



Lighthouse ARA



The JOY of Being an Untethered Ham Operator

Plantronics W720 wireless headset & more !

Gene, K5PA & Tom, KB5RF

Presentation to the Lighthouse Amateur Radio Alliance (LARA) Virtual Club Meeting, 7:30 PM EST, Thursday, February 25, 2021

Our Goals Tonight

- ▶ Talk about different class of headsets with new functionality for your ham shack
- ▶ How can this be used?
- ▶ How to purchase & interface
- ▶ Give demonstrations
- ▶ Provide Q&A



How did this come about?

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- WB2REM's (Jim) 7163 kHz Early Morning DX and Chat Net
 - 10 years running, 5:00-7:30 a.m. EST, 7 days a week
 - Work DX and Tech Chat on Different Subjects
 - Constantly Evaluating Technology
 - Evaluated Different Wired Headsets for 3 Hour Net Ops
 - Found CS520 Wireless, K5PA and WB2REM adapted to Net Ops
 - Not uncommon for users to fall asleep with them on (OTA snoring!)
- Application Documented in 1st Article in CQ Magazine

September 2017

Available as Download on

<https://www.k5pa.com>



How Versatile is the W720?

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- Next Found the Plantronics W720 Using the WO2 Base Unit
 - Can use same AC/DC adapter and same headset as CS520
- Wireless, 3 Audio Streams, Any 2 Can Be Merged
 - Same Time Frame, Created the “*Cell Patch*” -- Ham Radio Phone Patch Using 2 Cell Phones (QST Article)
 - Useful Applications Explained Later
 - *Cell Patch* (VE0JS, Jean Socrates checked into our 7163 Net but if propagation was poor, used Sat Phone to Cell Phone Call and patched to W720 for transmission over 7163 kHz)
 - RemoteHams Client
 - Transceiver Audio
 - Cross-Connect Ham Radio with Cell Phone Audio for Shared Listening
 - Multi-Headset (3) Can be Shared Simultaneously
- Application Documented in 2nd Article in CQ Magazine

October 2018

Available as Download on

<https://www.k5pa.com>



What CHOICES!

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Radiosport, RS60CF



Heil, Pro 7



Yamaha, CM500



Heil, Pro Micro



KOSS, 3000

Quick Look at Classes of Headsets

- ▶ Communications, Radio (Typically Over/On Ear)
- ▶ Communications, Aircraft (Over Ear)
- ▶ Traveler, Lightweight (Over Ear)
- ▶ Audio (with noise reduction) (Over Ear)
- ▶ Computer (Over/On Ear)
- ▶ Audiophile (Over Ear)
- ▶ Gaming (Over Ear)
- ▶ Cellphone Systems (In Ear Buds)
- ▶ **Telephone Systems (home, call centers) (On Ear)**

What is this Plantronics headset anyway?

The model W720

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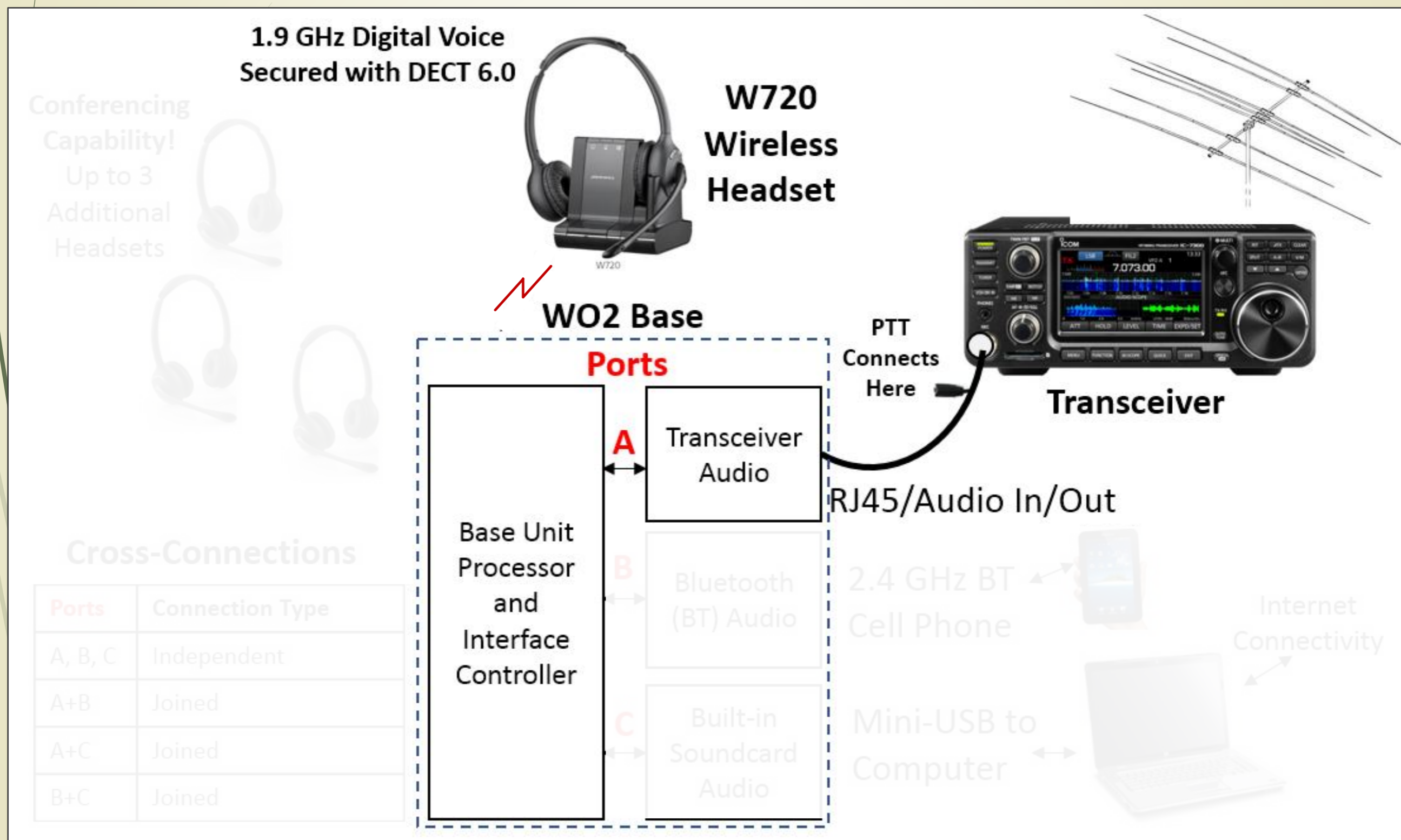
- ▶ Commonly Found in Call-centers
 - ▶ 350 foot range (or greater)
 - ▶ 1.9 GHz (base unit to headset **does not** use Bluetooth)
 - ▶ DECT 6.0 (secure, private connection) –or USA FCC version
 - ▶ AES encryption for voice (128 bit)
 - ▶ Low Latency(15 mS)
 - ▶ 3-in-1 design allows you to use the same light headset with your PC, office phone and cell phone
 - ▶ Easily adapted to use with transceivers, cell phones and computers (built-in sound card)
 - ▶ VOX or Wireless PTT for use with transceivers

