

The W8UM Shack Primer

Facts our members should know before seeking Station Manager approval to operate the shack communications equipment

Part I

Bill AA8RW

January 13, 2011

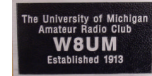
W8UM Amateur Radio Club

NOTE: A copy of this presentation will appear on the W8UM web site shortly.

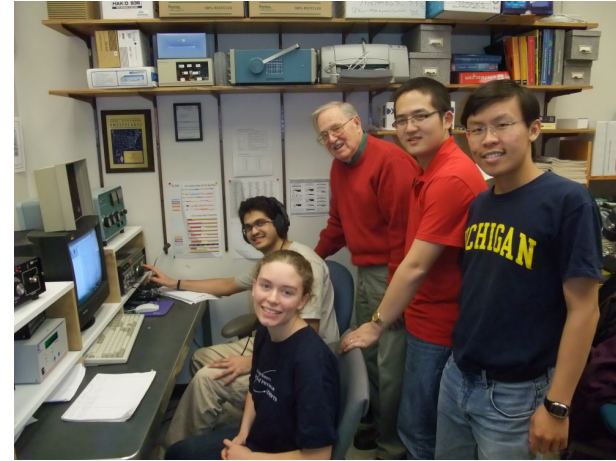
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A Timeline



W8UM ca. 2003



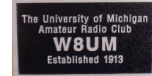
W8UM Dec 2010



W8UM 2011

Steps to using the W8UM shack:

- W8UM Membership
- This Primer
- K8QKY Station hands-on review
- Shack access code
- And thereafter a lifetime hobby filled with
 - Fun
 - Excitement
 - And good cheer

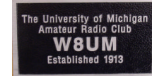


General Comments

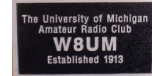
- Many of the following slides were taken from other presentations
 - Please ignore page numbers
 - Figure numbers, though odd, will be referred to occasionally
- Lots of detail on slides
 - Intended mainly for reference
 - We'll not discuss most of it
 - Refer to it later, as you need it
- Apologies for poor graphical quality
 - My software out of date
 - Material from old manuals and references with faded pictures



Caveats



- This presentation is intended to serve as
 - An intuitive background of the W8UM facilities
 - A jumping off start for those new to ham communication equipment
 - A review for those who have prior experience
- Much more study is necessary to operate any of the stations described in this presentation
 - Many secondary considerations have been neglected
 - Not all connection details have been described
 - Only basic operations have been included
 - Specific FCC rules have not been mentioned
- The responsibility of learning the necessary details is left to the new ham operator
 - Many of the finer details will be answered during your sessions with K8QKY and other more experience Elmers. Don't be afraid to ask questions
 - Much will be learned by hands-on experience and by
 - Reviewing your license study material
 - Reading QST, CQ Magazines and other ham journals, manuals and other literature
- I'm not infallible. Let me know of errors, omissions or could-of-dones



What will be covered

Compendium of theory, references, setups, specifications, operating procedures, software and safety useful in the W8UM shack.

Part I

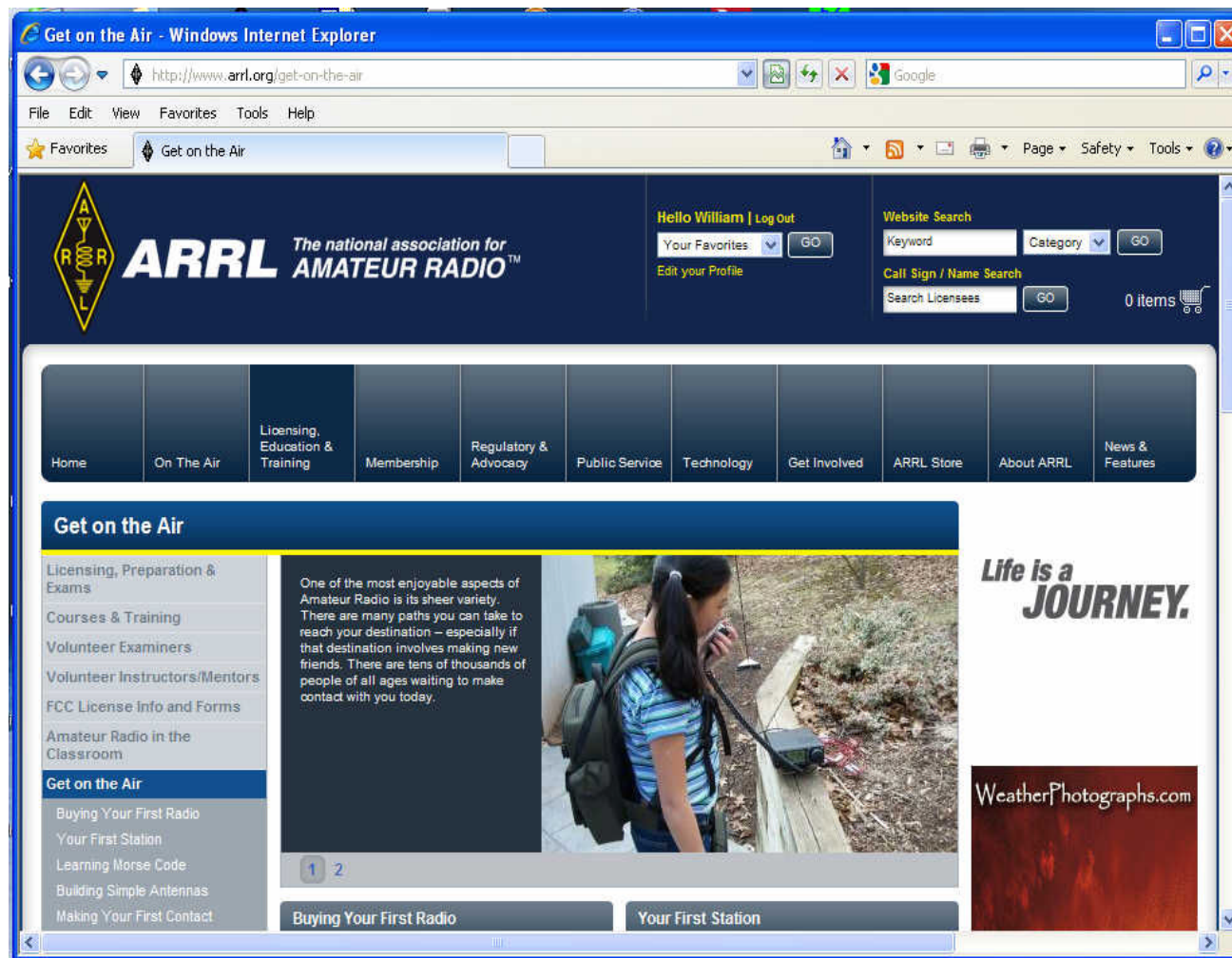
- Antennas
- Shack Stations
 - Workbench
 - Two meter
 - EchoLink
- References

Part II

- Shack Stations (continued)
 - HF
 - Satellite
- Safety
- References



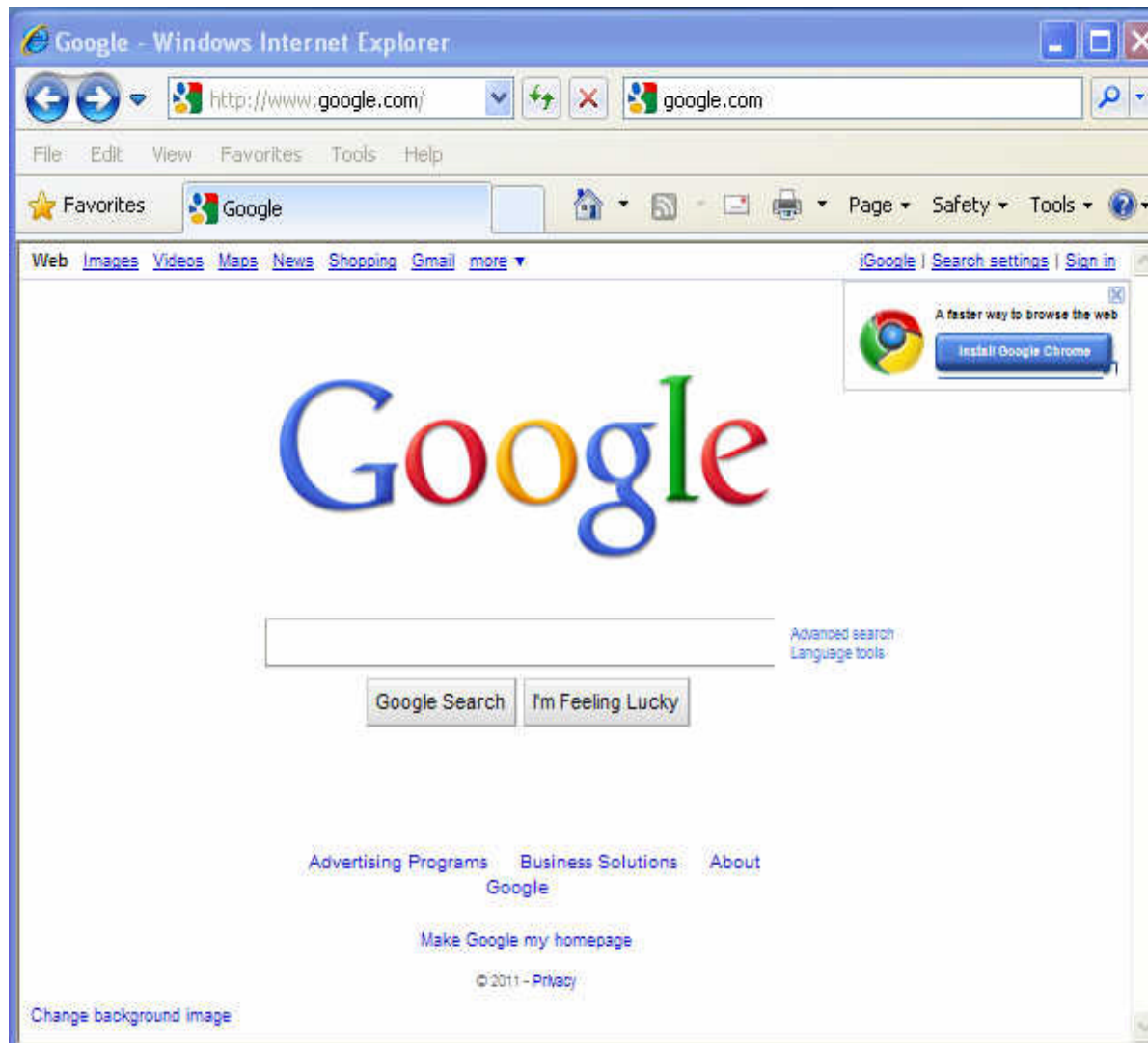
A.R.R.L. (A Valuable Resource)



<http://www.arrl.org/get-on-the-air>



Don't forget Google

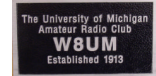




EECS Building

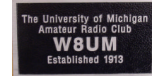
(Home of W8UM, its antennas & shack)





Antennas

- Safety First: EECS Bldg. roof access policy
- Dipoles & Yagis: a quick review
- Discone & Satellite Array
- Cabling, grounding and Lightning Arrestors



Roof Access Policy

Safety must always be the number one concern

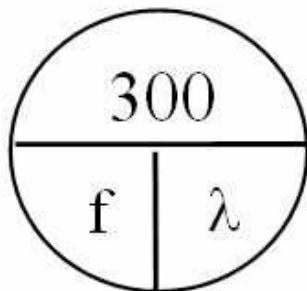
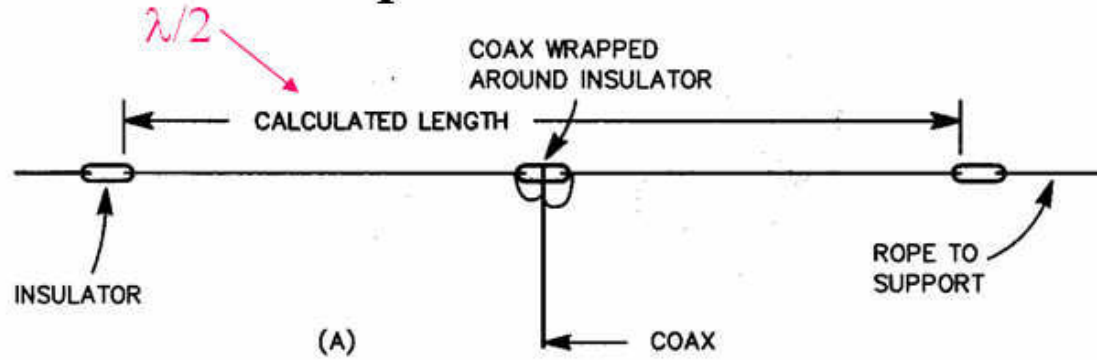
To access the EECS Building roof:

- Obtain **permission** from Paula Pernia, EECS building. manager.
- Before accessing roof, **shut off and secure** all shack radios, controllers, etc., and hang Do Not Operate signs on each item.
- Wear **proper attire**: long pants, shirts tucked in and no loose fitting clothing or open toe footwear.
- Stay at least 15 ft away from any **roof edge** and 20 ft from all **red taped exhausts** (unless there is a fume hood shutdown in effect.)
- Comply with the **Tower Climbing Policy** if climbing the tower.
- Do not work under influence of **alcohol or other substances**.
- **Do not work alone or during inclement weather** (Strong winds, snow, ice, rain and lightning). Winds should be in an easterly direction.
- Have a **cell phone** or other means to call someone in an emergency
- Always make certain there is an **unlocked access** passageway to the roof available in case of an emergency.

