

IK2YCW

Remote Radio Station

Claudio Spiritelli
(*ik2ycw*)

E-mail : oldradio@ik2ycw.it
Web: www.ik2ycw.it

WE WILL TALK ABOUT:

- Why we need a Remote Radio Station?
- Macro Specifications
- Building the different Modules
- Final Considerations

Why do we need a Remote Radio Station?

- Many and Long Business trips.
- Restrictions for antennas space.
- DX opportunities must be always available.
- Advanced technology application.
- Others.....

Macro Specifications

- Access to all HF bands (160m-6m).
- Linear Amplifier operation.
- Usage of as many as possible commercial components.
- No proprietary software, only commercial packages.
- Standard Internet Provider (1M down- 300K up)
- Internet connection with Latency less than 100 ms.
- Fix IP or Dynamic DNS.
- Solid operational performances.

Macro Specifications Equipments

- PC Dualcore with Windows XP, 6 serials and 1 parallel port.
- 2 x SteppIR 4 elements (6 to 40 meters) at 23 and 13 meters high.
- Dipoles 80/ 160, Vertical 80 and several beverages, UHF antenna.
- Icom 756 ProII, Acom 2000 A, 2xProsistel , MicroHAM decoder.
- Several dedicated relees drivers, Internet relays board.
- UHF transceiver, GMS Board and *Audio frequencies mixer*.

Building the different modules

On/Off Module:

Double On/Off system : Redundancy

- Wake-On-LAN



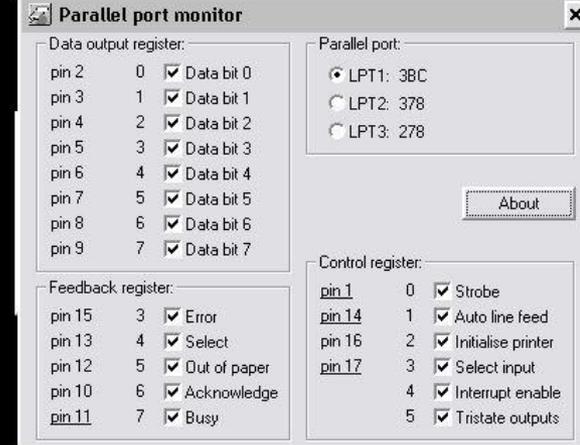
- SMS Message



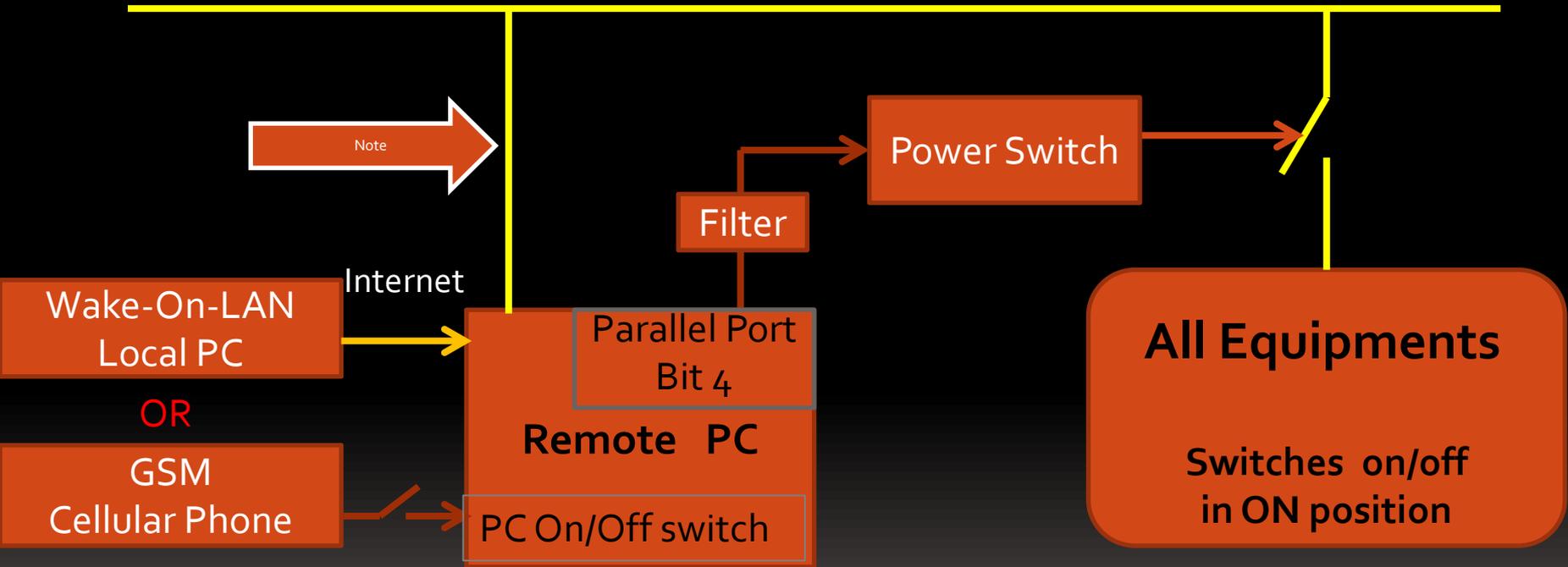
Building the different modules

On/Off Modules:

“Remote Desk Top” connection can controls many Parallel Port bits, used for antenna switching, reset equipment, etc.