BUT WAIT...
THERE IS MORE

Turn Page

What is this Plantronics headset?

(Model W720 Connectivity is key)



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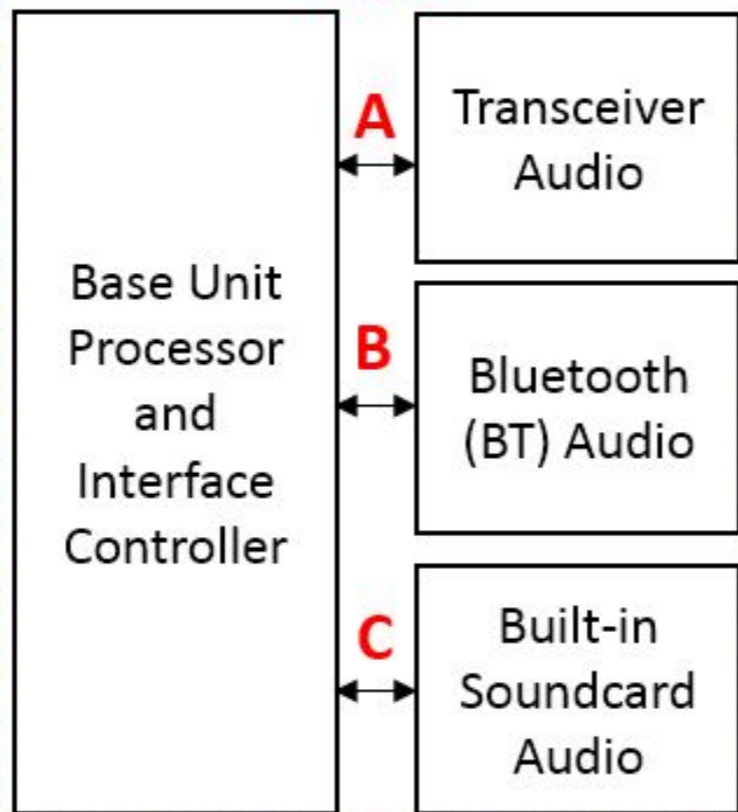
1.9 GHz Digital Voice Secured with DECT 6.0



**W720
Wireless
Headset**

WO2 Base

Ports



Transceiver

PTT Connects Here

RJ45/Audio In/Out

2.4 GHz BT Cell Phone



Mini-USB to Computer



Internet Connectivity

Conferencing Capability!
Up to 3 Additional Headsets



Cross-Connections

Ports	Connection Type
A, B, C	Independent
A+B	Joined
A+C	Joined
B+C	Joined

What is this Plantronics headset?

(Model W720 Connectivity is key)

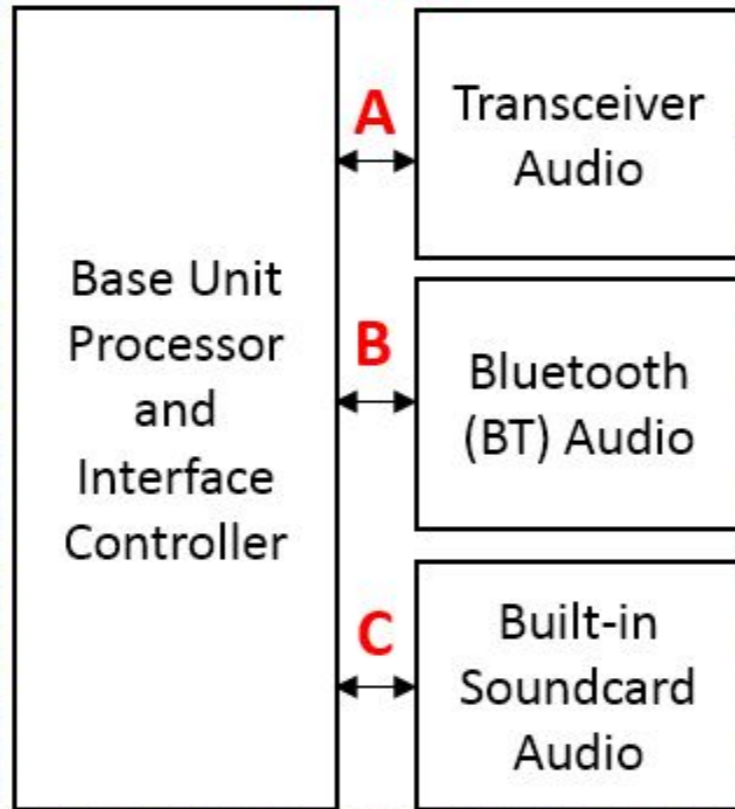
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**W720
Wireless
Headset**