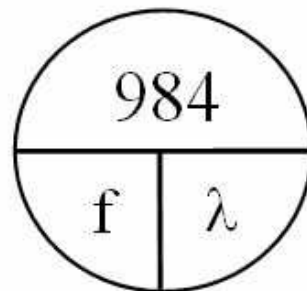


Dipole Dimensions

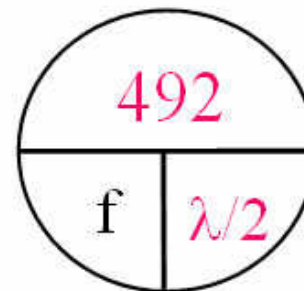
Fig. 8.27
p 8.21



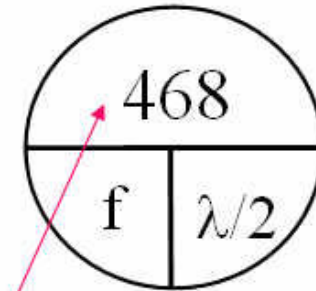
Free Space
Wavelength
(meters)



Free Space
Wavelength
(feet)



Free Space
1/2- Wavelength
(feet)



Dipole length
1/2- Wavelength
(feet)

Velocity in wire
less than in free
space

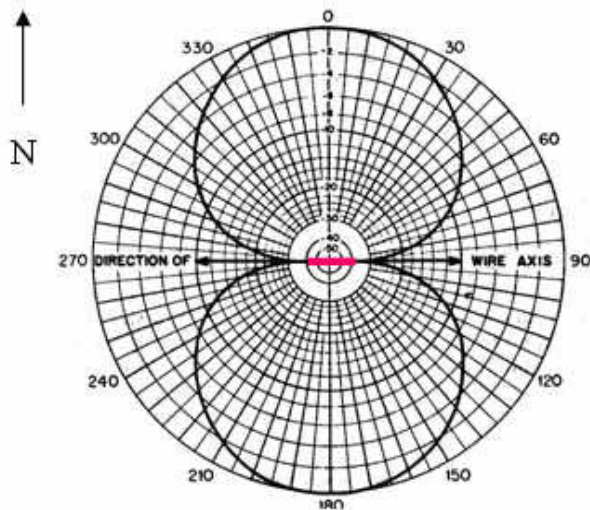
Frequency f in MHz

Example: If $f = 146.92$ MHz (2 M VHF Band), dipole length = $468 / 146.92 = 3.1854$ ft

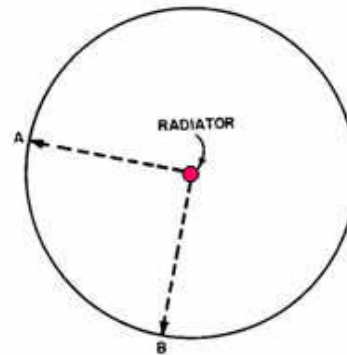


Dipole Radiation Patterns

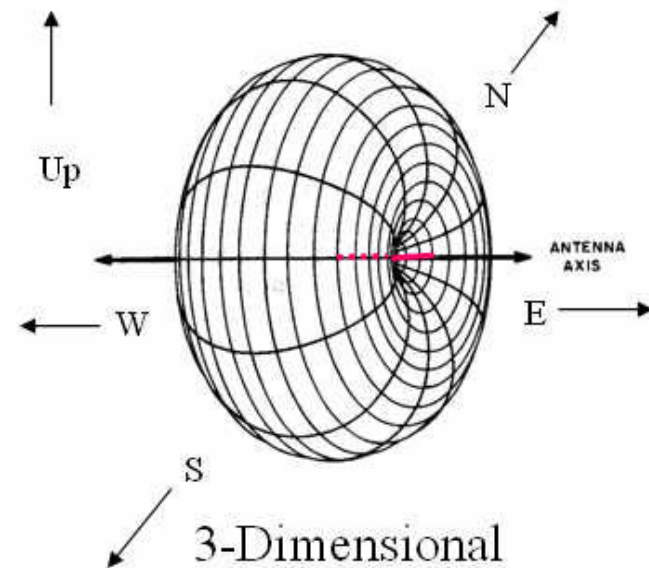
- Assume the dipole wires parallel to the earth



Horizontal



Vertical



3-Dimensional

The dark lines indicate the relative field strength in each direction.

Signal N & S
but not E & W

Signal up, down
and all around

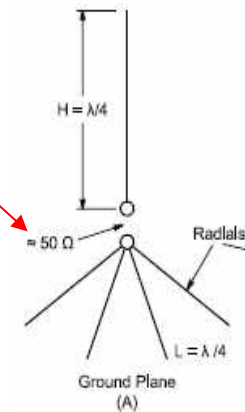
A composite
pattern



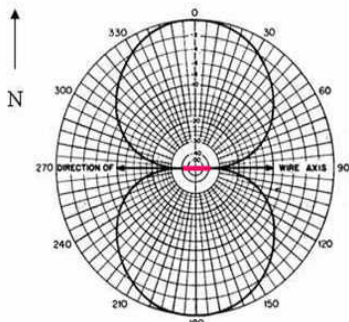
Vertical Antenna

- Consider the Dipole again
- What if we
 - Turned the Dipole on its side?
 - Throw away half of the Dipole?
 - Mount what's left on the ground?
 - And assume the Earth is a perfect mirror?

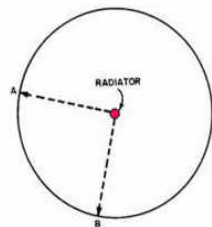
approx. 36Ω if perfect ground



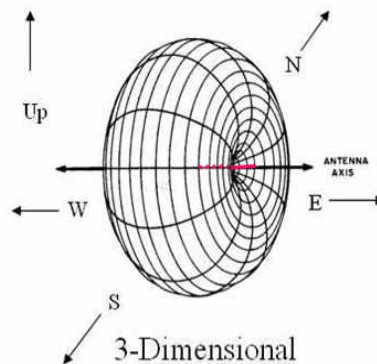
Hint:



Horizontal



Vertical



3-Dimensional

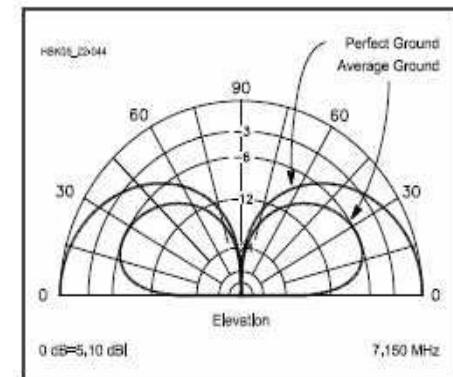


Fig 22.44 — Elevation patterns for two quarter-wave vertical antennas over different ground. One vertical is placed over *perfect* ground, and the other is placed over *average* ground. The far-field response at low elevation angles is greatly affected by the quality of the ground — as far as 100λ away from the vertical antenna.



The 3-Element Yagi Antenna

- Fig 8.54 shows a 3-element Yagi antenna
- Only the driven element (1/2-wavelength tip to tip) has power applied to it
- The reflector (slightly longer than the driven element) is behind the driven element
- The director (slightly shorter than the driven element) is in front of the driven element
- Exact lengths and distances between elements determine the radiation pattern
- Boom length has the greatest effect on the gain of the Yagi antenna
- The photo shows the W8ZRF 5-element Yagi array

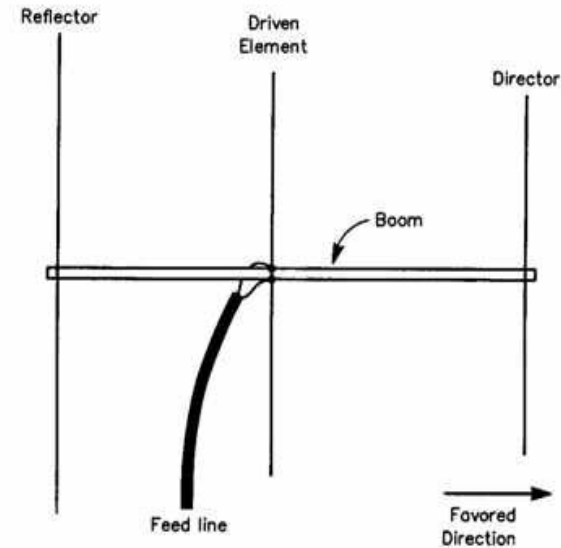


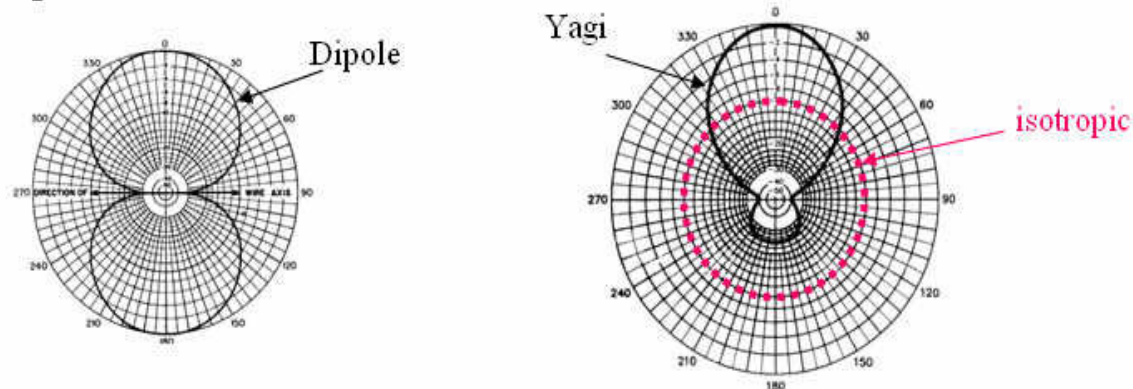
Fig. 8.54





Antenna Gain

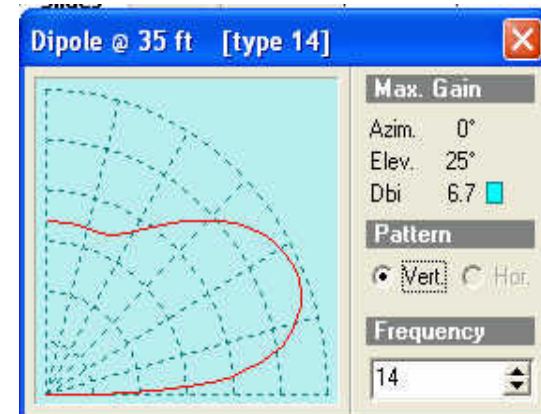
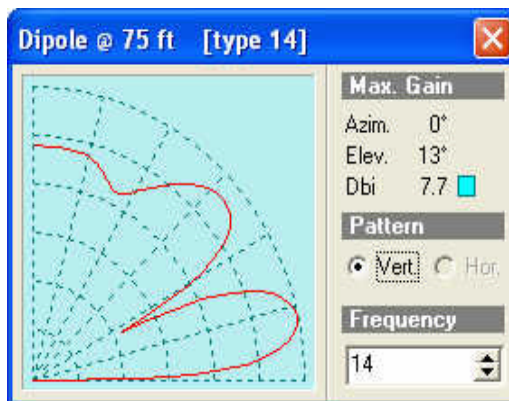
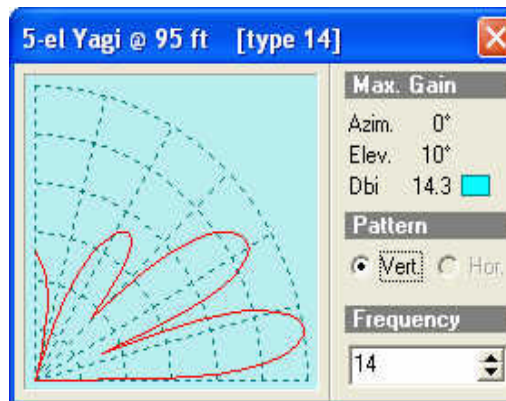
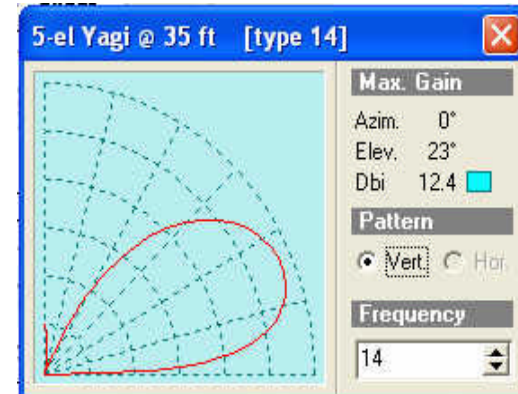
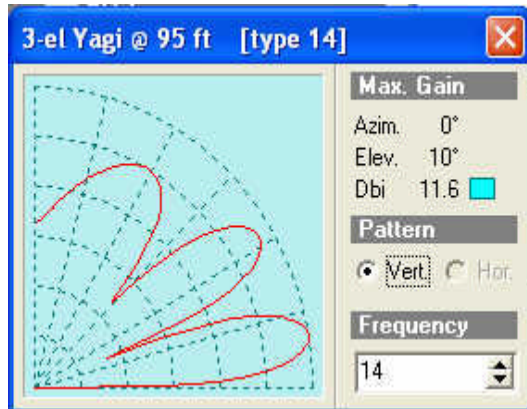
- Effective radiated power can be increased by concentrating the energy from an antenna in one direction
- The figure on the left is the radiation pattern for the dipole, the one on the right is for a Yagi antenna. (They have been scaled for comparison purposes)
- Notice that the principal radiation of the Yagi is in one direction while that of the dipole is in two directions