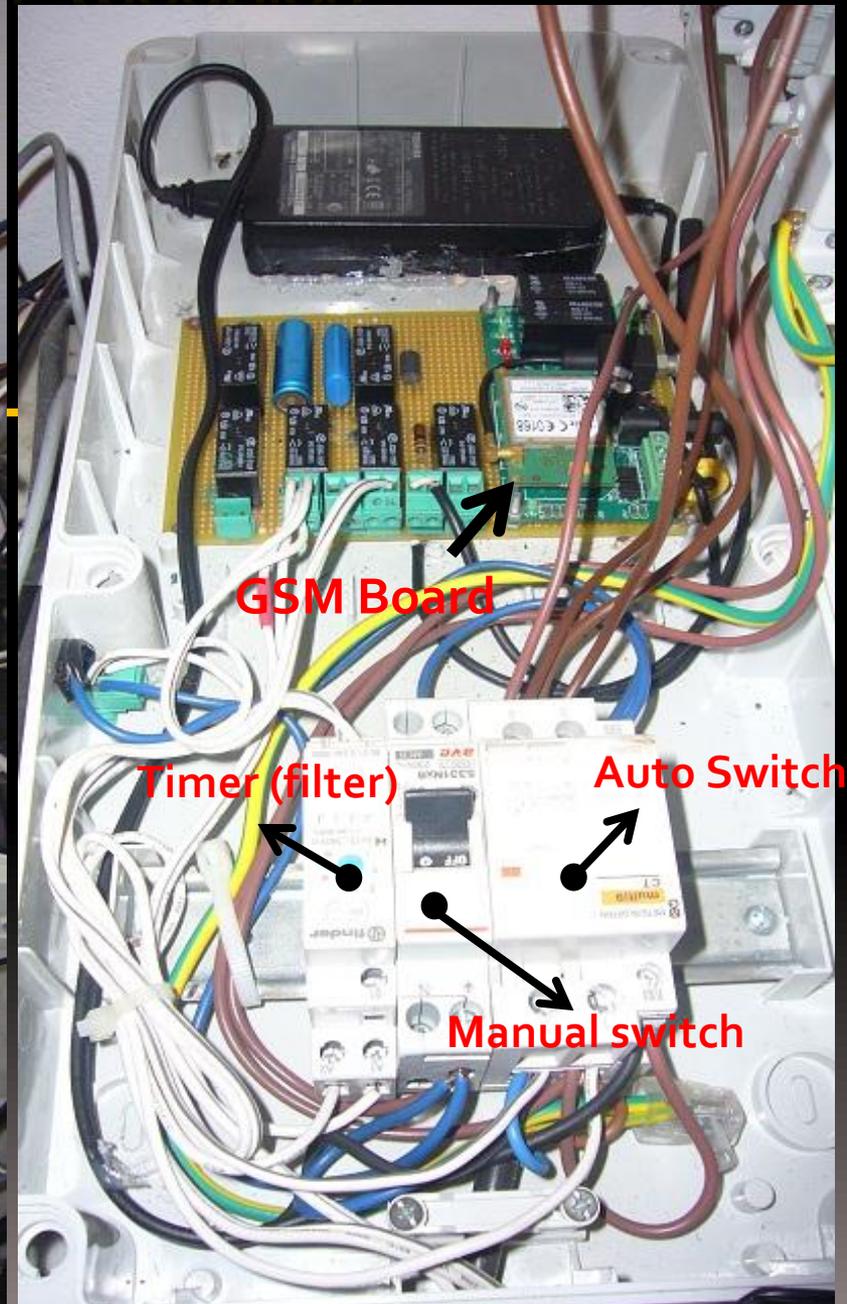


Power Line 220V



To turn the complete system OFF, resnet the SMS (0901 01ON.), relays will close the on/off PC switch, the PC will close Windows and it will shout down. Alternatively connect “Remote Desk Top” and type CTRL-ALT-END.

Building the different modules



GSM Board

Timer (filter)

Auto Switch

Manual switch

Building the different modules

Equipment Software Control

Different commercial integrated solution available:

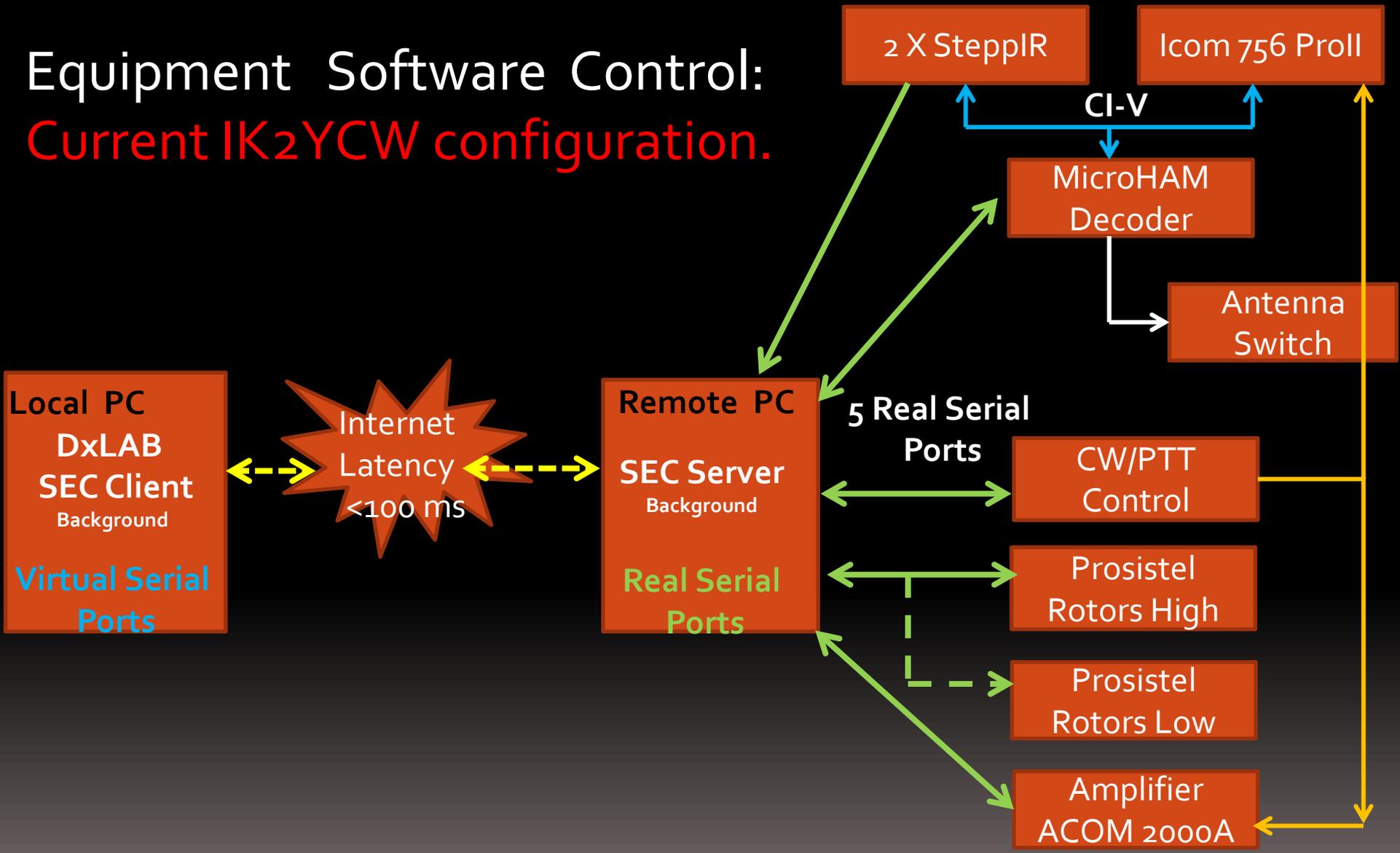
- Ham Radio Deluxe
- TRX Manager
- “Desk Top Connection”
- Others.....