WO2 Base

Ports



Transceiver

PTT
Connects
Here

RJ45/Audio In/Out

2.4 GHz BT
Cell Phone



Mini-USB to
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Internet
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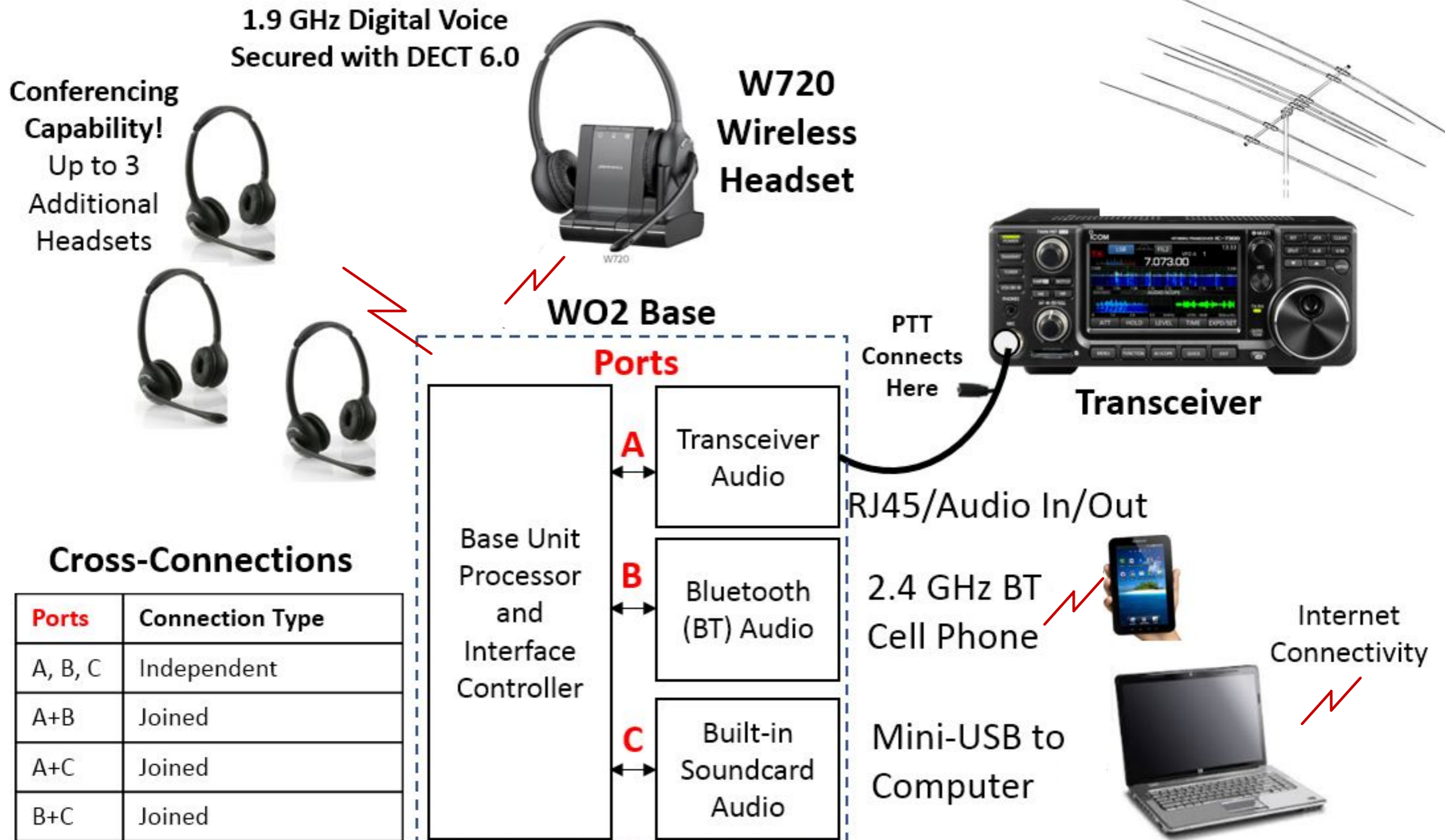


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What is this Plantronics headset?

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Let's Look at Use Cases

More than just another headset, this is a *cool tool*

Use Case 1

Everyday Cell Phone Calls



Use Case 2

Computer Audio, Zoom/Skype Calls



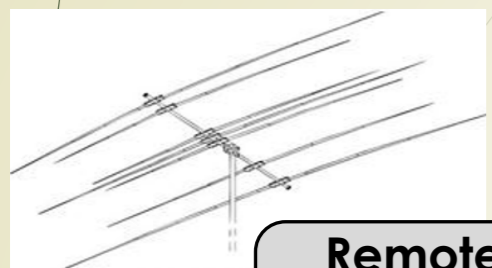
Use Case 3

Local Radio With Freedom to Walkabout Home Property, Nets, Monitoring, Working DX from Any Room