- The effective radiated power of this Yagi is approximately 7 db better than that of the dipole in the forward direction
- In comparison to the **isotropic** (equal in all directions) radiator the Yagi is 10 db better



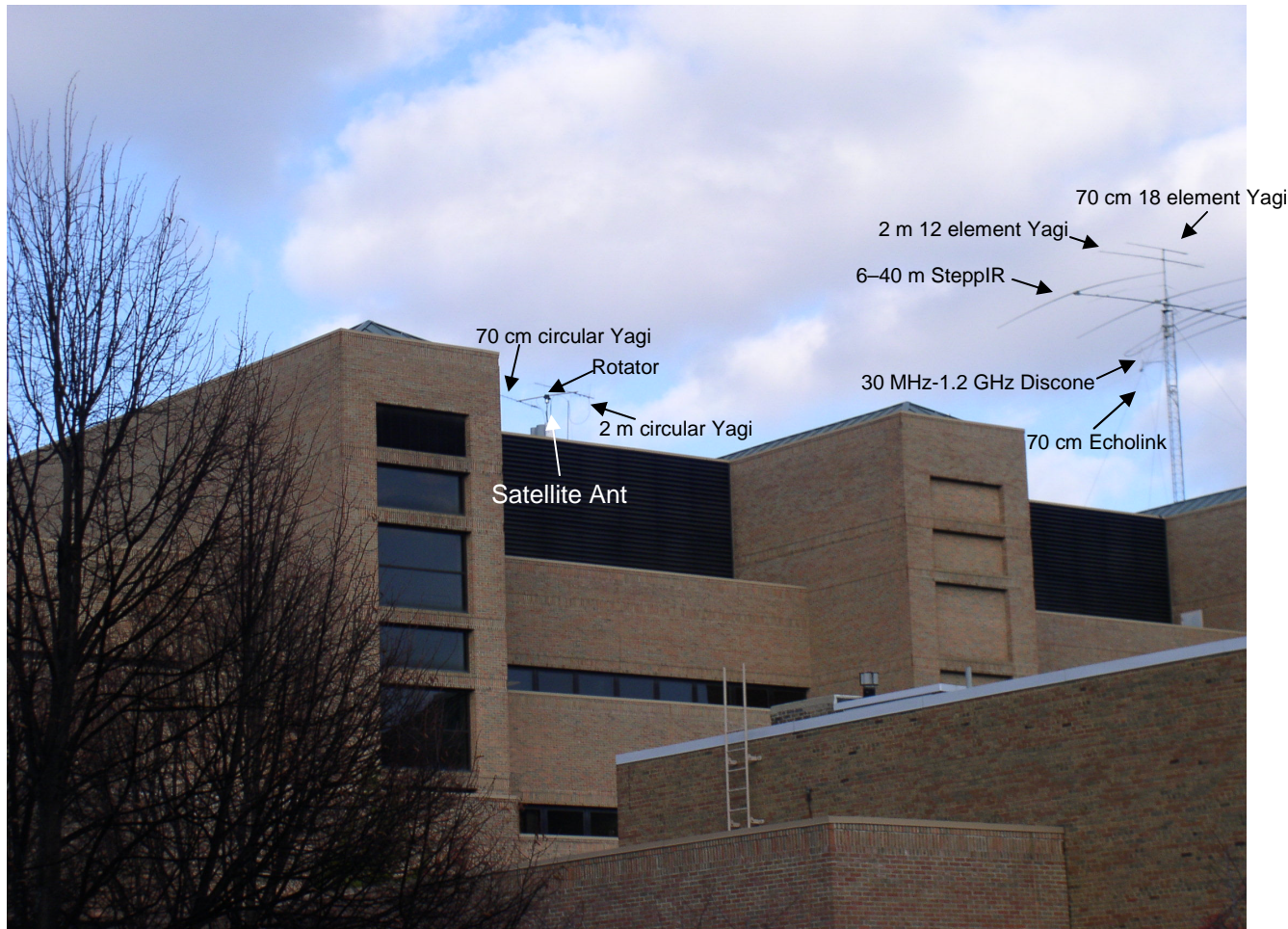
Antenna Transmitter Patterns



Computed by **Ham Cap**



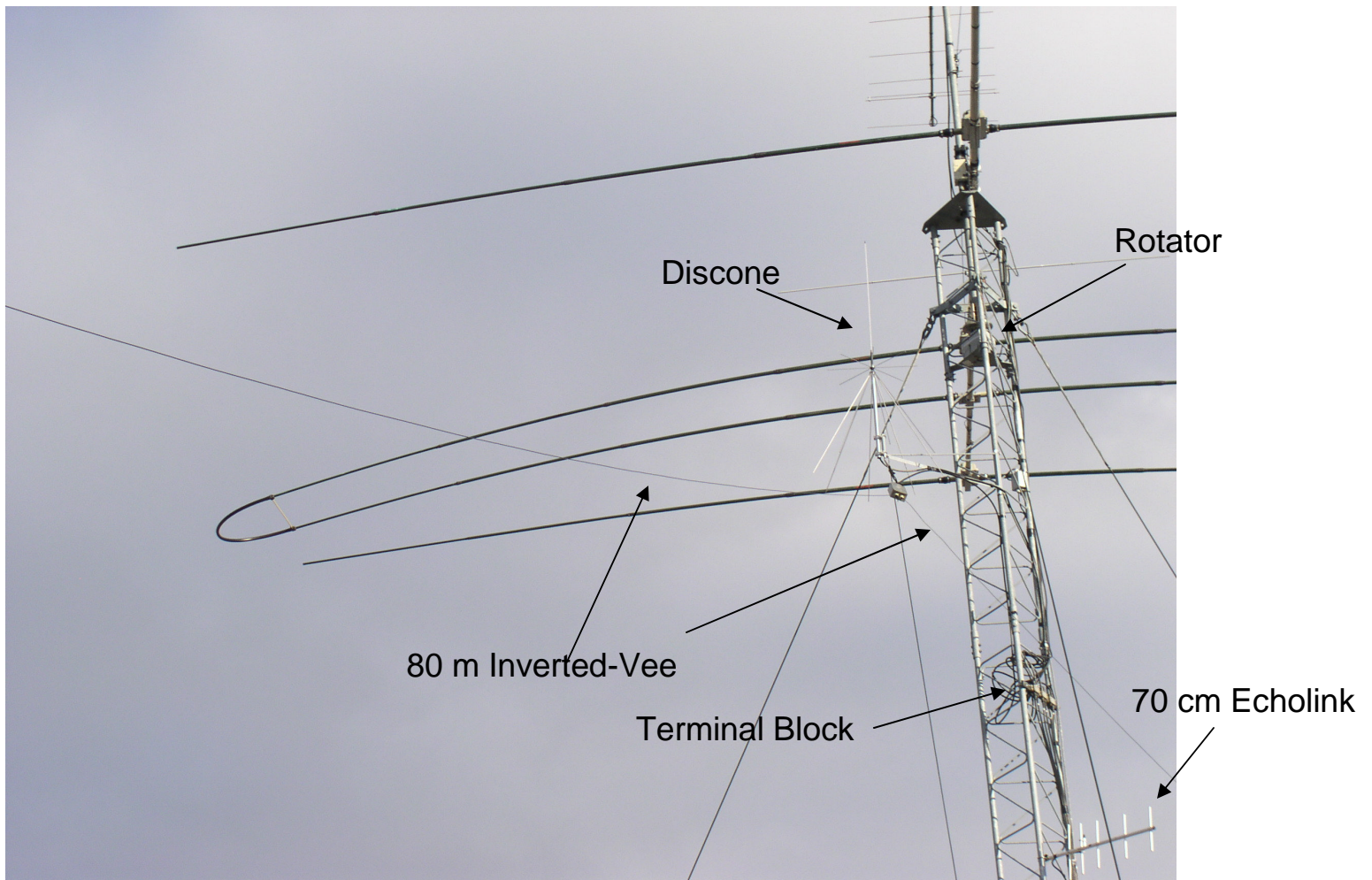
W8UM Antennas



EECS Building (From NE entrance of Duderstadt Building)