My Choice:

DXLab plus SEC (“Serial to Ethernet Converter”).

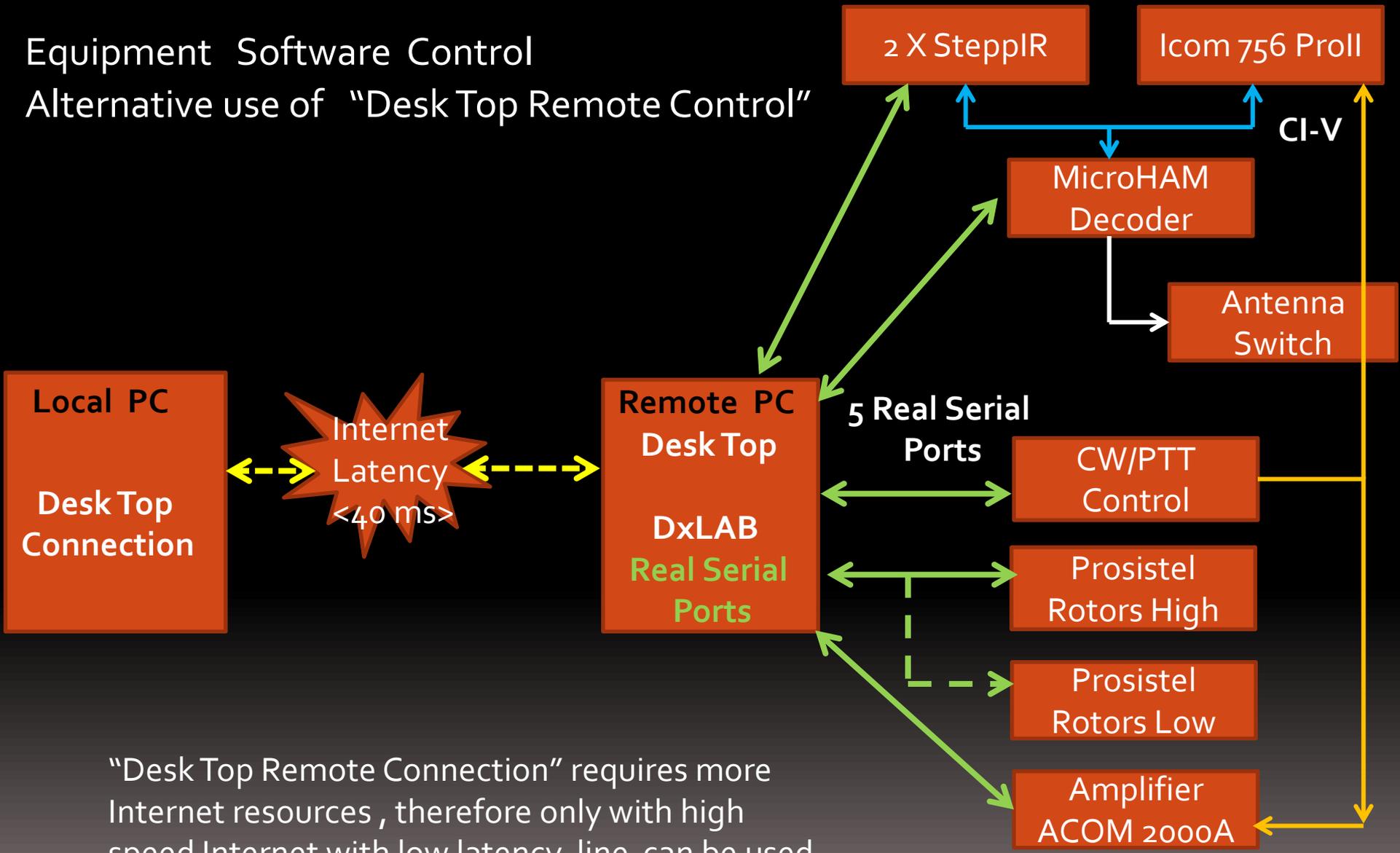
Building the different modules

Equipment Software Control:
Current IK2YCW configuration.