Use Case 4

Comparing Remote Radio & Local Radio Reception or Enhancing Net Ops

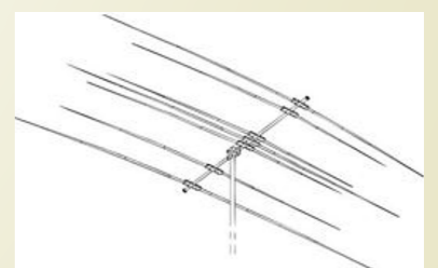


Remote Radio SITE



1.9 GHz

Wired Audio Connection



Use Case 5

Cell Patch to Local Radio



Use Case 6

Cell Patch to Local Radio

Jeanne Socrates, VE0JS, Circumnavigation QSOs



Use Case 7 – Walkie Talkie

Two Headset Conference Mode



Worker & Helper Hands-Free
Communications Tool

- Attic/Ham Shack/Antenna Field Work

Use Case 8 – Your Silent Partner

Squelch complaints about loud TV

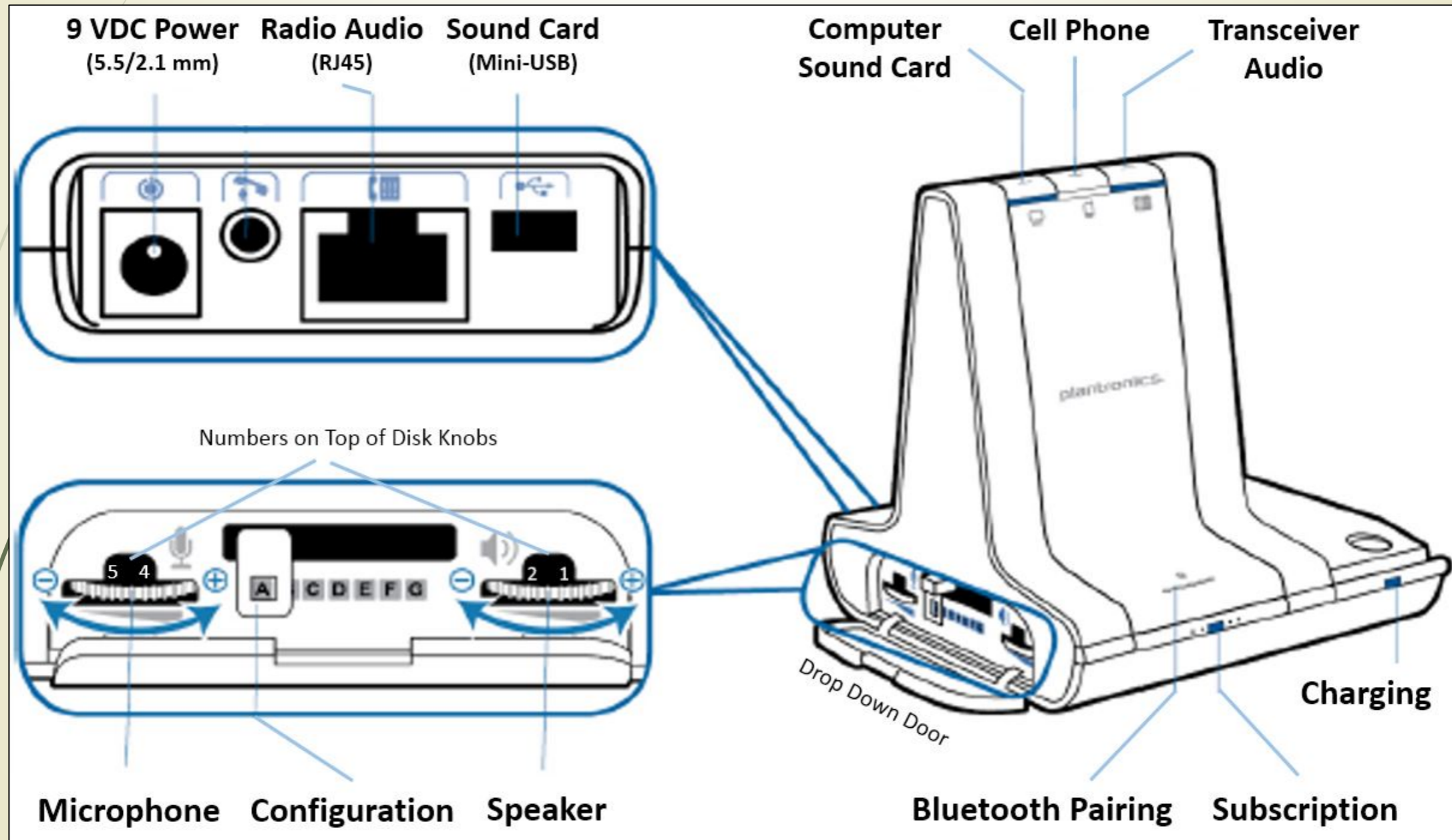


Walkabout about the home while listening to your favorite program

Base Unit Interfaces, Controls, Audio Latency & Purchasing

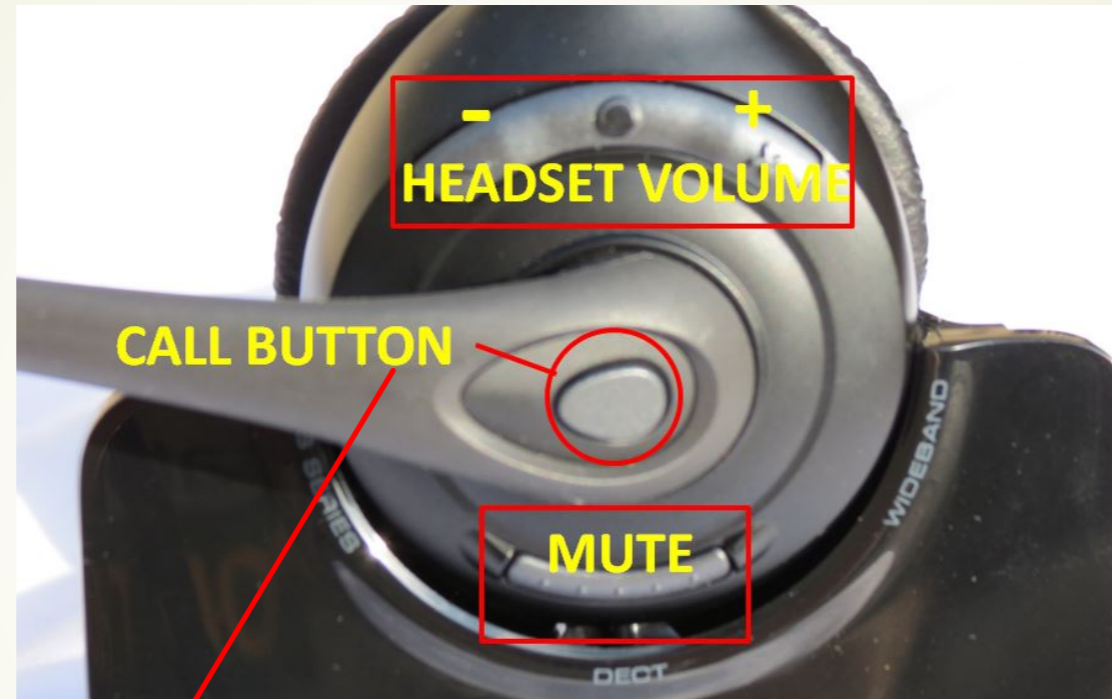
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Where are the Connections to the WO2 Base Unit?



