



Technical Specifications

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Physical and Operating Environment

The following table shows the physical and operating environment specifications for the Cisco Wireless IP Phone 8821 and 8821-EX.

Table 1: Physical and Operating Specifications

Specification	8821 Value or Range	8821-EX Value or Range
Operating temperature	14° to 122°F (-10° to 50°C)	14° to 122°F (-10° to 50°C)
Operating relative humidity	Operating: 10% to 95% (non-condensing) Non-operating: 10% to 95% (non-condensing)	10% to 95% (noncondensing)
Storage temperature	-22° to 140°F (-30° to 60°C)	-22° to 140°F (-30° to 60°C)
Drop Specification	5 ft (1.5 m) to concrete without carrying case	5 ft (1.5 m) to concrete without carrying case
Thermal Shock	-22°F (-30°C) for 24 hours to up to 158°F (+70°C) for 24 hours	-22°F (-30°C) for 24 hours to up to 158°F (+70°C) for 24 hours
Vibration	1.5 Grms maximum, 0.1 in. (2.5 mm) double amplitude at 0.887 octaves per minute from 5-500-5 Hz sweep; 10-minute dwell on three major peaks in each of the three major mutually perpendicular axis	1.5 Grms maximum, 0.1 in. (2.5 mm) double amplitude at 0.887 octaves per minute from 5-500-5 Hz sweep; 10-minute dwell on three major peaks in each of the three major mutually perpendicular axis

Specification	8821 Value or Range	8821-EX Value or Range
Altitude	Certified for operation from 0 to 6500 ft (0 to 2 km)	Certified for operation from 0 to 6500 ft (0 to 2 km)
Endurance	IP54 MIL-STD-810G Drop and Vibration procedures	IP54 MIL-STD-810G Drop and Vibration procedures
Phone width	2.2 inches (55.88 mm)	
Phone length	5.2 inches (132.08 mm)	
Phone depth	0.7 inches (17.78 mm)	
Phone weight	phone: 121 grams battery: 37 grams total: 158 grams	
LCD	2.4-inch (6-cm), 320x240 color display	
Power	AC adapters by geographic region Rechargeable Lithium ion 4.35V, 2060mAh smart battery	

For more information, see the phone datasheets, located at <https://www.cisco.com/c/en/us/products/collaboration-endpoints/unified-ip-phone-8800-series/datasheet-listing.html>.

Bluetooth Technology

The Cisco Wireless IP Phone 882x Series are full-feature telephones and provide voice communication over the same wireless LAN that your computer uses. In addition to basic call-handling features, your phone operates with Bluetooth wireless headsets, including certain hands-free call features.

Bluetooth devices operate in the unlicensed Industrial Scientific Medicine (ISM) band of 2.4 GHz, which is the same as the 802.11b/g band. This unlicensed band in most countries includes the frequency range from 2400 to 2483.5 MHz. Bluetooth enables low bandwidth wireless connections within a range of 10 meters. The best performance is in the 1 to 2 meter range. Synchronous voice channels are provided by using circuit switching and asynchronous data channels are provided by using packet switching.

Bluetooth uses integrated Adaptive Frequency Hopping (AFH) to avoid interference. Every 625 microseconds (1/1,000,000 of a second) the channel changes or hops to another frequency within the 2402 to 2480 MHz range. This equals 1600 hops every second.

The phones contain a Bluetooth module and 802.11 WLAN module. This coexistence greatly reduces and avoids radio interference between the Bluetooth and 802.11b/g radio.

Bluetooth devices fit into to three different power classes, as shown in the following table.

Table 2: Bluetooth Maximum Permitted Transmit Power and Range by Class

Class	Maximum permitted transmit power (mW, dBm)	Range
Class 1	100 mW, 20 dBm	Up to 100 meters
Class 2	2.5 mW, 4 dBm	Up to 10 meters
Class 3	1 mW, 0 dBm	Up to 1 meter

Bluetooth Class 2.0 with Extended Data Rate (EDR) is a short-range wireless technology that is supported by the wireless IP phones. The phones support the Hands-Free Profile Version 1.5.

Because of potential interference issues, we recommend that you:

- Use 802.11a that operates in the 5 GHz band.
- Reduce the proximity of other 802.11b/g devices, Bluetooth devices, microwave ovens, and large metal objects.
- Use the phone on the same side of the body as the Bluetooth-enabled headset.



Caution The Cisco Wireless IP Phone 8821-EX has not been tested or certified to use any Bluetooth accessories in hazardous environments.

For information about pairing headsets, see [Headset Usage, on page 3](#).

For more information about Bluetooth and hands-free profiles, see <http://www.bluetooth.com>.

Headset Usage

Although Cisco performs some internal testing of third-party wired and Bluetooth wireless headsets for use with the wireless phone, Cisco does not certify or support products from headset or handset vendors. Because of the inherent environmental and hardware inconsistencies in the locations where phones are deployed, there is not a single “best” solution that is optimal for all environments. Cisco recommends that customers test the headsets that work best in their environment before deploying a large number of units in their network.



Caution The Cisco Wireless IP Phone 8821-EX has not been tested or certified to use any Bluetooth accessories, including headsets, in hazardous environments.

Cisco recommends the use of good quality external devices, like headsets that are screened against unwanted radio frequency (RF) and audio frequency (AF) signals. Depending on the quality of these devices and their proximity to other devices such as cell phones and two-way radios, some audio noise may still occur.

The primary reason that a particular headset would be inappropriate for the phone is the potential for an audible hum. This hum can be heard by either the remote party or by both the remote party and the phone user. Some humming or buzzing sounds can be caused by a range of outside sources; for example, electric lights, being near electric motors or large PC monitors. In some instances, the mechanics or electronics of various headsets can cause remote parties to hear an echo of their own voice when they speak to phone users.

Related Topics

[External Devices](#)