Building the different modules

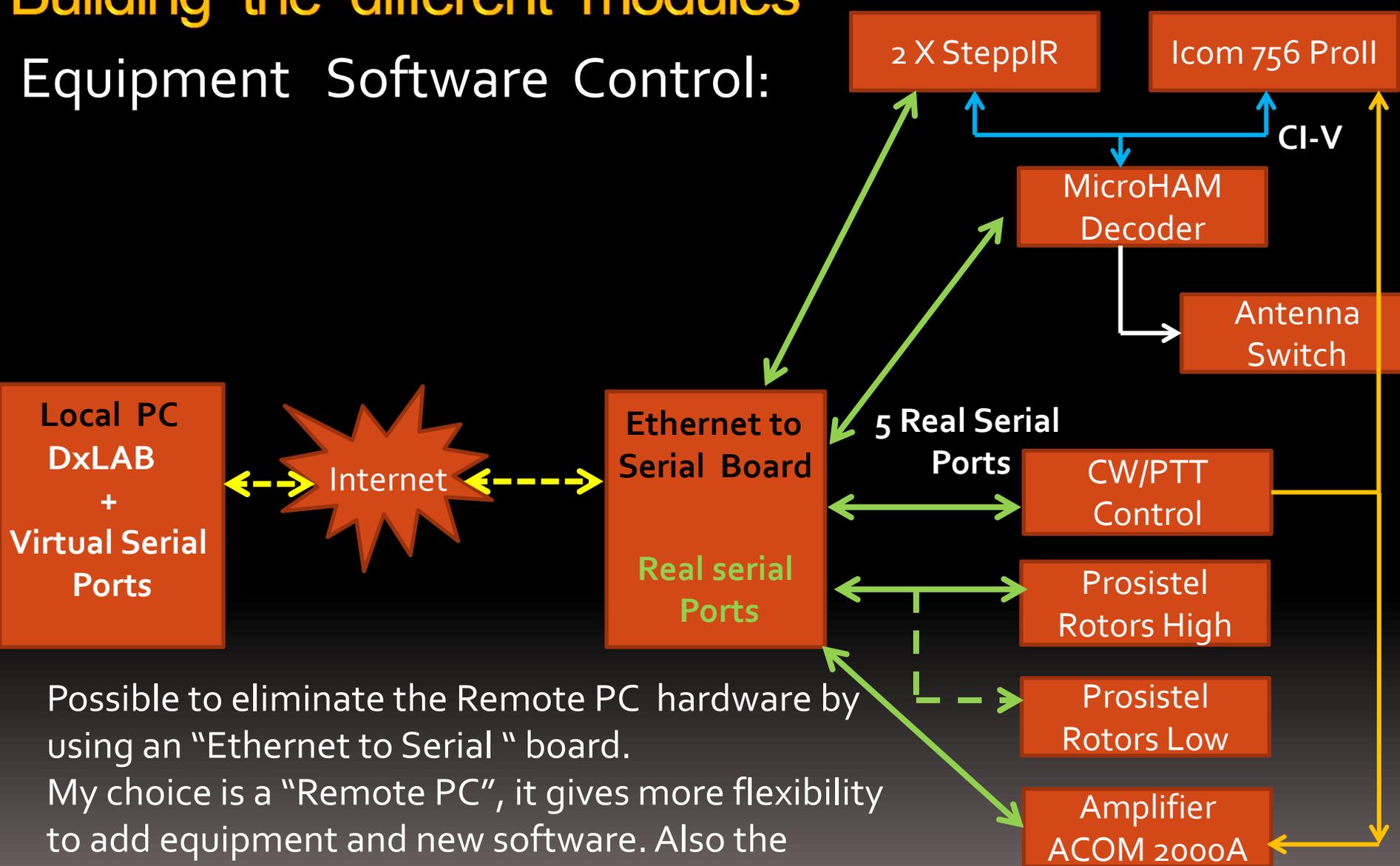
Equipment Software Control
Alternative use of "Desk Top Remote Control"



"Desk Top Remote Connection" requires more Internet resources, therefore only with high speed Internet with low latency line can be used with sufficient results.

Building the different modules

Equipment Software Control:



Possible to eliminate the Remote PC hardware by using an "Ethernet to Serial" board. My choice is a "Remote PC", it gives more flexibility to add equipment and new software. Also the station can be use as a local station.

Building the different modules

Equipment Software Control on Local PC:

Commander 9.2.5 [com IC-7800] @ 18:02:55 Z 14.139,00 USB

Main VFO: 20M S4
14.139,00

Sub VFO
14.139,00

Filters
Group narrow

PTT
TX RX

Main Sub M = S M x S XFC

756 proll flexradio 7800

Mode: USB

- LSB (normal) FM (wide)
- USB (narrow) AM (wide)
- CW (narrow) RTTY (wide)
- CW-R (wide) RTTY-R (wide)
- Data-L (wide) Data-U (wide)

Bandsread Msgs Scan

User-defined Controls

F5 PWR F6 Pwr 70 F7 NR off F8 NB on ALT

Slider 1 Slider 2 Slider 3 Slider 4

Serial to Ethernet Connector 5.0 by Eltima Software

Serial to Ethernet Connector

- COM1 [Server]
- COM10 FlexRadio [Server]
- COM11 Flex PTT [Server]
- COM12 Commander/N1MM [Client]
- COM14 CW program [Client]
- COM2 [Client]
- COM5 RADIO remote [Client]
- COM6 ACOM [Client]
- COM7 Stepper [Client]
- COM8 rotore alto [Client]
- COM9 Seconda rotore alto [Client]

COM3 [Server] Create connection

Select connection type you want to create

- Share serial port for incoming connections (Server)
- Connect serial port to remote host (Client)
- Share serial port using UDP

Select port type you want to create

Select Serial Port: COM3 Create as virtual serial port

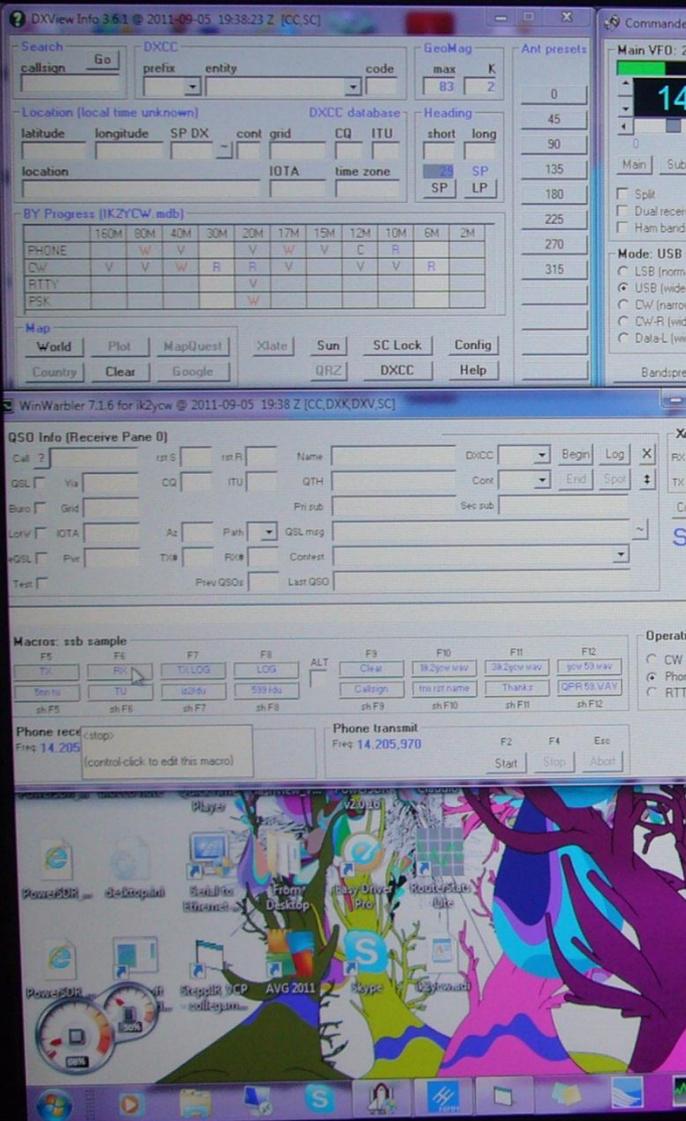
Remote IP/Host name: localhost : 5004 Strict baudrate emulation

Use a different port to receive data: 5004

Server connection will be waiting for incoming client connections and actually will share local serial port into network. Please, select TCP port which clients will connect to, then click 'Create connection'. Please, enable Advanced mode if you need more settings like port opening settings, underlayer data transmission protocol and encryption.