Gene – notes on dial set up for volume/gain settings mic 3-4 speaker

How do you Make Connections and Control the Volume



Call button is also used for connecting multiple headsets for conferencing

Call button pressed for 3-sec can also be used to put headset to sleep for up to 50 hours!

SLEEP TIME

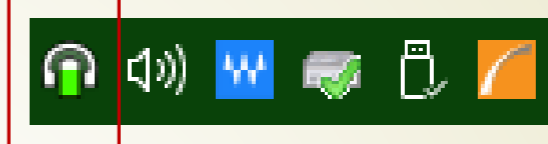
How Do You Manage Your Source Connections?

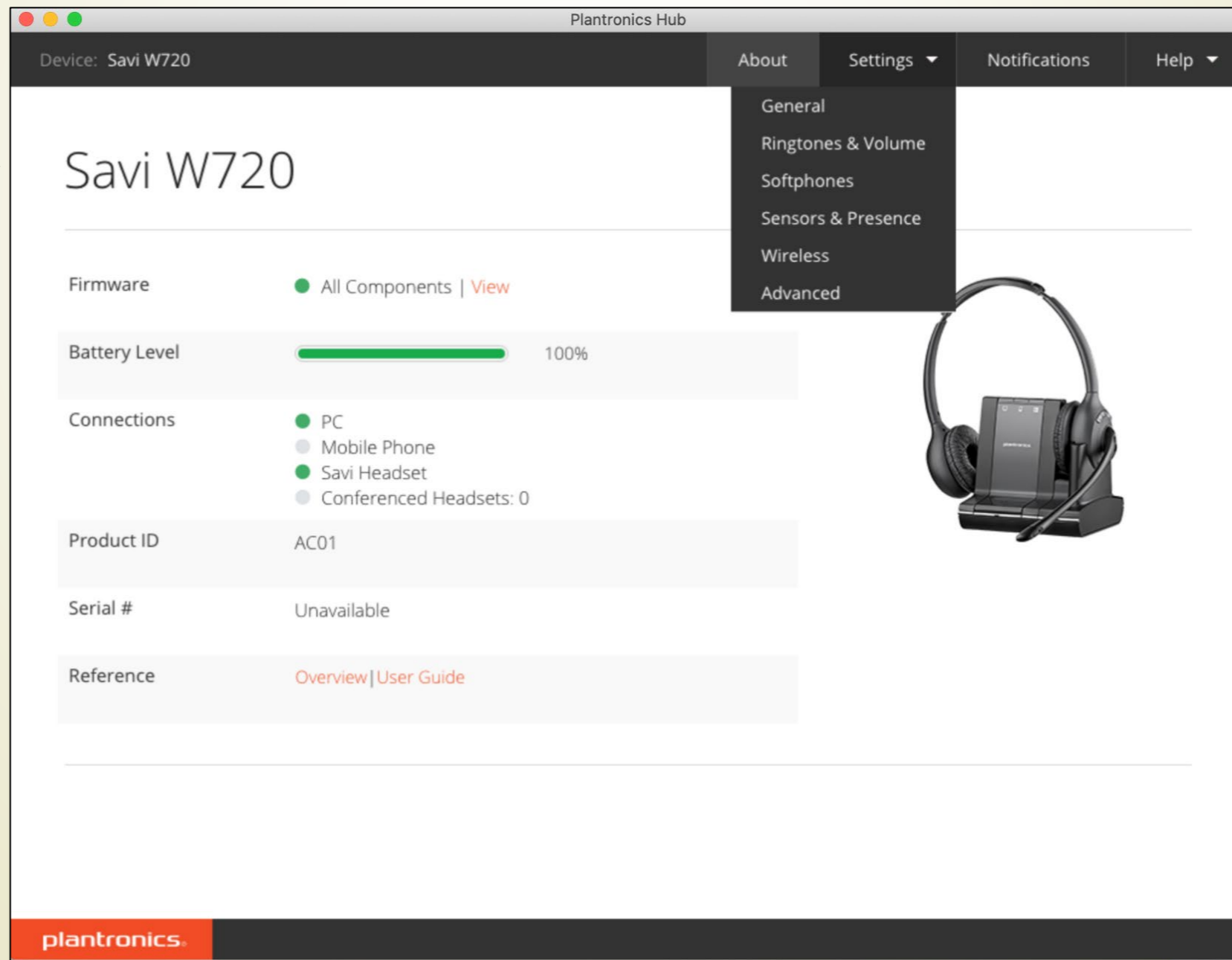


Cross Connect - Just press any 2 of the 3 buttons to connect those inputs. Hold both buttons for **3**-seconds to cross-connect!

Cross Disconnect - When 2 are shown joined, just press button that you want to **disconnect**.

