

HANDS FREE MOBILE HAM RADIO AND BLUETOOTH

*Presented to the West Carleton ARC
November 3rd, 2009*

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Ontario Bill 118
Prohibition on use of
Hand-Held Devices while Driving

ONTARIO REGULATION 366/09
made under the
HIGHWAY TRAFFIC ACT

Made: September 28, 2009

Filed: September 29, 2009

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DISPLAY SCREENS AND HAND-HELD
DEVICES

What it means to Amateur Radio

Time-limited exemption for amateur radio operators

13. (1) Until January 1, 2013, drivers who hold a valid radio operator certificate issued under the *Radiocommunication Act* (Canada) may drive a motor vehicle on a highway while holding or using a two-way radio.

Exemption for pressing buttons

14. (1) A person may drive a motor vehicle on a highway while pressing a button on a hand-held wireless communication device to make, answer or end a cell phone call or to transmit or receive voice communication on a two-way radio if the device is placed securely in or mounted to the motor vehicle so that it does not move while the vehicle is in motion and the driver can see it at a quick glance and easily reach it without adjusting his or her driving position.

(2) A person may drive a motor vehicle on a highway while pressing a button on a device that is worn on his or her head or hung over or placed inside his or her ear or is attached to his or her clothing and is linked to a hand-held wireless communication device to make, answer or end a cell phone call or to transmit or receive voice communication on a two-way radio or a hand microphone or portable radio.

So what seems to be required for Legal Operation while driving

Mobile or Portable Radio that :

- Is securely mounted inside the vehicle;
- Is in view at a glance;
- Can be readily adjusted from the drivers position;
- Uses a Microphone that is not handheld and
- Uses a PTT button/switch that is not handheld but may be worn on the body.

Wired Options for the Amateur

1

- Fix mount a microphone in the car, on the visor, windshield pillar or rear-view-mirror.
- and
- Use a separate PTT toggle switch perhaps secured to the gear shift lever or other easy access location. It is suggested the switch should be toggle on, toggle off, and not momentary action.

Wired Options for the Amateur

2

HEIL TRAVELER

SINGLE SIDE



Wireless Bluetooth Options



Yaesu FTM 10R

With Bluetooth option



And Yaesu VX-8R Portable

With optional Bluetooth Board and accessories the same as the FTM – 10R mobile

Add \$ 100 for BU-1 Bluetooth adapter.



TalkSafe Bluetooth Interface

Made by:
RPF Communications Ltd
Essex, UK

Available at:
RadioWorld, Toronto
\$220



My Option Based on Jabra A210

Purchased 5 from
Vendor on E-Bay
So called “Defective”
Units .. All had
Defective batteries,
but otherwise worked.





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Lot of 5 Defective Jabra A210 Bluetooth Adapters

For Non-Bluetooth Phones, GENUINE JABRA! FREE SHIPPING!

Item condition: --



Enlarge

Quantity: 1 7 available

Price: US \$9.99 Buy It Now

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Coverage: Pay with PayPal and your full purchase price is covered | See terms

Seller info

wirelesstelcom (644 ☆) 99.2%

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Visit store: wirelesstelcom

Other item info

Item number: 280358911341

Item location: East Coast, United States

Ships to: United States

Payments: PayPal See details

History: 18 sold

Here's the A 210 Mobile Interface for the ICOM IC 706



In Car View of Chevy Tracker

Interface to microphone modular receptacle and headphone jack.

PTT is Red Button
Push On / Push Off



My Bluetooth Headset (for starters)