Tower Antennas – a closer look



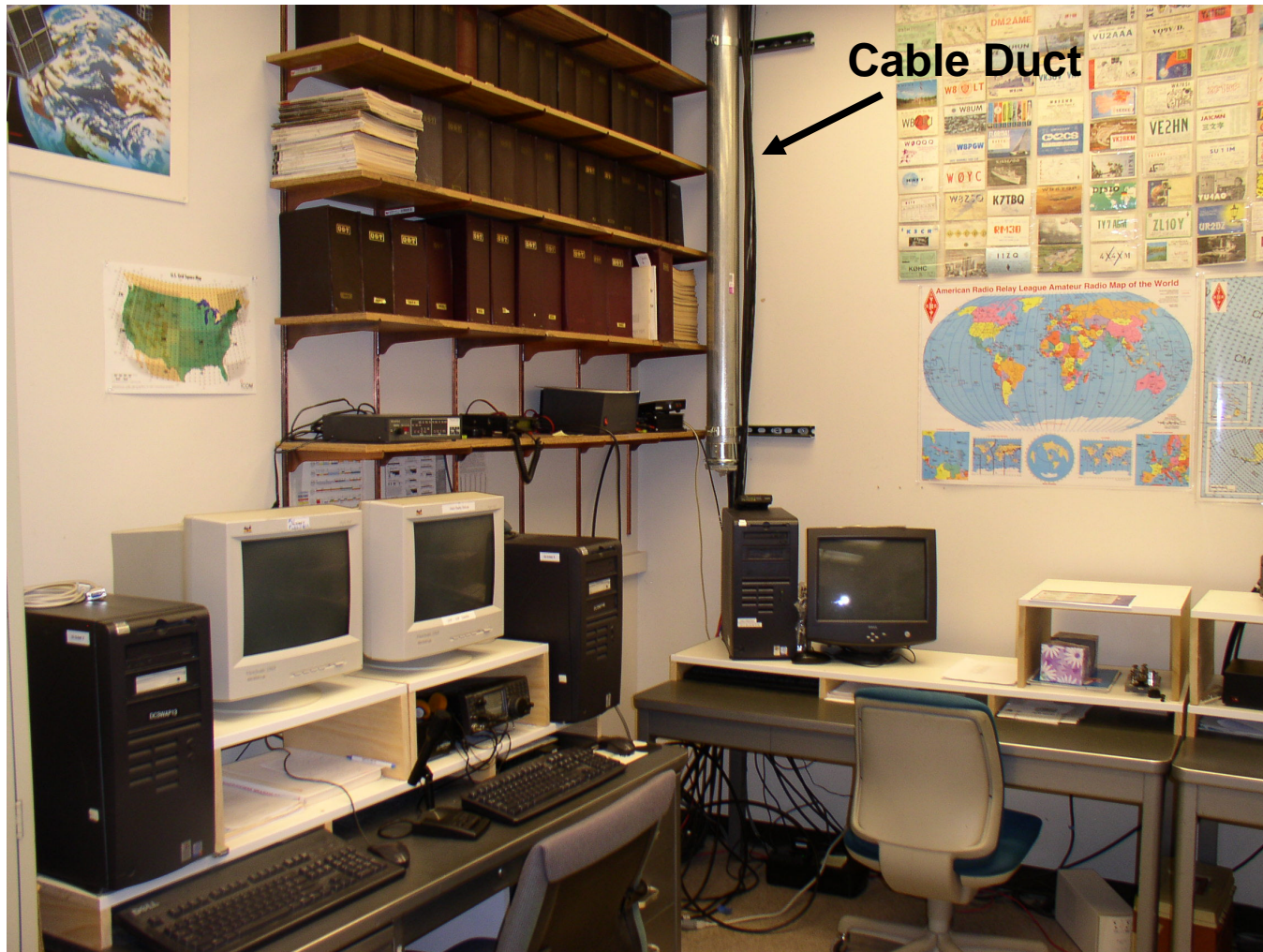


Lightning Arrestors & Cable Access



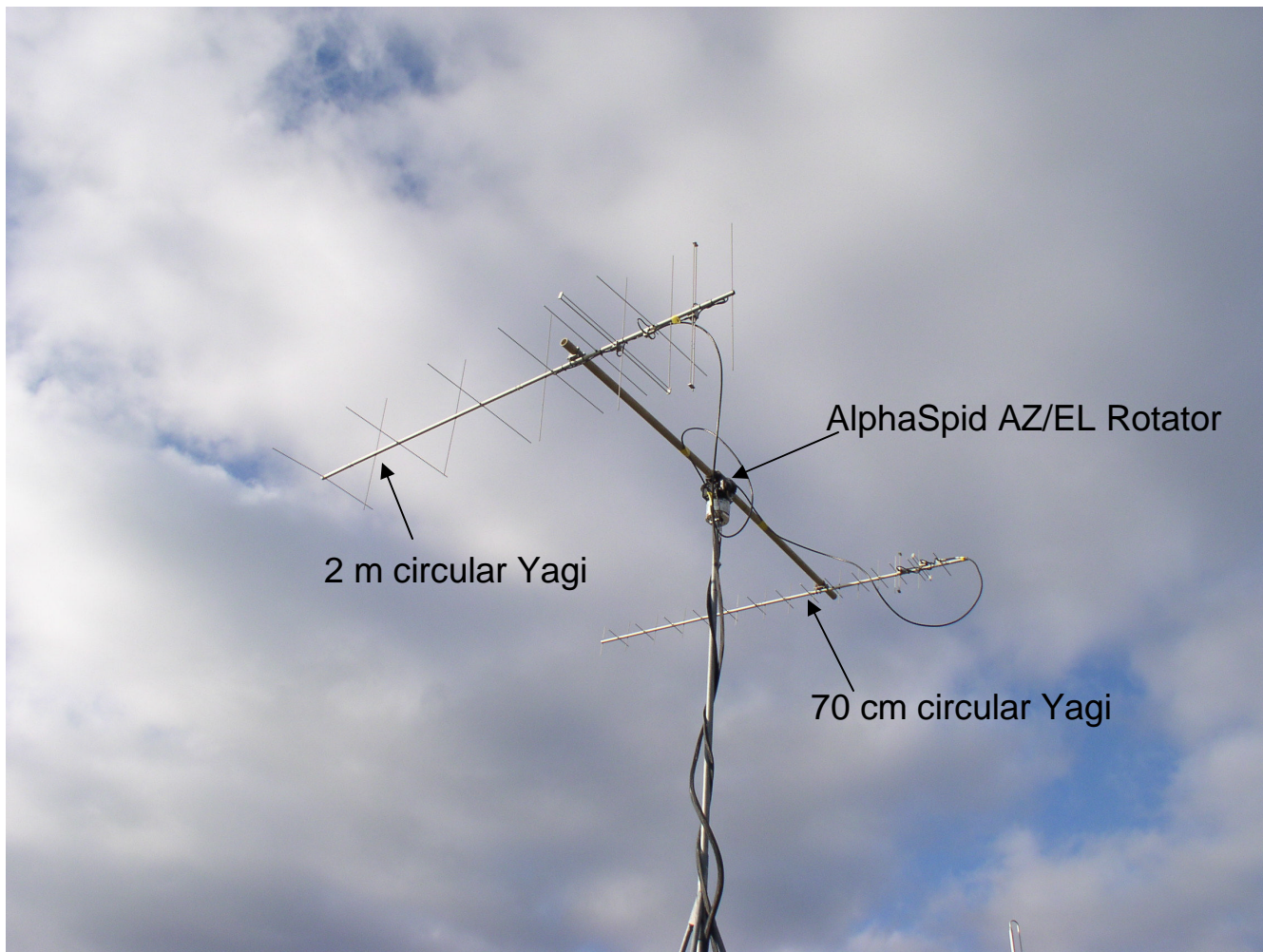


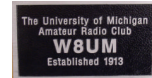
W8UM Shack





Satellite – Another Look





W8UM Shack

(A typical day, ca. 2003)





W8UM Shack



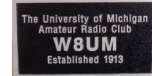
A peek inside EECS 4436



West Wall



East Wall



W8UM Shack Rules

Leave the shack as you found it so others can use

- Return all controls to initial settings
- Retract SteppIR Antenna
- Return antennas to park position
- Disconnect SteppIR and Inverted-Vee antenna cables
- Record all QSOs in logbook
- Turn off all equipment (except Echolink station)
- Return all manuals to the file cabinet
- Clean off workbench
- Do not remove books, tools equipment unless prior authorization
- Turn off all lights
- Ensure door is securely locked
- Report any problems to the proper authority and label any defective and non working equipment



W8UM Stations



2 - meter Station

Steve K8QKT
Station Manager



EchoLink RF-Internet i/f



Workbench



HF Station



Satellite Station



W8UM Workbench





W8UM Wish List



W8UM has outdated transceivers, no RF measuring , a limited supply of hand tools, limited RF parts and components. Many items in the shack have been borrowed and eventually must be returned.

The list of needs is large:

- Books (e.g., ARRL Operations Manual, Handbook, License Manuals, etc)
- RF Parts (adapters, cables, loads, couplers)
- (2) PC Computers
- Soldering Station
- Assorted Hand Tools.& Electronic parts
- ~~144/430 Mobile Transceiver (with DTMF Pad) *~~
- (2) 2m/440 Handheld Transceiver
- Network Analyzer
- HF Transceiver (with spectrum scope)
- RF Signal Generator (to 3 GHz would be nice)
- Spectrum Analyzer
- 10 MHz Function Generator (sine, square, ramp, ...)
- Etc.

* As this presentation was being prepared one of our loyal alumni donated an Yaseu FT-8800R to replace the IC-2100H 2m transceiver. The Club thanks him and wishes him the very best!



Yaseu FT-8800R



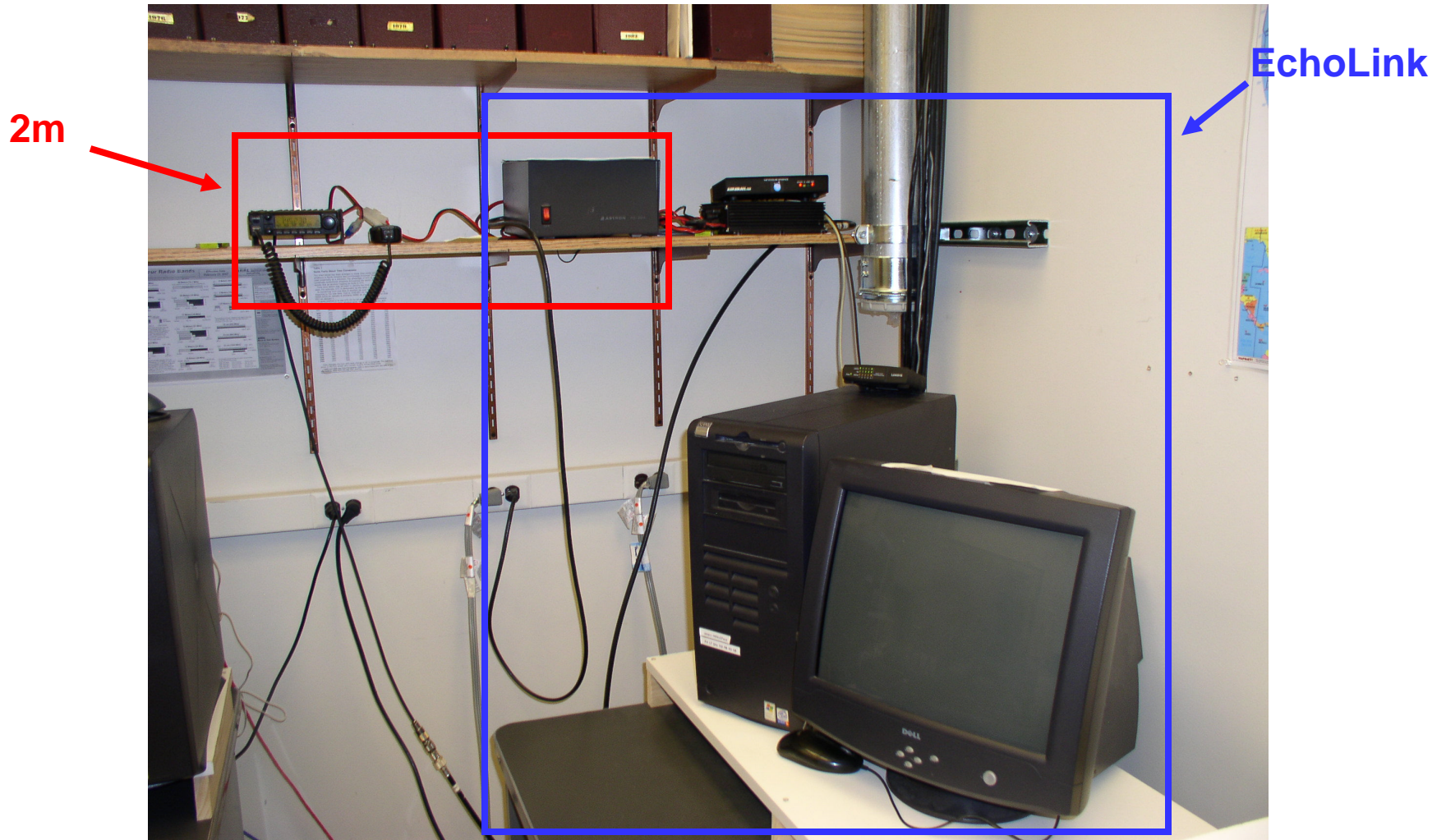
SPECIFICATIONS

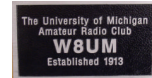
Type:	Amateur VHF/UHF transceiver
Frequency range:	TX: 144-146 / 430-440 MHz (Europe) TX: 144-148 / 430-450 MHz (USA) RX: 108-520 / 700-1000 MHz (Cellular blocked in the US)
Mode:	TX: FM/FMN RX: AM/FM/FMN
RF Power output:	Hi: 50/35 W Mid: 20/20 W Lo2: 10/10 W Lo1: 5/5 W
Sensitivity:	Better than 0.2 uV (12 dB SINAD)
Selectivity:	8 KHz (-6 dB), 30 KHz (-60 dB)
Image rejection:	N/A
Voltage:	13.8 VDC +/- 15%
Current drain:	RX: 0.5-? A TX: Max 8.5 A
Impedance:	50 ohms, SO-239
Dimensions (W*H*D):	140*42*168 mm
Weight:	1 Kg
Manufactured:	2003-200x
Other:	1054 memories. DTMF, CTCSS & DCS 9K6 packet ready. Twin RX
Related documents:	User manual (800 Kb)

Our new 2 m / 60 cm Cross Band Radio
More to say about this later



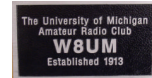
W8UM 2m & Echolink Stations





2-meter Station

- ICOM IC-2100H
- Repeaters
- Band Plan
- Transceivers
 - Single Band
 - Double Band
 - Triple Band
- Simple Duplex Operation Example
 - Listen
 - Transmit



W8UM: IC-2100H 2m FM Station

Repeater: 145.23 MHz (-) (100 Hz)