Plantronics Hub App Software - FREE

- Configuration program for PC or Mac, free
- Also, provides a tray icon 
- Can show **% battery** remaining



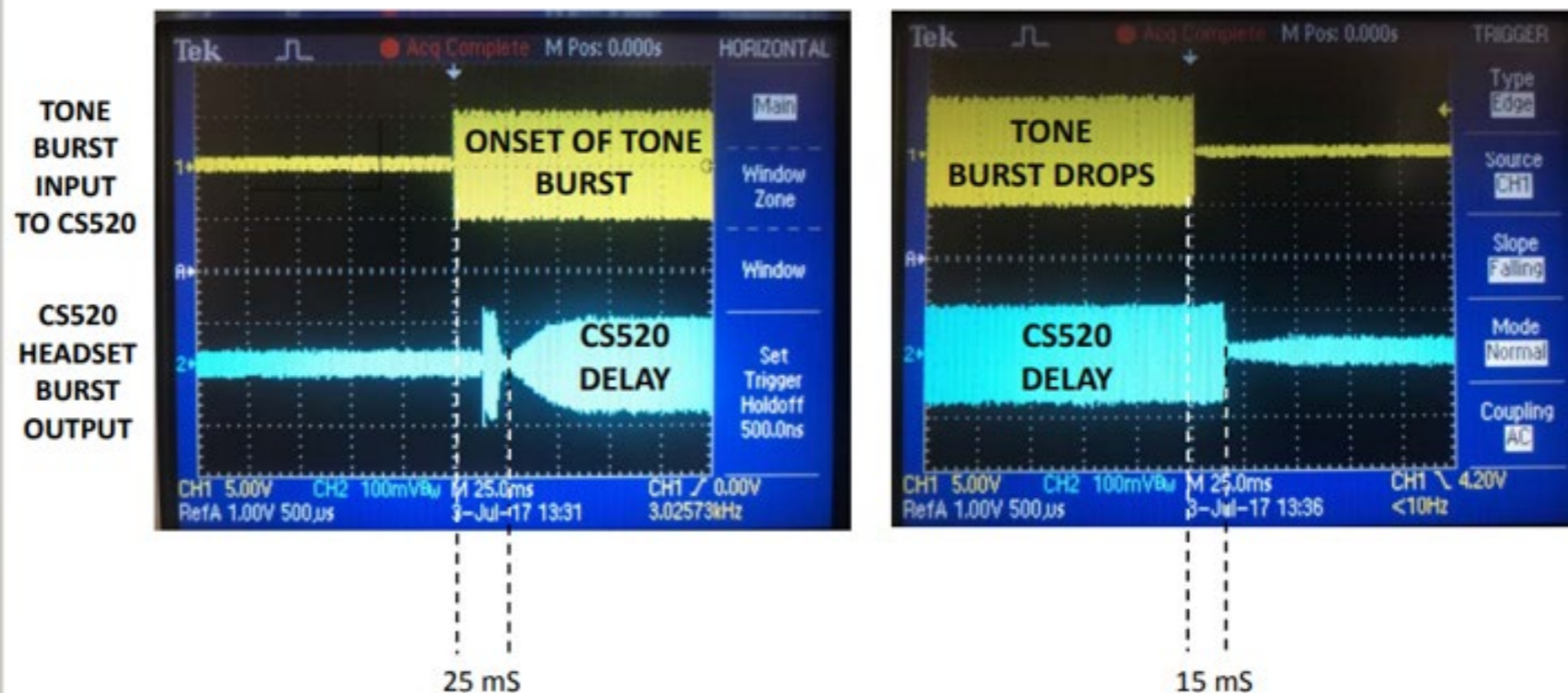
What is Latency Delay in the Wireless Headset Audio?

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- Measured audio delay from tone burst inception into base unit to audible output of earphone
- Important when manually generating Morse code using a manual paddle key and keyer

Tone Burst Measurements Through Wireless Headset

Relevance: Working Morse Code With Long Latency Is difficult. This Test Was Made to Characterize The Delay Time.



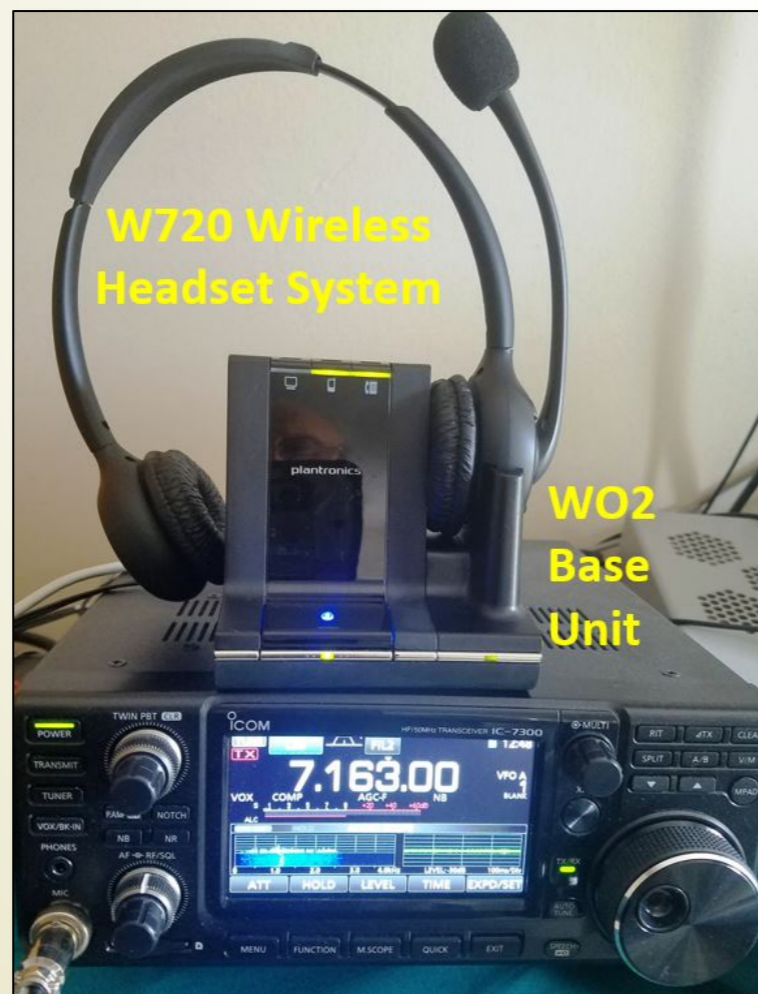
Results: Envelope Audio Latency 15 to 25 mS

Note 1 - Measured using CS520 but should be same as W720

K5PA, Gene, Quick Look, 7/3/2017

How Do You Purchase the W720?