Motorola H390

\$29.95 at Walmart



Other Attractive Bluetooth Headsets

Plantronics 510, \$75



**Blue Parrott B250-X
\$100**

My Bicycle Setup



Wearing the Earpiece



The A210 interfaced to VX 6 Portable



Handlebar PTT



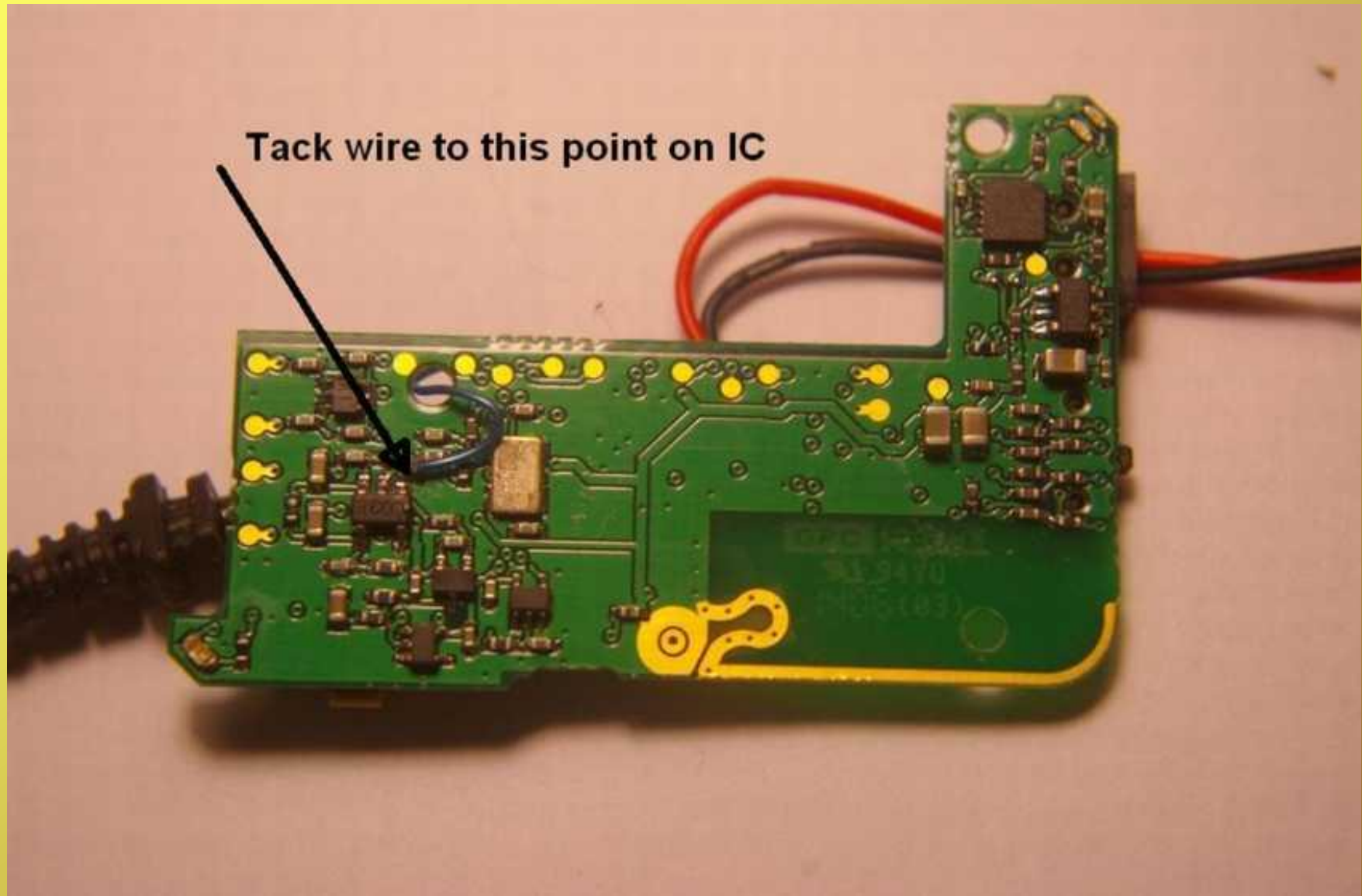
Issues using the Jabra A 210

- PIN Code is Static and set to 0000

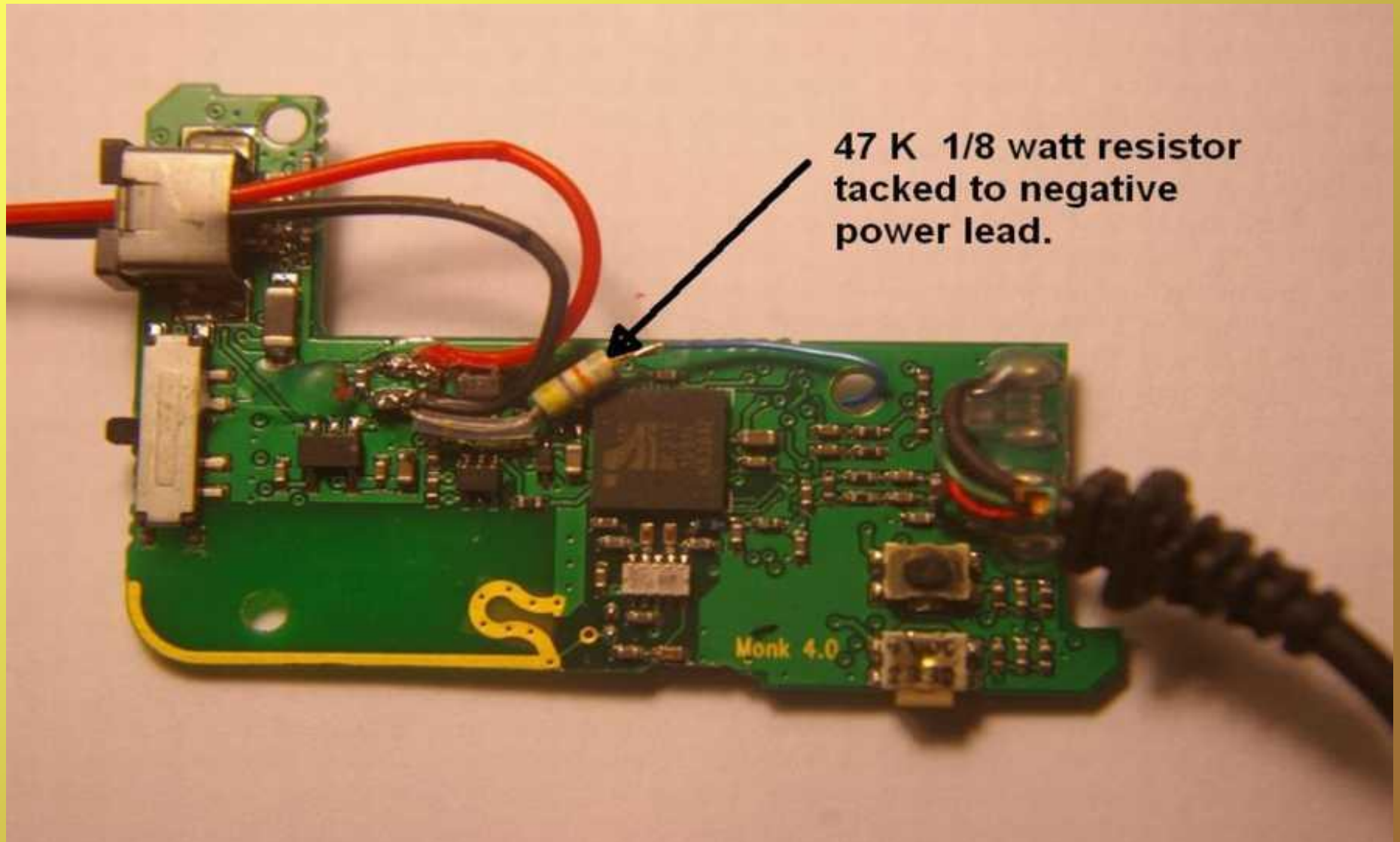
As a consequence, can not be used with some Bluetooth equipped cars that generate a random PIN code for security.

- Unmodified, the device “Times Out” after loss of Receive Audio for 60 seconds.

Modifications to A 210 to prevent time out



Modification to A 210 to prevent time out





Bluetooth™

Basics

- Named after Danish Viking King Harald Blatand (translated “Bluetooth” in English). King Bluetooth evidently ate a lot of Blueberries which stained his teeth blue, hence the name.
- King Bluetooth (10th century) kingdom united Denmark and Norway hence the inspiration of the name of the technology uniting devices
- Bluetooth is essentially short range wireless cable replacement technology

Bluetooth Radio Basics

- Operates in the 2.4 GHz ISM band between frequencies 2402 – 2480
- Frequency Hopping Spread Spectrum
- 79 frequencies in the Hop Set (1 Mhz between frequencies)
- Hop sequence is randomly generated
- 1600 Hops/Second / 625 usec per hop
- All TX and RX transceivers share same hop sequence in “PICO-NET”
- Up to 7 Slave devices to one Master Device in a single Pico-Net.

Other Bluetooth Basics

- Class 1 device = 100 mW (100 dBm)
- Class 2 device = 2.5 mW (4 dBm)
- Class 3 device = 1.0 mW (0 dBm)

- Most consumer devices are 2.5 mW for a range ~ 10 meters

- Receiver sensitivity ~ -70 dBm for 0.1% bit error rate (BER)

Radio Modulation

- Version 1.0 , GFSK good for 1 Mbits/sec
- Version 2.0 , $\pi/4$ DQPSK good for 2 Mbits/sec
- Version 2 +EDR, 8 DPSK good for 3 Mbits/sec

