQYACE010 (Alps)

Dimensions Unit:mm

Style	PC board land dimensions (Viewed from switch mounting face)
	

※Ground terminal land exists only on types with ground terminal.