- Where to buy - get a used one
 - ebay (\$50-\$100 typically)
- Search for W720 and DECT 6.0



The SAVI W720 Headset System for the USA Market Places

WO2 Base Unit With Headset Charger Cup

The WO2 base unit must be purchased with the correct headset cup so it can be charged when in the cradle. The photograph shows how the W720 should appear when it has the **correct cradle attached already**.

If you find a WO2 base that has a different headset charging cradle, it can be snapped off and the proper one snapped in its place. Preferably, you should buy the correct WO2 unit with the correct cradle already installed for the binaural (2-ear) headset as shown in the figure.

If you wanted to replace your existing cradle, the headset cup is Plantronics P/N 83776-11 and can be snapped in place in the WO2 base. It can be purchased separately from [ebay](#) or the Plantronics Outlet Store.



This is Plantronics P/N 83776-11 Prior to Snapping onto the Base Unit. ←



[ebay](#)

[amazon](#)

[Google](#)

FactoryOutletStore.com
An Independent Retailer Of Consumer Products

plantronics.

Authorized Partner

Price Class: \$50 - \$200 ea.

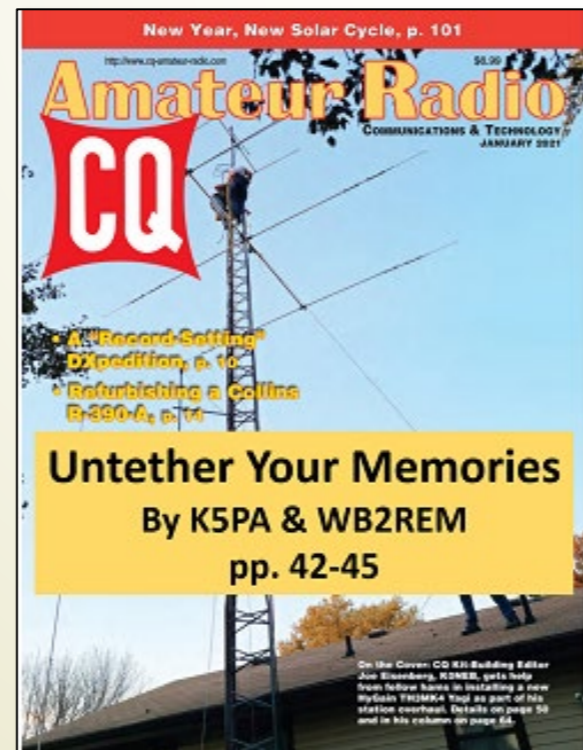
Rev-A

Wireless Transmit Control (VOX/PTT) and Message Memories

- Generally, use VOX if you like it
- Use the mute mic button on headset to while using VOX
- We also have wireless push-to-talk DIY projects – see K5PA web resource
- Now have a wireless relay circuit for Icom transceivers to access message memories – 4 and 8 to activate *CQ*, or *this is a good to join the net*, or *CQ DX*, etc.
 - The operator can now be totally separated from the radio and still send voice message memories

And **NOW**, Untethering Your Memories... for Icom Operators

- January 2021* article in CQ Amateur Radio magazine
 - **Untether Your Memories** for Icom Transceivers
 - **Answers the Question:** If you already have *wireless* headset, *wireless* push-to-talk or VOX, don't you need *wireless* Voice Memories too?



* Authors K5PA, Gene & WB2REM, Jim published in CQ Amateur Radio, Jan. 2021

Next, *Live* Demos

Live Demonstration #1

Computer (Zoom) + Radio

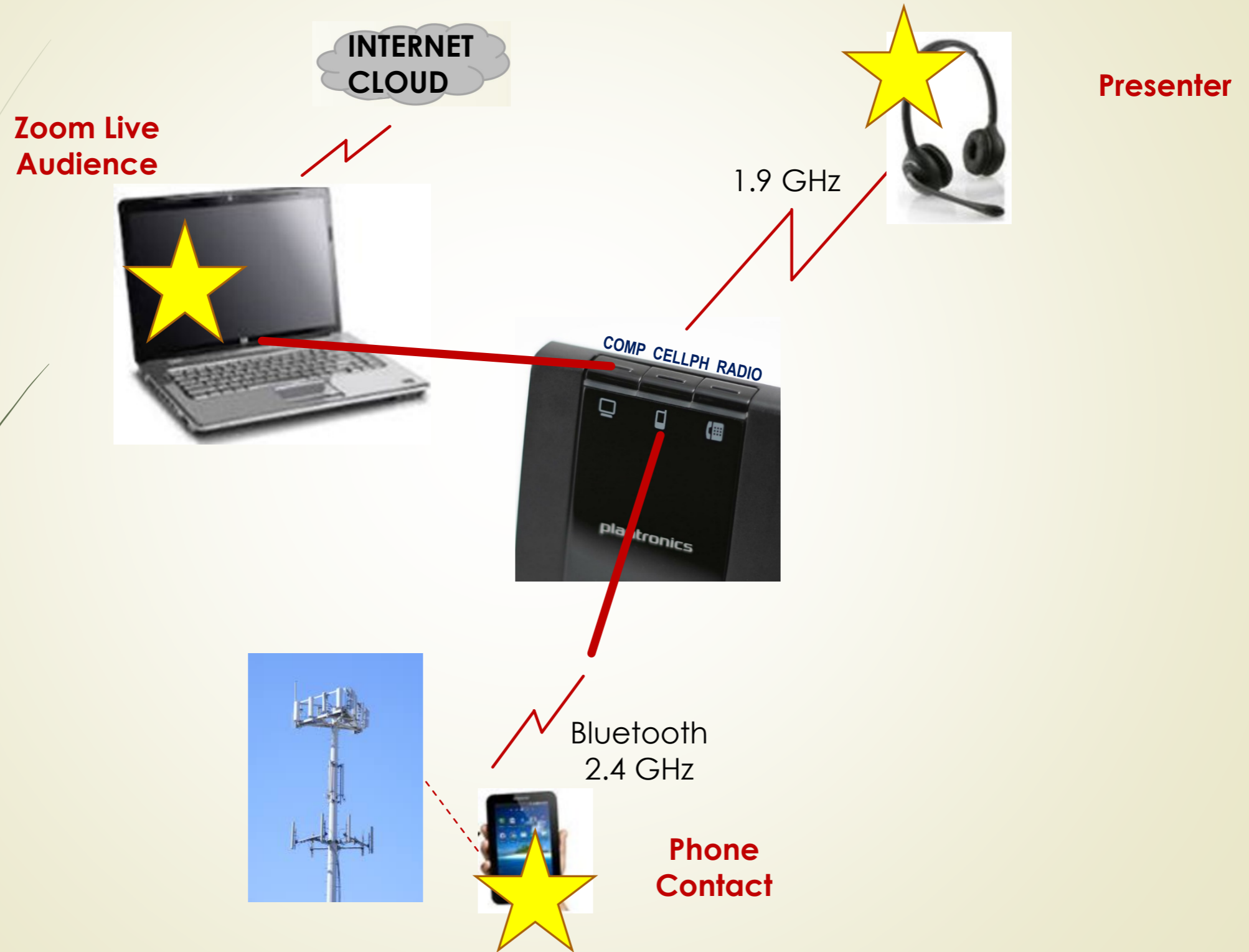
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Live Demonstration #2