HM-988
Hand Mike



ICOM IC-2100H

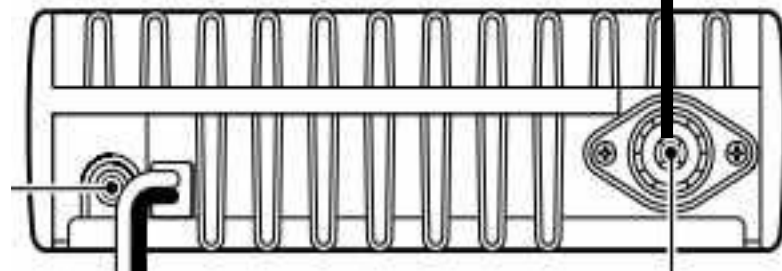


Discone
Antenna

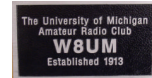
Astron RS-20A
13.5V DC Power
Supply



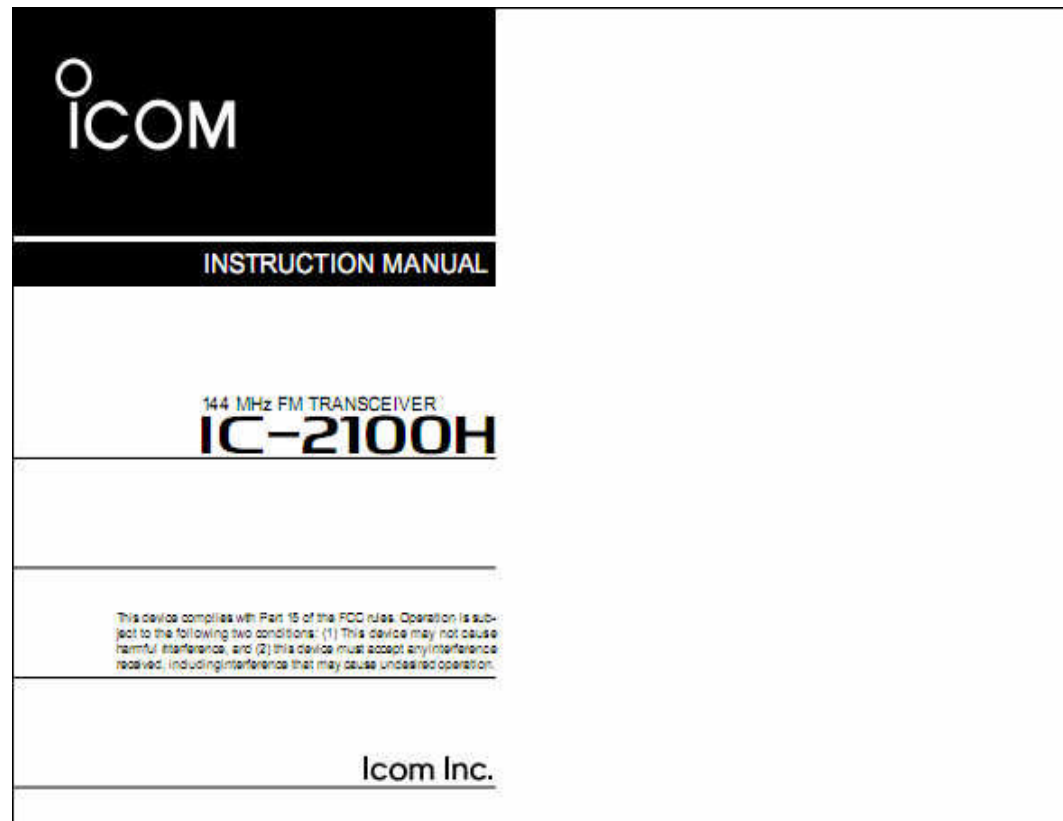
110 VAC



IC-2100H Rear View



IC-2100H Instruction Manual



<http://www.icomamerica.com/en/downloads/Default.aspx?Category=10>



Repeaters

- Repeaters are particularly useful for the line-of-sight VHF and UHF bands
- Fig 9.1 illustrates the utility of repeaters when objects block the line of sight (It extends the useful range of the low power stations)

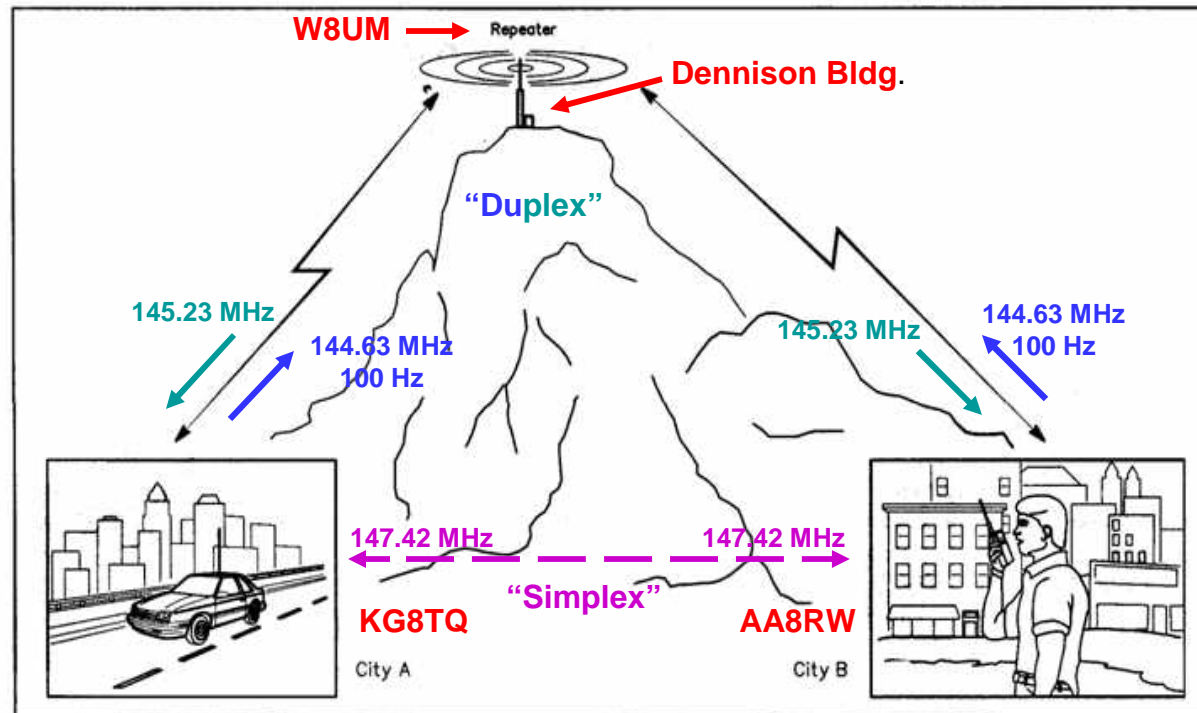
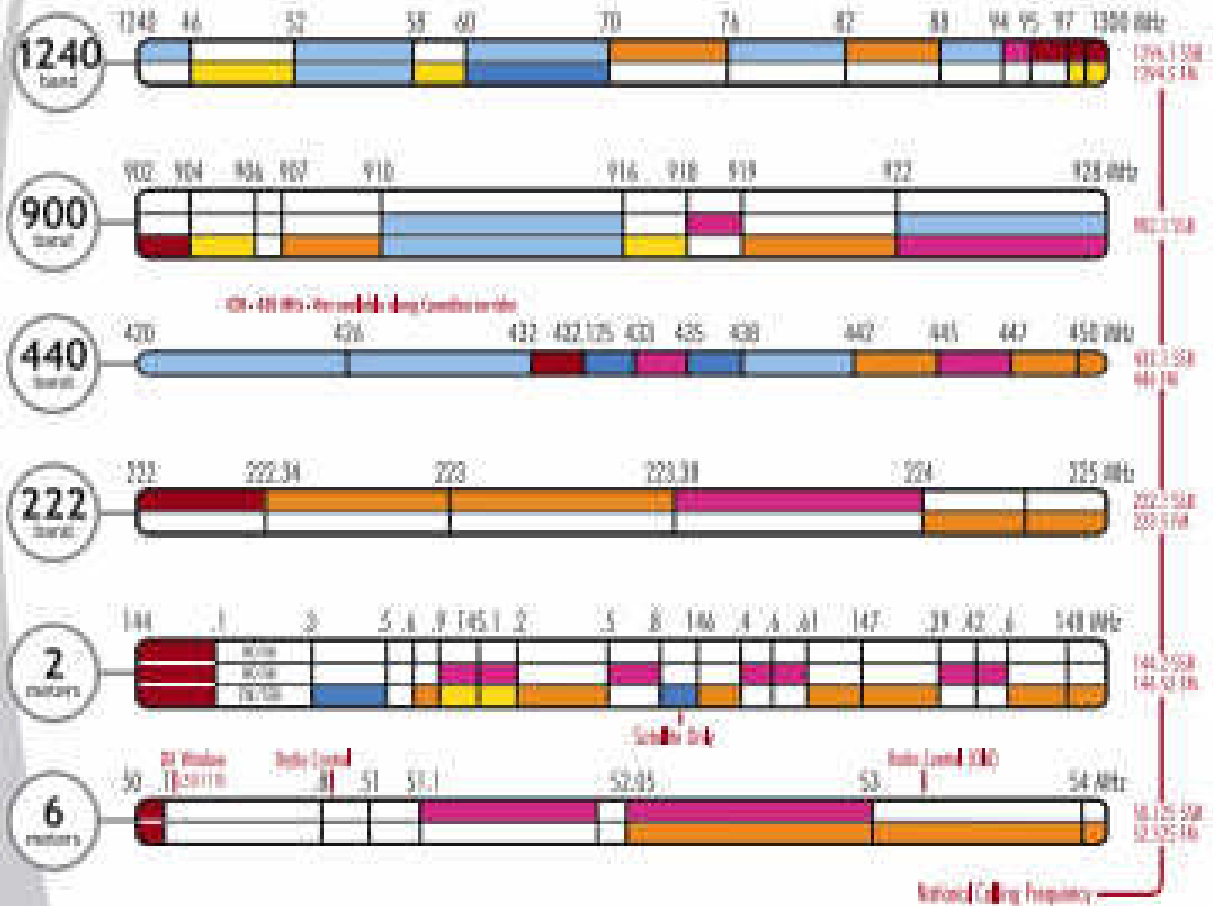


Fig 9.1, p.9.2

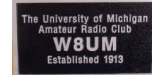


U.S.A. Amateur Radio UHF/VHF Band Plan

- Amateur TV Foot Scan
- Satellite
- CW & Weak Signal (W-140)
- Digital
- FM Simplex
- SSB
- FM Repeaters



<http://www.icomamerica.com/en/downloads/DownloadDetails.aspx?Document=331>

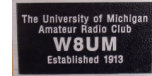


A.R.R.L. 2-meter Band Plan

2 Meters (144-148 MHz):

144.00-144.05	EME (CW)
144.05-144.10	General CW and weak signals
144.10-144.20	EME and weak-signal SSB
144.200	National calling frequency
144.200-144.275	General SSB operation
144.275-144.300	Propagation beacons
144.30-144.50	New OSCAR subband
144.50-144.60	Linear translator inputs
144.60-144.90	FM repeater inputs
144.90-145.10	Weak signal and FM simplex (145.01,03,05,07,09 are widely used for packet)
145.10-145.20	Linear translator outputs
145.20-145.50	FM repeater outputs
145.50-145.80	Miscellaneous and experimental modes
145.80-146.00	OSCAR subband
146.01-146.37	Repeater inputs
146.40-146.58	Simplex
146.52	National Simplex Calling Frequency
146.61-146.97	Repeater outputs
147.00-147.39	Repeater outputs
147.42-147.57	Simplex
147.60-147.99	Repeater inputs

Notes: The frequency 146.40 MHz is used in some areas as a repeater input. This band plan has been proposed by the ARRL VHF-UHF Advisory Committee.



Selected 2-meter Frequencies

Local Repeaters (Duplex)

- W8UM 145.230 (-) 100 Hz U of M ARC
- K8RUR 145.920 (-) 100 Hz R.A.C.E.S & Skywarn backup
- N8DUY 145.150 (-) 100 Hz A.R.E.S & Skywarn
- K8PBA 146.960 (-) ARROW ARC

A.R.R.L Band Plan (See: <http://www.arrl.org/band-plan-1>)

- 144.05 – 133.10 General CW and weak signal signals
- 144.200 National Calling Frequency
- 145.40 – 146.58 Simplex
- 147.42 – 147.57 Simplex

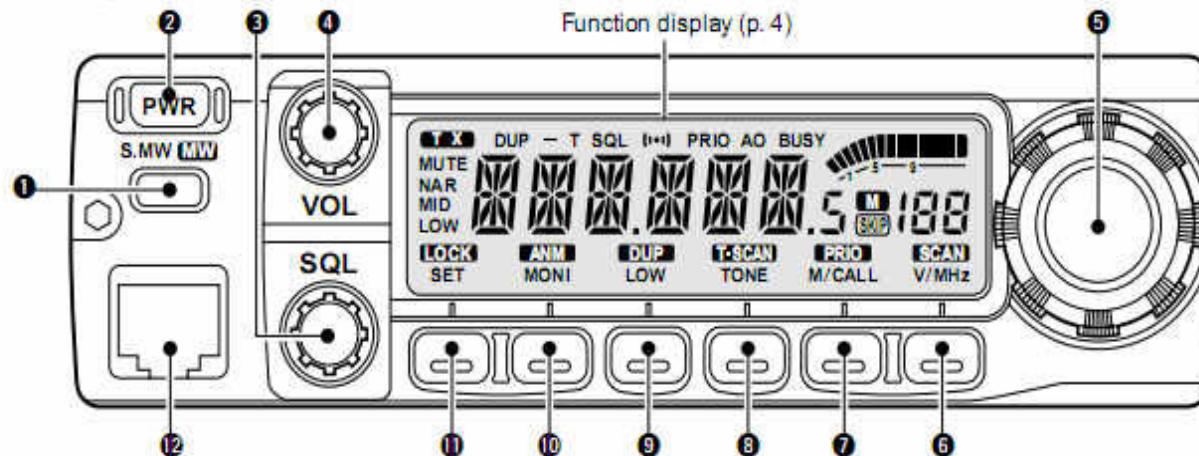
Before transmitting

- Listen to QSOs until you understand the local protocol
- Read the instruction manuals



IC-2100H Controls

■ Front panel



- 1 SELECT MEMORY/MEMORY WRITE SWITCH [S.MW(MW)]**
 - ➔ Selects a memory channel for programming. (p. 26)
 - ➔ Programs selected memory when pushed and held. (p. 27)
- 2 POWER SWITCH [PWR]**

Turns power ON and OFF when pushed momentarily.
- 3 SQUELCH CONTROL [SQL]**

Varies the squelch level. (p. 18)

 - The RF attenuator activates and increases the attenuation when rotated clockwise to the center position and further.