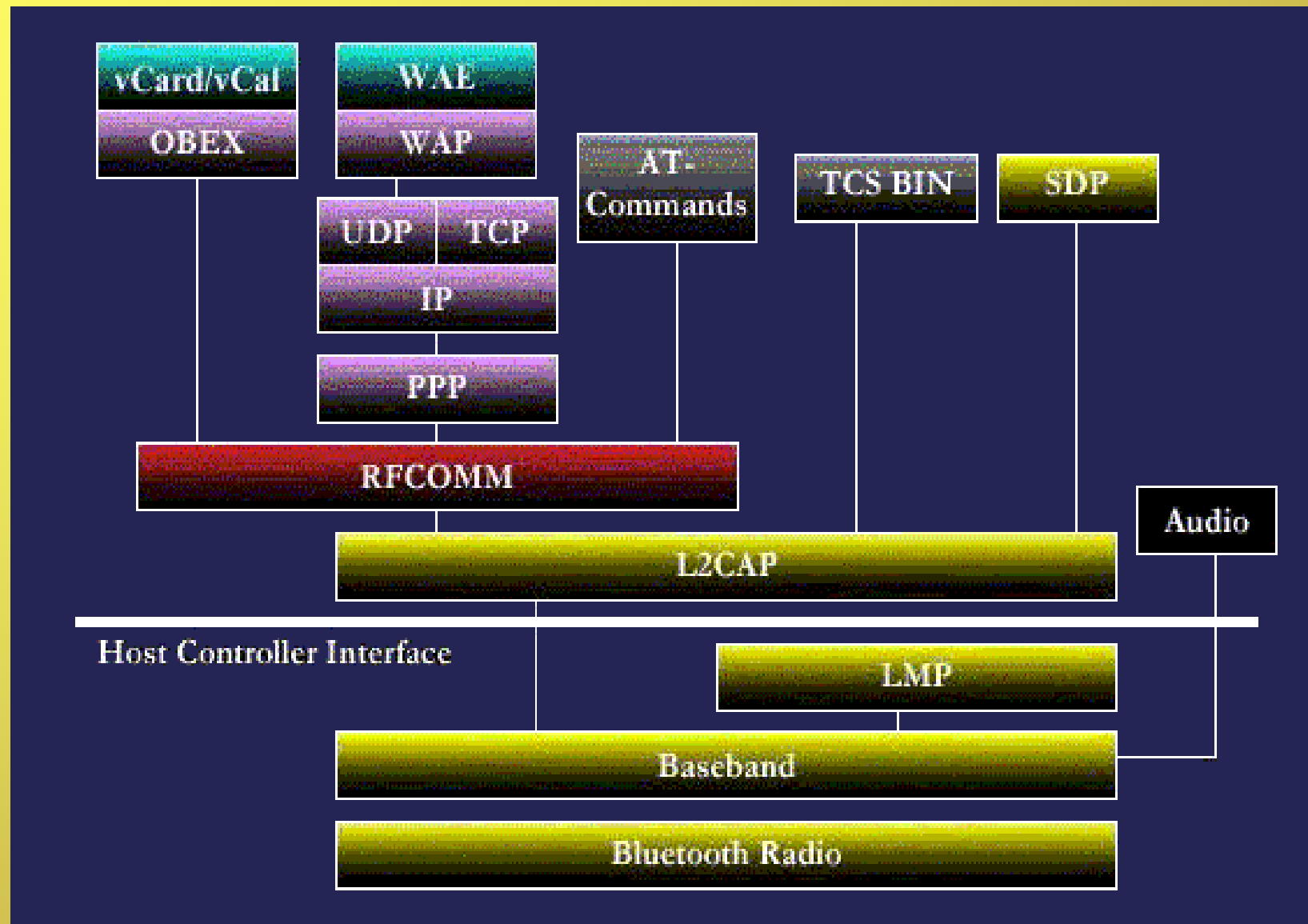
Bluetooth Security

- Unique 48 Bit address for every Bluetooth device.
- PIN codes (generally 4 digits).
- Authentication using PIN between units in initializations process
- Devices paired to the Master in a Pico-Net assigned an “Active Member Address”, others can't break into the Net.
- Encrypted “Link-Key” established and exchanged (128 bit)

Pairing Process

- Device “A” searches for other devices in the “discovery” mode. (I'm available)
- Device “A” detects Device “B” with Name ID.
- Device “A” sends Device “B” “PIN” Code
- Device “B” compares received “PIN” Code with its own.
- Device “B” sends “PIN” Code back to Device “A”
- Encryption “Link-Key” exchanged.
- A “trusted Pair” is established for further communications and shouldn't require further authentication.

Bluetooth Protocol Stack



Bluetooth Digital Audio Codec

- Based on 64 Kbit/sec log PCM (pulse code modulation)

or

- 64 Kbits/sec CVSD (Continuous Variable Slope Delta Modulation)

Bluetooth Services

- Personal Area Networking Service
- Dial-Up Networking Service
- Serial Port Service
- Lan Access Service
- File Transfer
- Object Push Service
- Printer Service
- Human Interface Device Service (ie Mouse)
- FAX Service
- Audio Headset Service

QUESTIONS ?

DISCUSSION ?