Computer (Zoom) + Cell Phone

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Live Demonstration #3

Computer (Zoom) + Cell Phone

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Zoom Live Audience



INTERNET CLOUD

Only 2 of 3 Cross-Connections Allowed at a Time

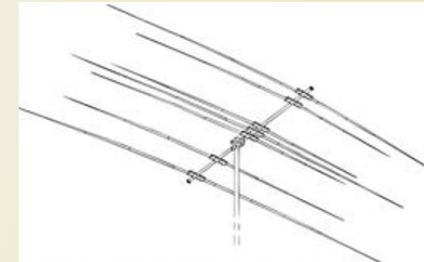
Presenter



1.9 GHz



Wired Audio Connection



Bluetooth
2.4 GHz



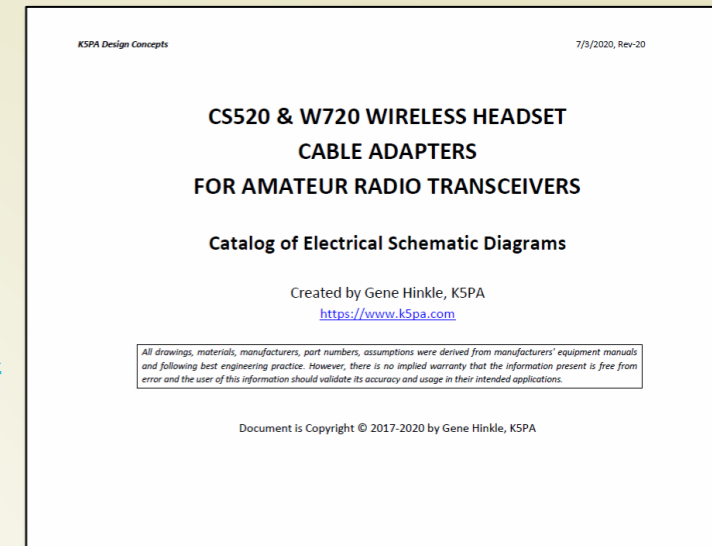
Phone Contact



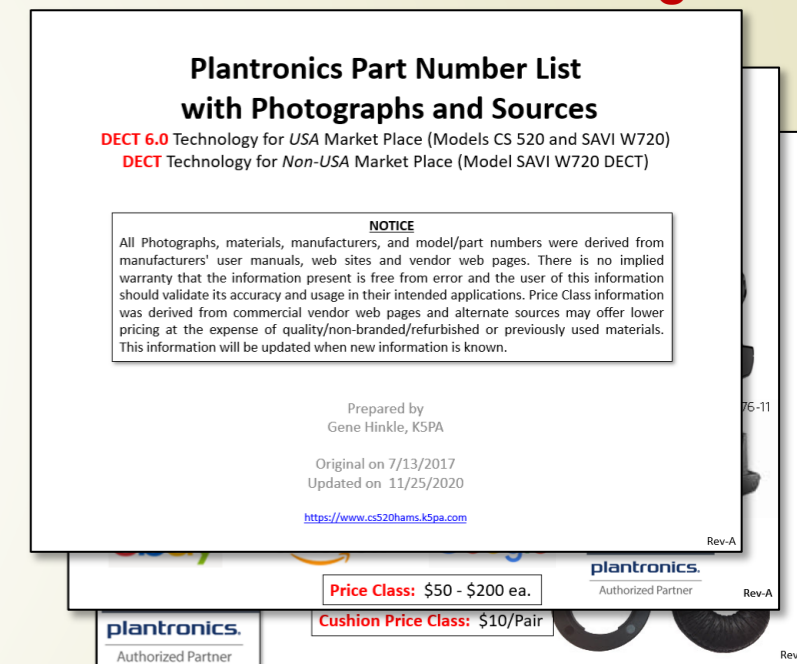
Over-the-Air QSO

Where are the Resources?

- K5PA's W720 Resource Webpage
- <https://www.k5pa.com> & [Resource Webpage Link](#)
- Documentation on Plantronics Headsets
- **Catalog** of Transceiver Interfaces
- **Plantronics Part Numbers**
- Technical Information
- Do It Yourself (DIY) Projects
 - FLEX 6400 & Maestro
 - FT991 Interface with Wireless PTT
 - Connecting to Phone Plug Audio
 - Connecting to Cell Phones or Tablets



Part Numbers For Ordering



DIY Projects



Thank you

This presentation will be made available as a PDF document

Questions?

The End



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