- 4 VOLUME CONTROL [VOL]**

Adjusts the audio level. (p. 18)
- 5 TUNING DIAL**

Selects the operating frequency (p. 15), the memory channel (p. 26), the contents of the set mode display and the scanning direction (p. 37).
- 6 VFO/MHz SWITCH [V/MHz(SCAN)]**
 - ➔ Selects and toggles VFO mode and the 1 MHz/10 MHz/TS tuning display. (p. 15)
 - ➔ Starts a scan when pushed and held for 1 sec. (p. 37)



IC-2100H Controls (Continued)

- 7 MEMORY/CALL CHANNEL SWITCH [M/CALL(PRIO)]**

 - Selects and toggles memory mode or the call channel. (pgs. 26, 32)
 - Activates the priority watch function when pushed and held. (p. 42)
- 8 TONE/TONE SCAN SWITCH [TONE(T-SCAN)]**

 - Each push selects a tone function. (p. 46)
 - Tone encoder, pocket beep, tone squelch or tone function OFF can be selected.
 - Push and hold to start/stop the tone scan function. (p. 48)
- 9 OUTPUT POWER/DUPLEX SWITCH [LOW(DUP)]**

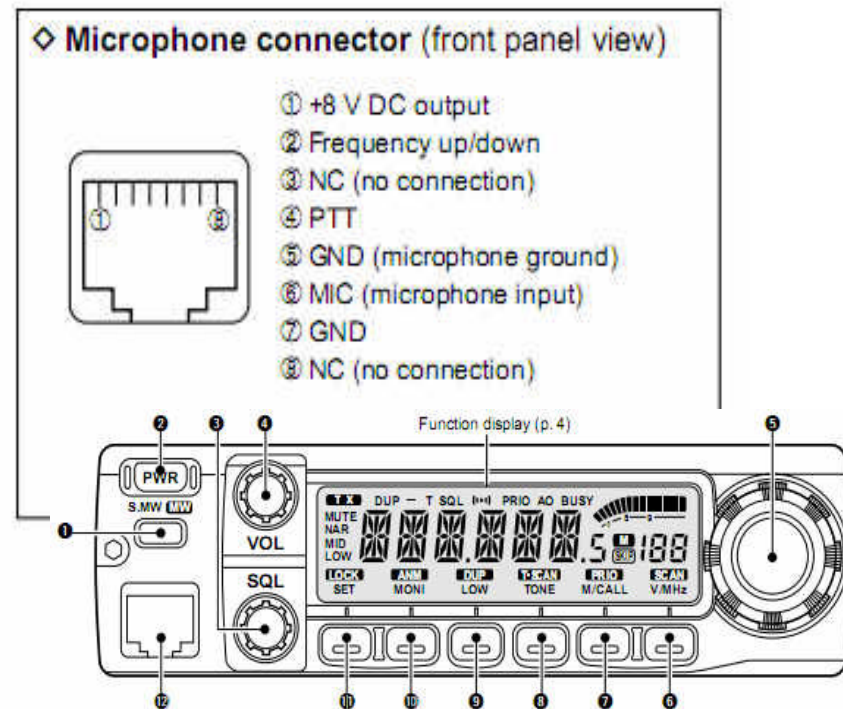
 - Each push changes the output power selection. (p. 19)
 - There are 3 output powers available: low, mid and high (the IC-2100-T Thailand and IC-2100H Taiwan versions have only 2 output powers).
 - Push and hold to select a duplex setting. (p. 21)
 - There are 3 duplex settings available: minus duplex ("DUP-" appears), plus duplex ("DUP" appears) and simplex (no indicator appears).
- 10 MONITOR/ALPHANUMERIC SWITCH [MONI(ANM)]**

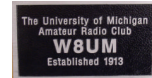
 - Toggles squelch opened and closed when pushed. (p. 18)
 - In memory and call channel mode, toggles the alphanumeric channel indication ON and OFF. (p. 31)

- 11 SET/LOCK SWITCH [SET(LOCK)]**

 - Selects set mode when pushed.
 - Toggles the lock function ON and OFF when pushed and held. (p. 14)
- 12 MICROPHONE CONNECTOR**

Connects the supplied microphone. (p. 7)





AA8RW: A two-band Transceiver

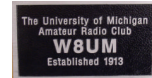
ICOM IC-W32A 2m / 440MHz FM Transceiver



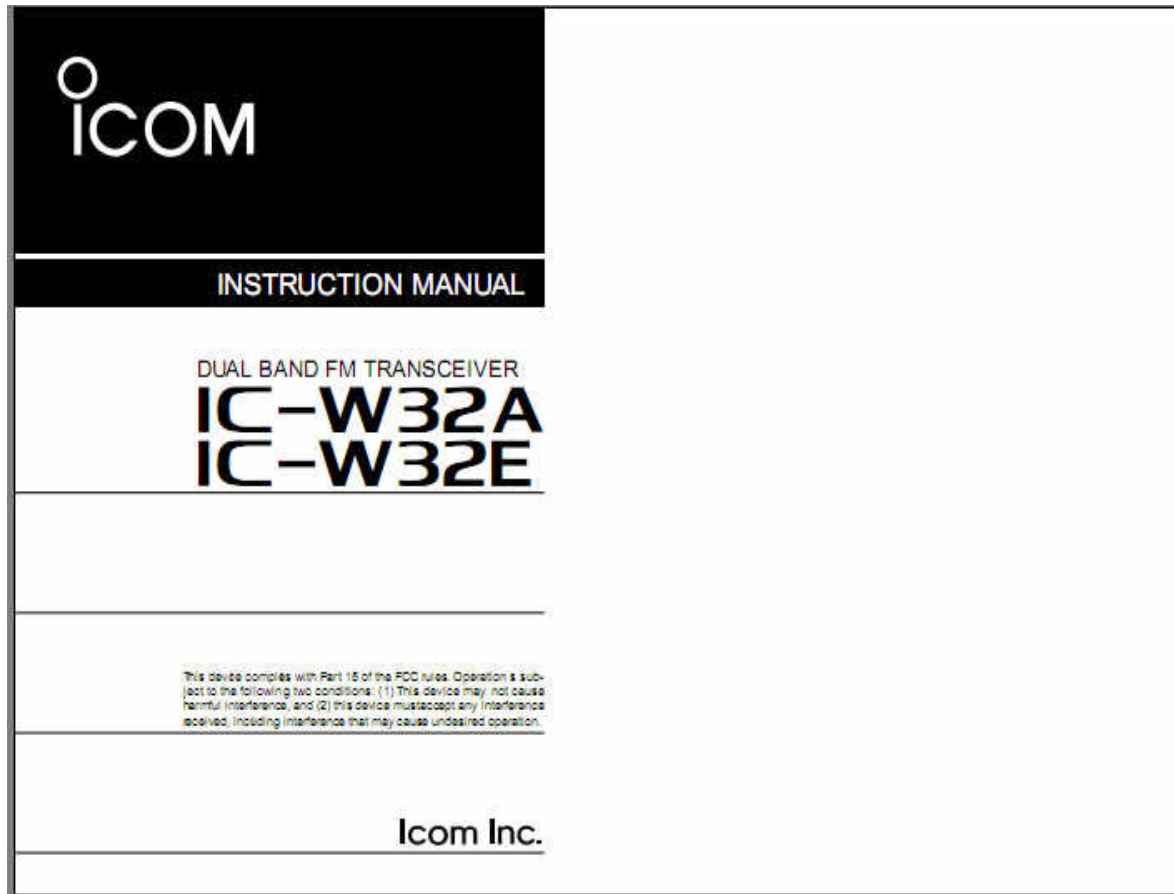
SPECIFICATIONS

Type:	Amateur VHF/UHF transceiver
Frequency range:	TX: 144-148 / 440-450 MHz RX: 108-950 MHz
Mode:	TX: FM RX: AM/FM
RF Power output:	Hi: 5/5 W Lo: 0.5/0.5 W
Sensitivity:	N/A
Selectivity:	N/A
Image rejection:	N/A
Voltage:	4.5-16 VDC
Current drain:	RX: 40-210 mA TX: Max 1.6 A
Impedance:	50 ohms, BNC
Dimensions (W*H*D):	57*137*33 mm
Weight:	450 gr
Manufactured:	Japan, 199x-200x (Discontinued)
Other:	Twin RX
Related documents:	User manual (720 KB)

<http://www.icomamerica.com/en/downloads/Default.aspx?Category=46>



IC-W32A Instruction Manual



<http://www.icomamerica.com/en/downloads/Default.aspx?Category=46>



Yaseu HT-8800R

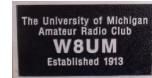


SPECIFICATIONS

Type:	Amateur VHF/UHF transceiver
Frequency range:	TX: 144-146 / 430-440 MHz (Europe) TX: 144-148 / 430-450 MHz (USA) RX: 108-520 / 700-1000 MHz (Cellular blocked in the US)
Mode:	TX: FM/FMN RX: AM/FM/FMN
RF Power output:	Hi: 50/35 W Mid: 20/20 W Lo2: 10/10 W Lo1: 5/5 W
Sensitivity:	Better than 0.2 uV (12 dB SINAD)
Selectivity:	8 KHz (-6 dB), 30 KHz (-60 dB)
Image rejection:	N/A
Voltage:	13.8 VDC +/- 15%
Current drain:	RX: 0.5-? A TX: Max 8.5 A
Impedance:	50 ohms, SO-239
Dimensions (W*H*D):	140*42*168 mm
Weight:	1 Kg
Manufactured:	2003-200x
Other:	1054 memories. DTMF, CTCSS & DCS 9K6 packet ready. Twin RX
Related documents:	User manual (800 Kb)

To see Manual, go to:

<http://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=106&ProdID=873&DivisionID=65&isArchived=0>
and click on "Files."



Yaseu FT-8800R



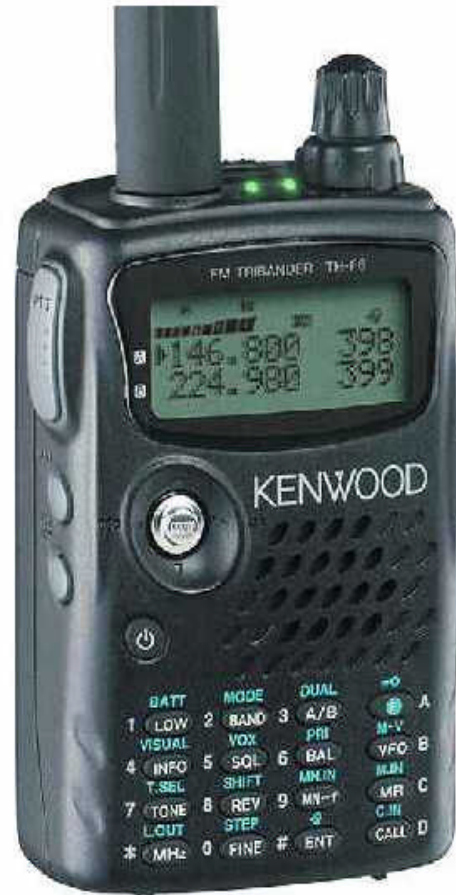
To see Manual, go to:

<http://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=106&ProdID=873&DivisionID=65&isArchived=0>
and click on "Files."



KG8TQ: A three-band Transceiver

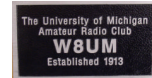
Kenwood TH-F6A 2m / 220 / 440MHz FM Transceiver



SPECIFICATIONS

Type:	Amateur VHF/UHF transceiver
Frequency range:	TX: 144-148 / 222-225 / 438-450 MHz RX: 0.1-1300 MHz (Cellular blocked)
Mode:	TX: FM RX: AM/FM/SSB/CW
RF Power output:	Hi: 5/5/5 W Lo: 0.5/0.5/0.5 W E1: 50/50/50 mW
Sensitivity:	N/A
Selectivity:	N/A
Image rejection:	N/A
Voltage:	Internal: 5-7.5 VDC External: 12-16 VDC
Current drain:	RX: 100-170 mA (no signal) TX: 0.5-2 A
Impedance:	50 ohms, SMA
Dimensions (W*H*D):	58*87*30 mm (with lithium-ion battery pack)
Weight:	250 gr (with lithium-ion battery pack)
Manufactured:	2001-200x
Other:	4*LR6 battery case option. 435 memories Built-in ferrite bar antenna for 0.1-7 MHz VOX. 9K6 packet ready. Twin RX
Related documents:	User manual (972 KB)

<http://www.kenwoodusa.com/UserFiles/File/UnitedStates/Communications/AMA/Manuals/TH-F6.pdf>



TH-F6A Instruction Manual



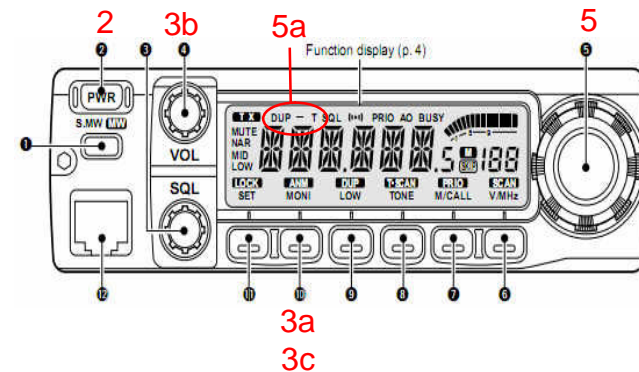
<http://www.kenwoodusa.com/UserFiles/File/UnitedStates/Communications/AMA/Manuals/TH-F6.pdf>



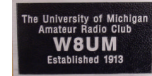
Listen via Repeaters using IC-2100H

The following assumes normal preset transceiver values. Do not change values.

1. Study the manual (in cabinet or download), particularly pp. 2 – 5.
Note: The W8UM Mike is an ICOM HM-988 which is **not** the one referenced in the manual.
2. Press* the **PWR** to turn power on.
3. Set the audio level
 - a. Press* **MONI** to open squelch
 - b. Rotate **VOL** to adjust volume
 - c. Press* **MONI** to close squelch
4. Set the squelch level
 - a. Rotate **SQL** fully CCW
 - b. Rotate **SQL** CW until noise just disappears
5. Select desired station by rotating **Tuning Dial**
 - a. Make certain the proper values of **DUP**, **OFFSET** and **T** are displayed
 - b. You're now ready to listen to conversations, if any



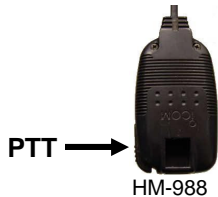
* Always press **momentarily** here. Pressing any button for 1 sec causes alternate button functions.



Transmit via Repeaters using IC-2100H

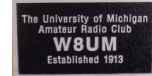
CAUTION: Do not transmit if no antenna is connected or the SWR is too large.

1. Complete the Receive instructions on previous slide before continuing then listen to see if the channel is in unused or used
2. If the channel is unused, and you wish to QSO with
 - a. Any station, press and hold **PTT***, say "call sign, listening", release **PTT** and wait for a reply**, or
 - b. A particular station, press and hold **PTT***, say "their call sign" followed by "your call sign" and wait for a reply, or
3. If used, and
 - a. You wish to join the QSO, wait for a break. press and hold **PTT****, "your say sign" and listen for an invitation to join
 - b. If you do not wish to join the QSO, wait for the QSO to "clear" before continuing.
4. Once having joined a QSO, wait until the contact hands the QSO back to you, wait for the repeater courtesy tone to end, press and hold **PTT***, say what you have to say and turn the QSO back to the other contact**
5. When finished using the channel, always say "your call sign, Clear"

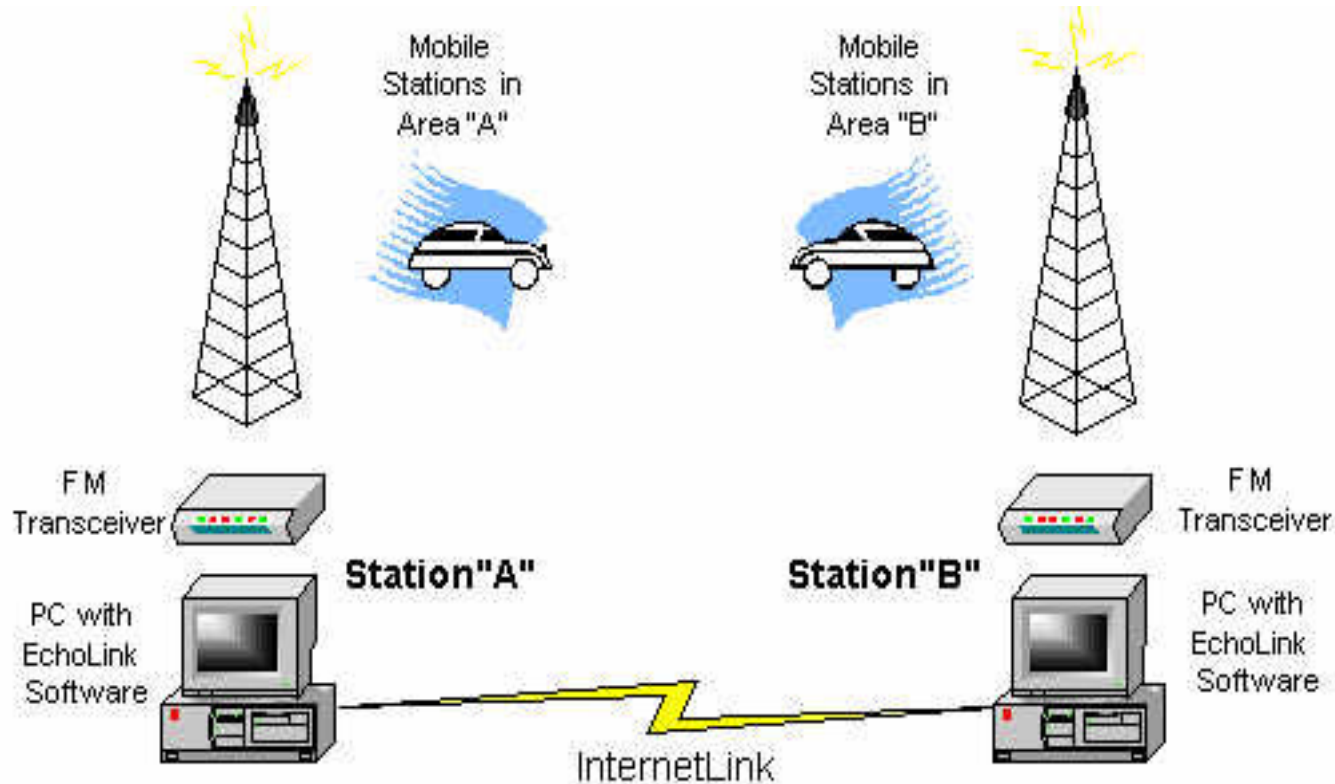


• Always pause briefly before starting to talk after pushing **PTT**

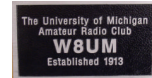
** Remember, you must identify yourself by repeating your call sign at least once every 10 minutes and at the end of the QSO.



EchoLink

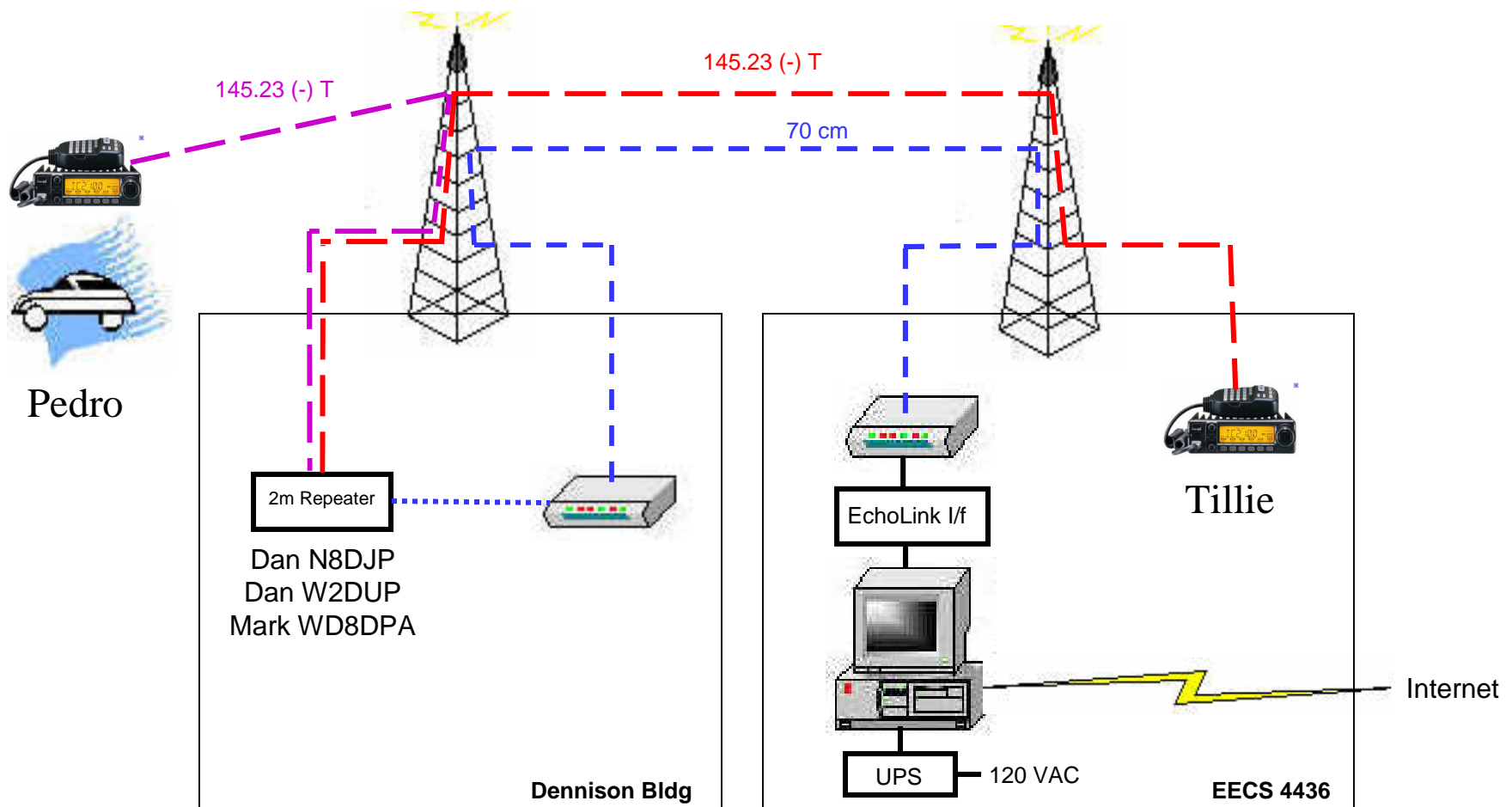


From the EchoLink web site: <http://www.echolink.org/>



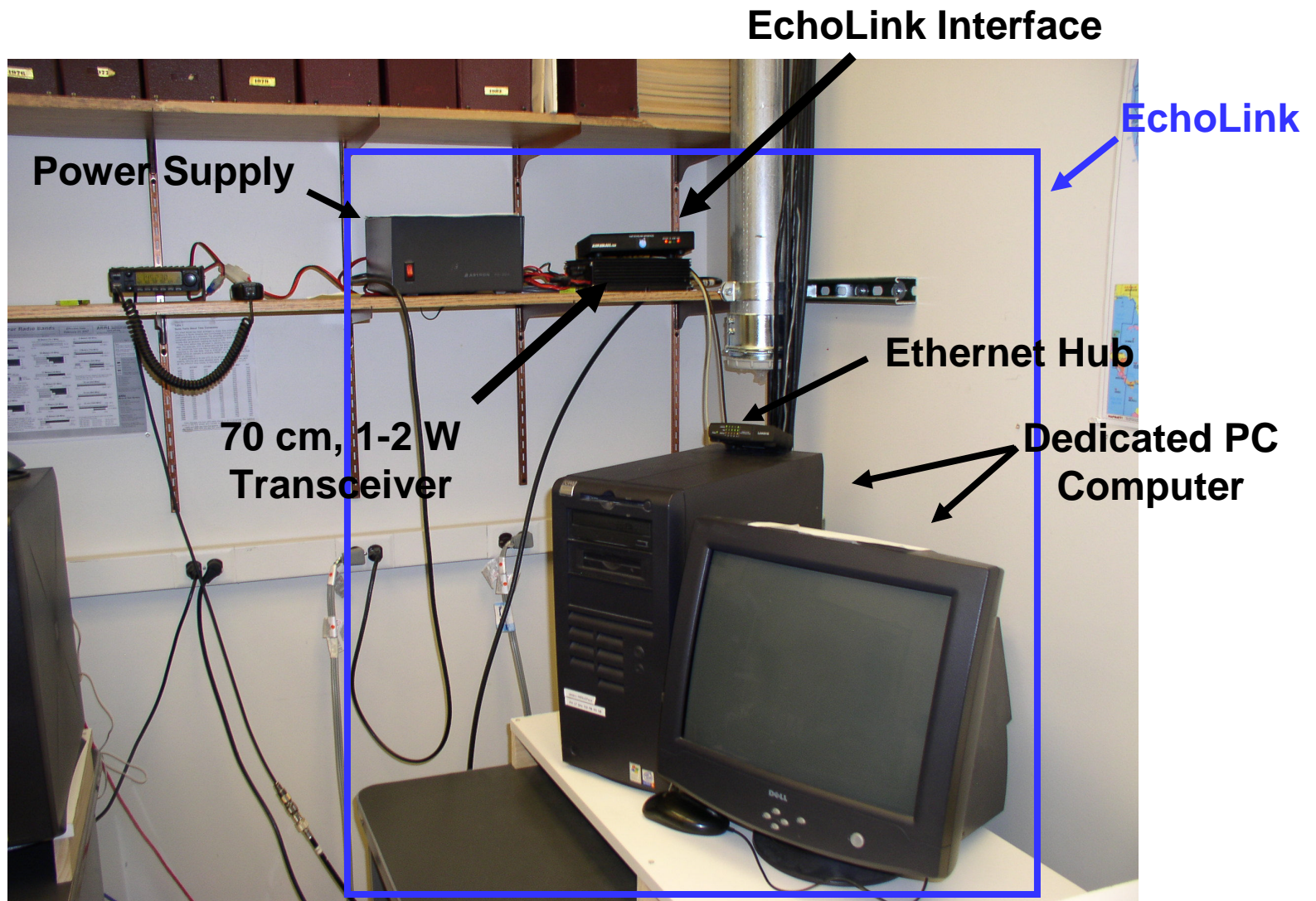
W8UM EchoLink Station

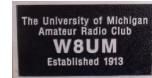
Pat WA4DSR
EchoLink Manager



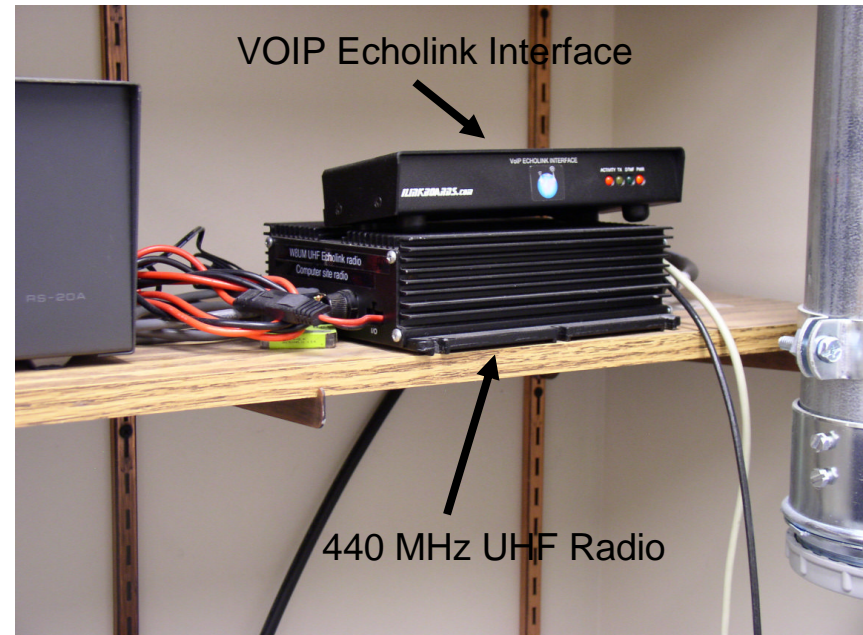


W8UM EchoLink Station





Closer view of Echolink System

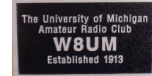


VOIP EchoLink Interface: Link20ARDS.com

70 cm UHF Radio: Make unknown (Output = 1 – 2 W)

13.8 VDC Power Supply: Astron RS20A (16 A continuous. 20 A Surge)

NOTE: These units, along with the computer, must always be left on!



EchoLink

Installing & Starting EchoLink

- You must be a licensed Tech class ham or higher
- When operating as a ham, all ham regulations apply
- To get started, you don't need a radio, just a PC with a sound card, microphone and speaker (or earphones)
- Start by going to <http://www.echolink.org/>,*
 - Read the QST VOIP article
 - Take the tour
 - Register (Required to use EchoLink)
 - Download the EchoLink software
 - Install it on your Internet ready laptop
 - Perform first time setup (Instructions are on EchoLink web page)
- Sign in to EchoLink by clicking on the EchoLink icon
- Answer the setup questions

Continued on next slide

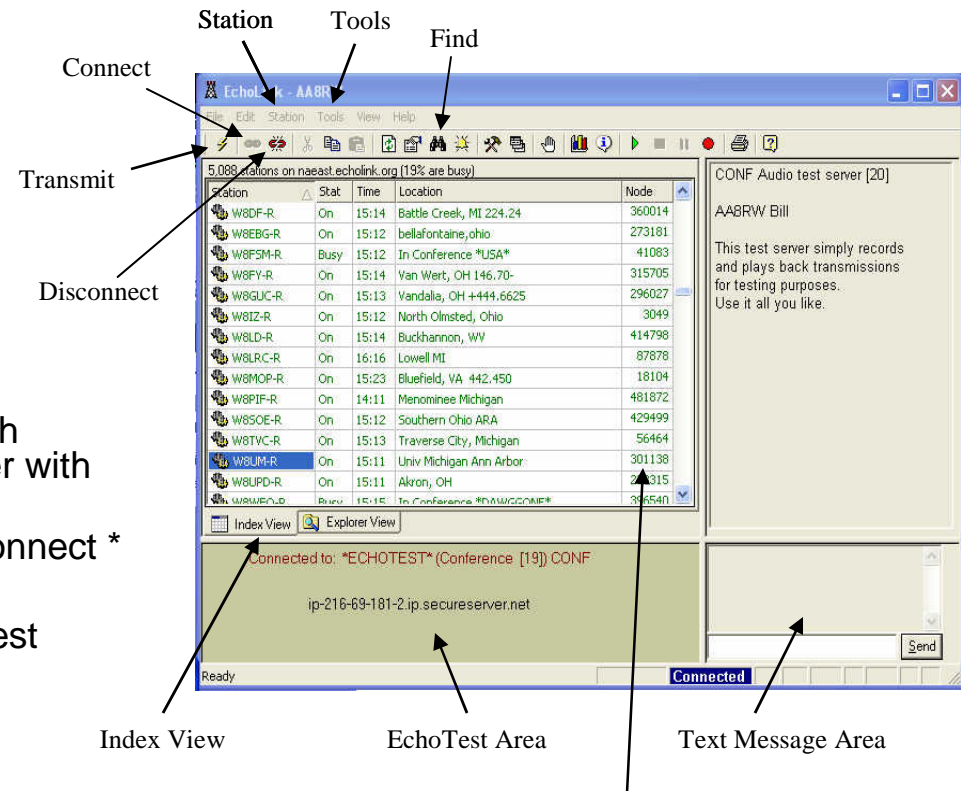
* Mac users: <http://echomac.sourceforge.net/>



EchoLink: without a radio

Adjust the volume and make a connection

1. Click on Station: Connect to Test Server
2. Listen to welcome message
3. Click space bar, i.e., Transmit *
4. Talk into your microphone
5. Click space bar. i.e., end Transmit *
6. Test Server will repeat what you just said
7. If needed use Tools: Adjust Volume
 - a. Playback
 - b. Recording
8. Repeat 3 thru 7 until satisfied
9. Station: Disconnect *
10. Now your ready to make a connection with someone connected to the w8um repeater with their H-T
11. Select W8UM-R** followed by Station: Connect *
12. Voila! you are Connected! ***
13. Carry on your QSO as you did with the Test Server (Remember: All FCC rules apply)
14. Program: Disconnect when finished

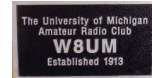


* Transmit, Connect and Disconnect can also be reached by the 2 icons shown

W8UM-R ID #301138

** You can find W8UM-R by clicking on Find in the Tool Bar and entering W8UM

*** At this point you can talk with anyone who can talk on the W8UM repeater, via Internet or 2-meter rf



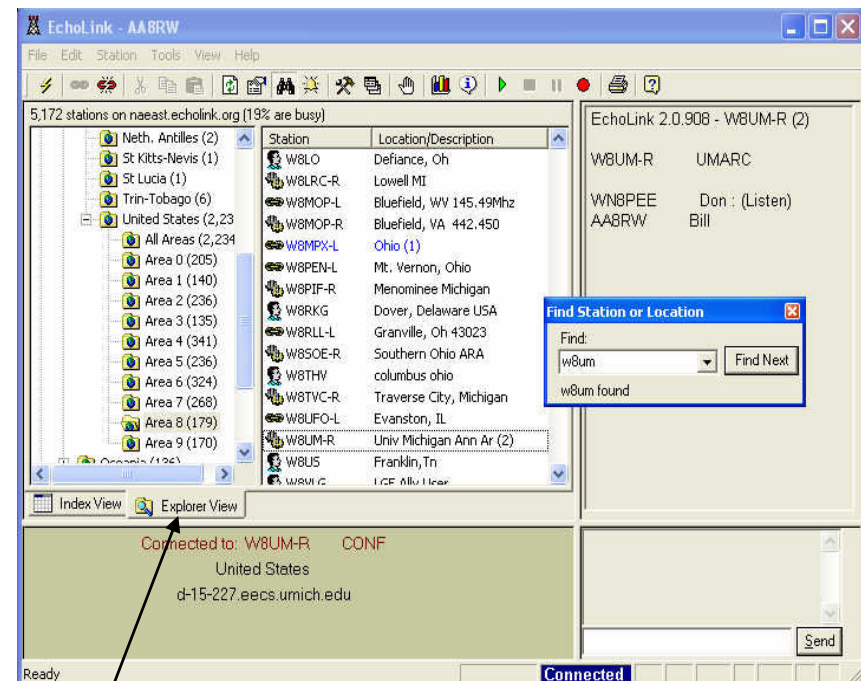
EchoLink: with a Radio

NOTE: The W8UM Station EchoLink Server (in the shack) must be connected to EchoLink by the SysOp before any 2m H-T in the W8UM repeater area can talk to anyone connected to W8UM-R via EchoLink..

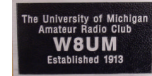
1. Assume the W8UM EchoLink Server is working
2. Assume Chris KA8WFC, in Boston, is connected to W8UM-R
3. Call W8UM on your H-T microphone
4. That's it, you can talk to KA8WFC via your H-T
5. And KA8WFC can talk to you via EchoLink
6. If the repeater in KA8WFC's area is linked to W8UM then KA8WFC can talk to you via his repeater with his H-T as well
7. When finished, signoff off your H-T normally.
8. Try this on the W8UM Sunday Night Net
 - a. Meets Sunday, 8:00 pm EST (i.e., Monday 0100 UTC)
 - b. Those connected are always willing to help new operators.
 - c. Don't worry, you can't hurt anything

NOTE:

This picture depicts the display in Explorer mode.
Find was used to search for W8UM-R
AA8RW was connected to W8UM
W8UM-R was in Conference mode
Don (in Listening mode) and Bill were connected to W8UM

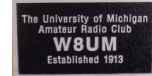


Explorer View



Some EchoLink References

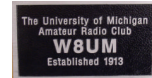
- <http://www.echolink.org/>, The EchoLink home site.
- K1RFD, “VOIP: Internet Linking for Radio Amateurs”, 2nd ed., A.R.R.L. 2009.
- WB2NJA, “EchoLin for Beginners”, QST, Jan 2005, pp. 60-61.
- WB8IMY, “VOIP and Amateur Radio”, QST, Feb 2003, pp. 44-47.



Useful Links

Part I

- <http://www.arrl.org/get-on-the-air> ARRL help
- <http://www.icomamerica.com/en/downloads/Default.aspx?Category=10> IC-2100H Instruction Manual
- <http://www.icomamerica.com/en/downloads/DownloadDetails.aspx?Document=331> ICOM Ham Radio Band Plan
- <http://www.icomamerica.com/en/downloads/DownloadDetails.aspx?Document=331> IC-W32A Instruction Manual
- <http://www.icomamerica.com/en/downloads/Default.aspx?Category=46> IC-W32A Instruction Manual
- <http://www.yaesu.com/indexVS.cfm?cmd=DisplayProducts&ProdCatID=106&ProdID=873&DivisionID=65&isArchived=0> Yaseu FT-8500R Operating Manual
- <http://www.kenwoodusa.com/UserFiles/File/UnitedStates/Communications/AMA/Manuals/TH-F6.pdf> Kenwood TH-F6A Instruction Manual
- <http://www.echolink.org/> EchoLink Home page
- <http://echomac.sourceforge.net/> Mac user;s EchoLink Home page
- K1RFD, “VOIP – Internet Linking for Radio Amateurs”, 2nd ed., A.R.R.L. 2009
- WB2NJA, “EchoLink for beginners”, QST, Jan 2005, pp. 60-61.
- WB8IMY, “VOIP and Amateur Radio”, QST, Feb 2003, pp. 44-47



The W8UM Shack Primer

Facts our members should know before seeking Station Manager approval to operate the shack communications equipment

Part II

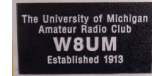
Bill AA8RW

Thursday, January 27, 2011, 6:30 pm
EECS 3427

W8UM Amateur Radio Club

NOTE: A copy of this presentation will appear on the W8UM web site shortly.

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What will be covered

Compendium of theory, references, setups, specifications, operating procedures, software and safety useful in the W8UM shack.

- Part I
 - Antennas
 - Shack Stations
 - Workbench
 - Two meter
 - EchoLink
- Part II
 - Shack Stations (Continued)
 - HF
 - Satellite
 - Safety
 - References