Building the different modules

Equipment Software Control: Local PC or "Desk Top Remote"



San Giorgio Remote Station IK2YCW

TCP/IP Stack www.ik2ycw.it

- Change relays
- Configuration

Welcome!

This site is utilized to manage remotely the IK2YCW San Giorgio Station:

RELAYS Control : (click on to toggle)

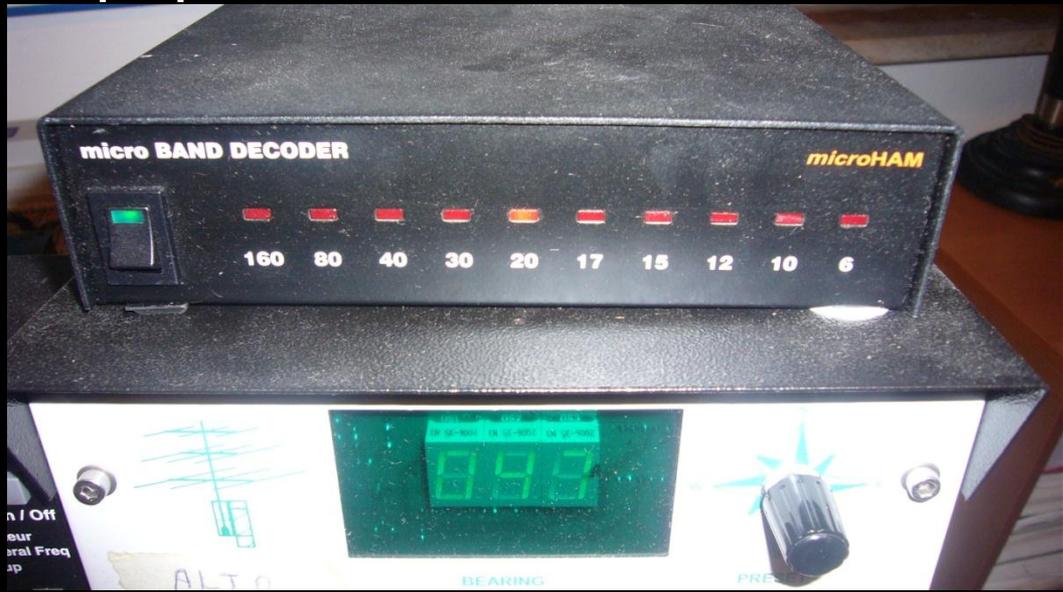
- Link 430 Mhz ON
- 50 Mhz Amplifier ON
- SSB bands ON
- To be defined
- Vertical 160m ON
- Switch antenna to FlexRadio
- Radio Station OFF
- Reset PC for 5 sec.

INPUTs Status:

^ ^ ^ ^ ^ ^ ^ ^
 8 7 6 5 4 3 2 1

Building the different modules

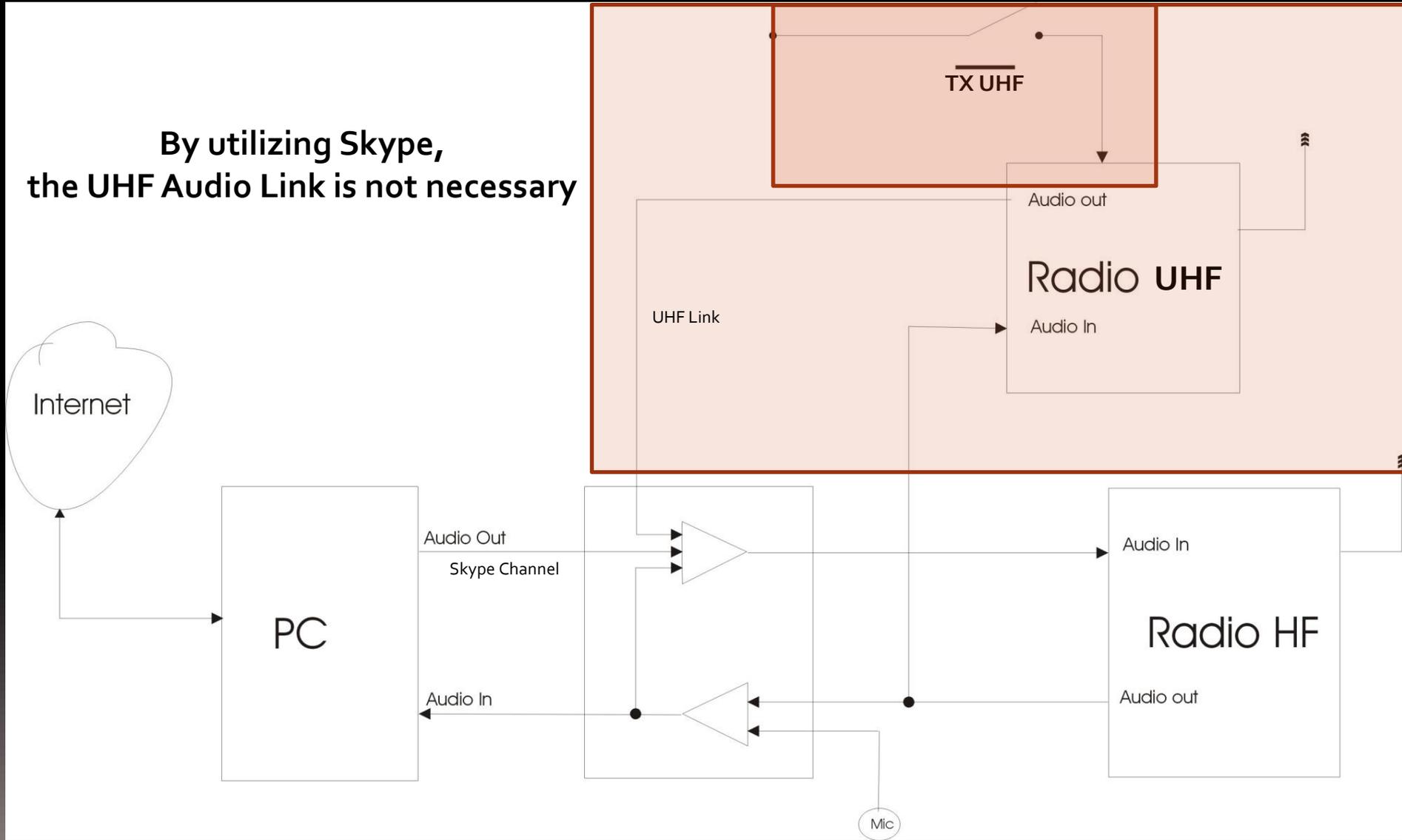
Equipments:



Building the different modules

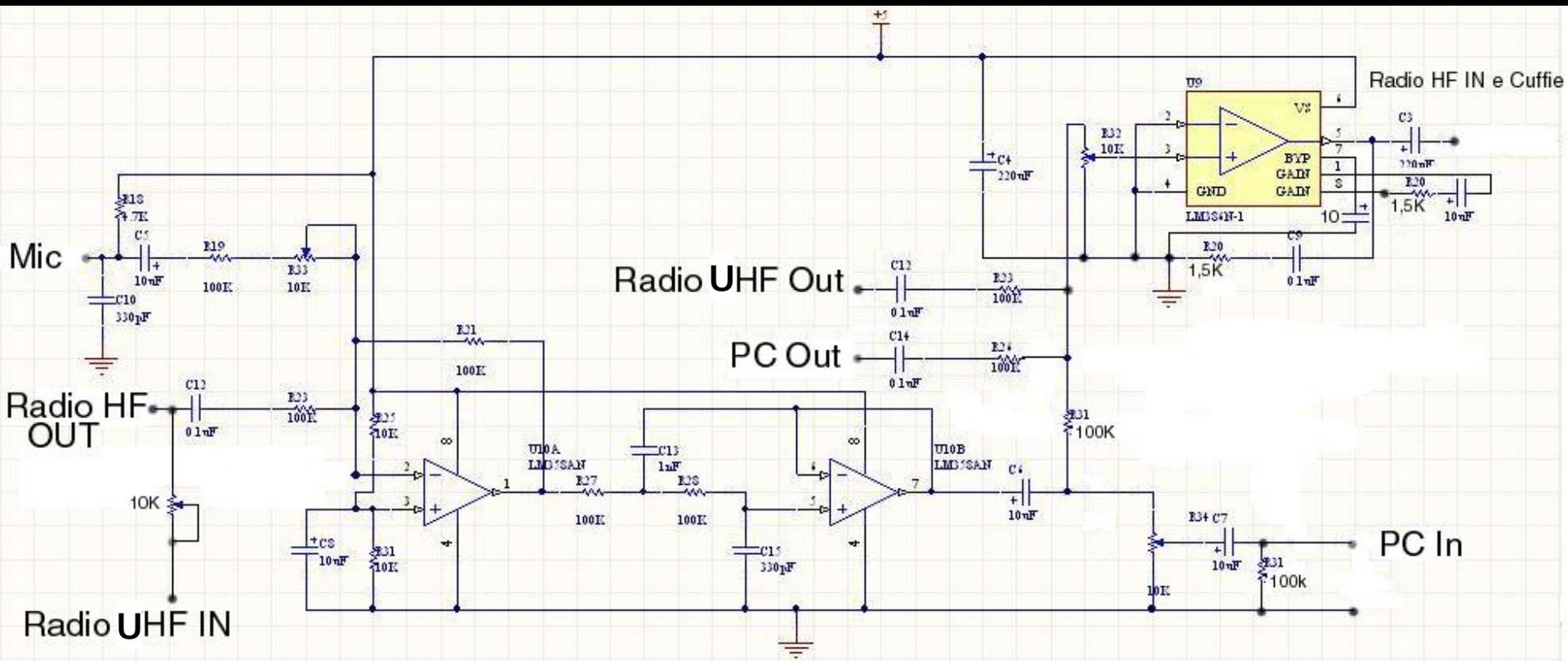
Audio Control on remote site:

By utilizing Skype, the UHF Audio Link is not necessary

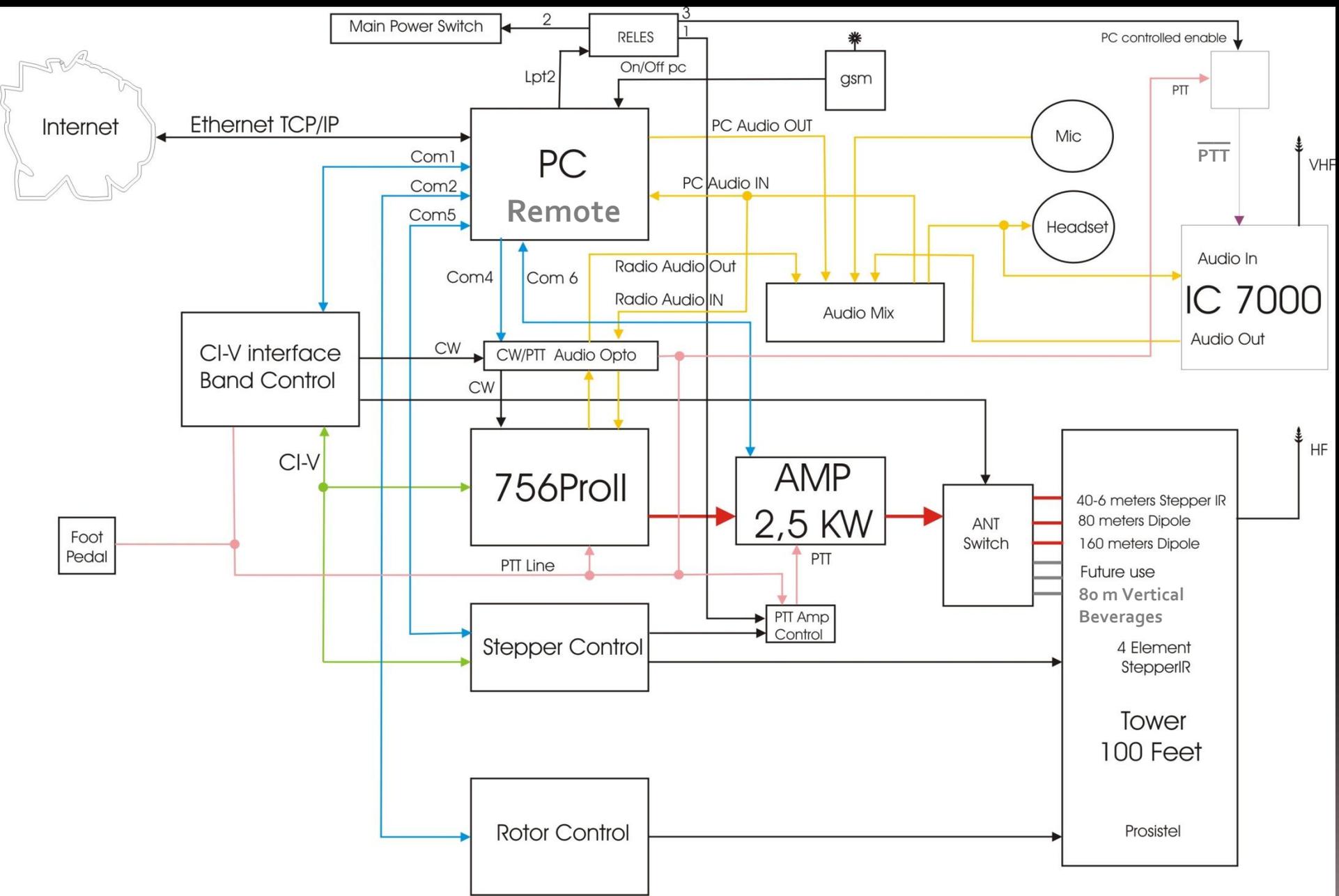


Building the different modules

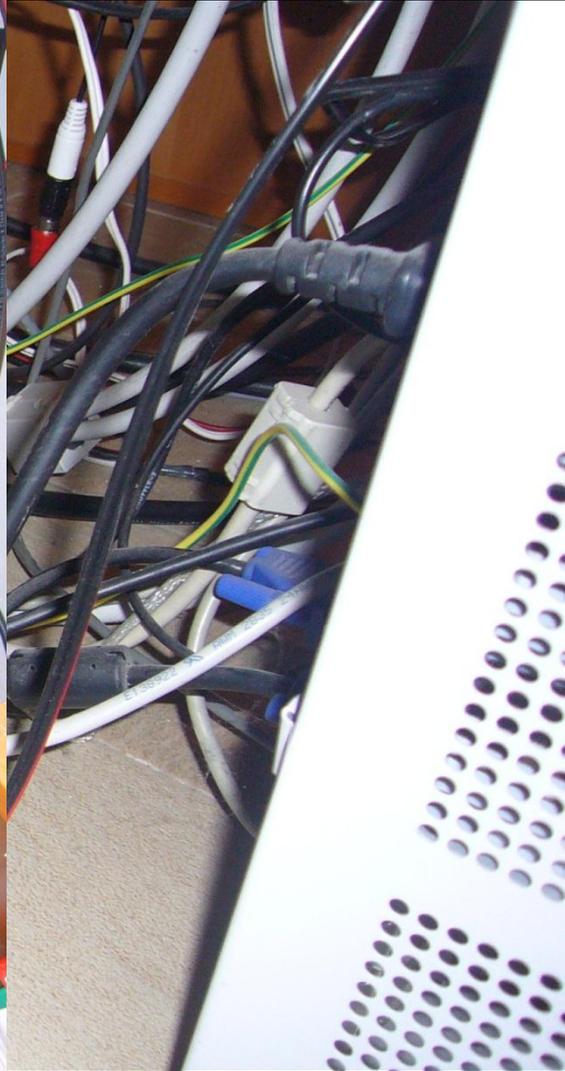
Audio Control on remote site: Audio Mix



Building the different modules



Building the





Building the different modules



Building the different modules

Bev. at 335 degrees
268 meter long

Bev. at 35 degrees
268 meter long



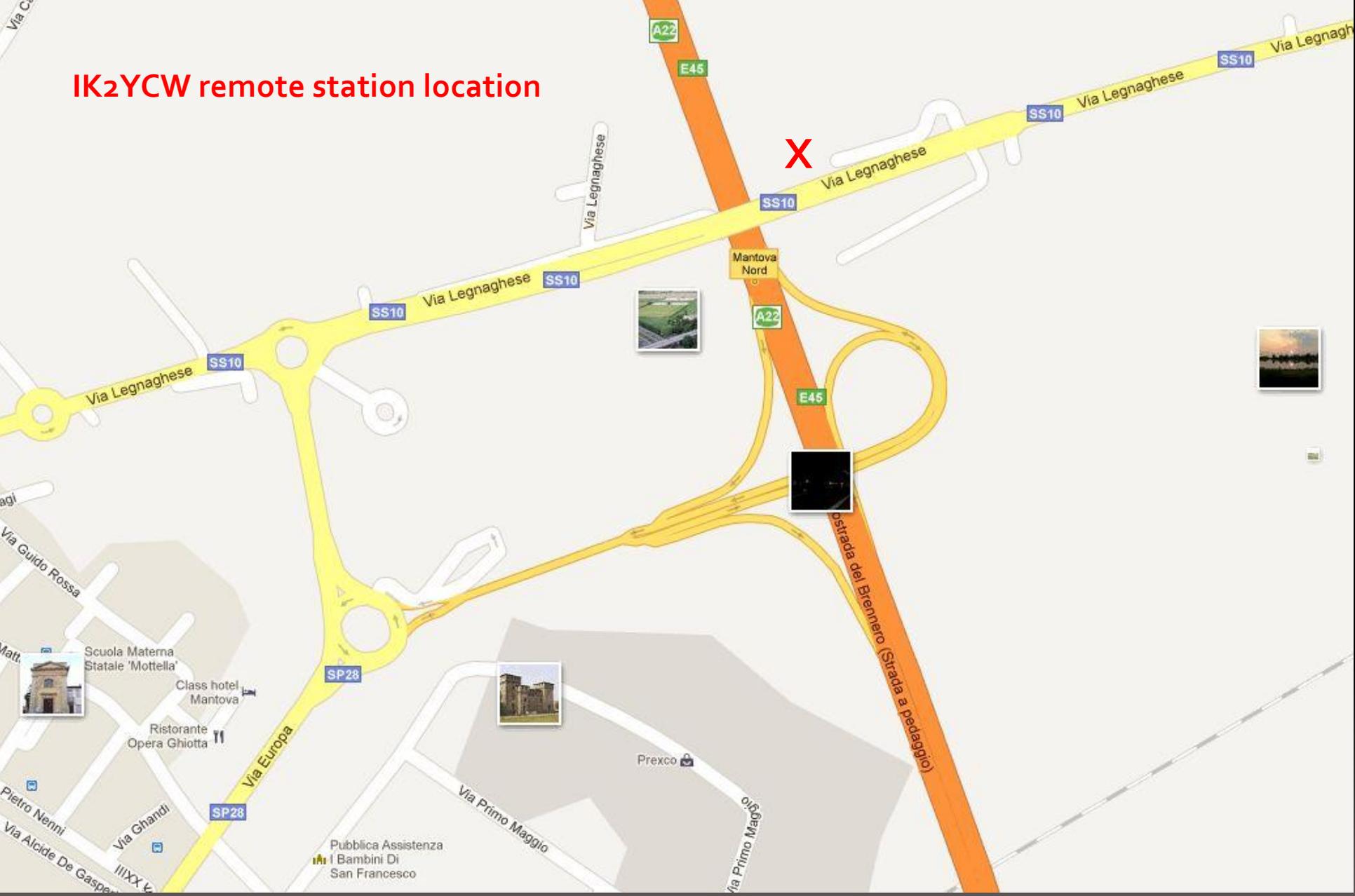
Vertical 80 & 160



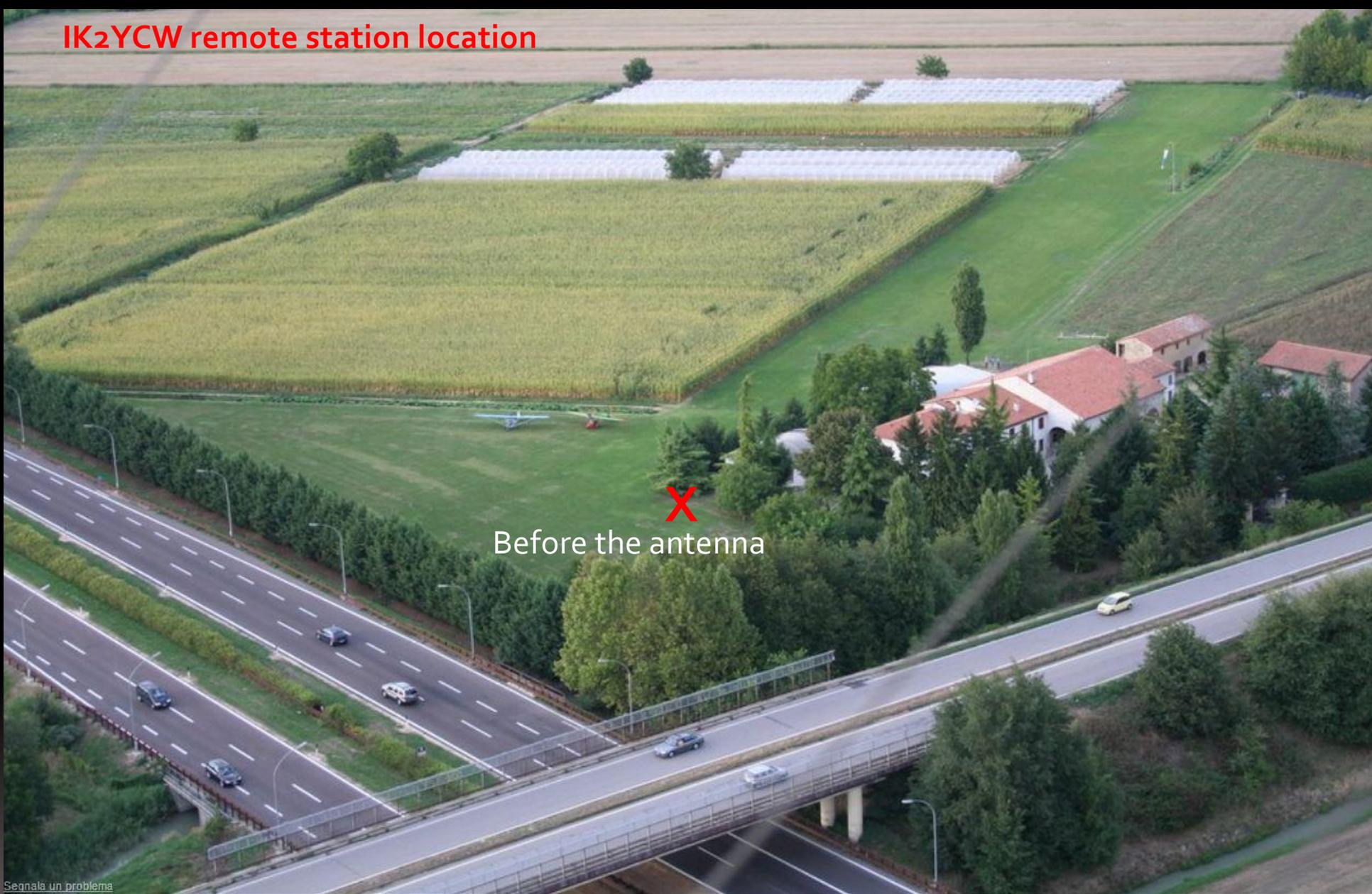
Beverage 268 meters long at 335 degrees



IK2YCW remote station location



IK2YCW remote station location



Before the antenna

Final Considerations:

What type of results can you expect from the describe Radio Station set-up?

- Never loose a DX station on the air.
- Always present on every DX-expedition.
- No more conflicts with Business Trips.
- Very high DXCC results.

	Worked	Confirmed	Verified
HR Mixed	324	321	318
HR Phone	320	313	309
HR CW	302	285	258
HR RTTY	272	231	203
Mixed	326	323	320
Phone	322	315	311
CW	304	287	260
RTTY	274	232	204
PSK	88	51	
160M	159	137	120
80M	222	195	171
40M	293	257	231
30M	259	202	173
20M	321	312	304
17M	296	251	226
15M	295	266	246
12M	237	176	136
10M	247	200	182
6M	99	71	64
2M	1	1	1
HF BandCountries	2329	1996	1789
HF ModeCountries	900	834	775
HF BandModes	3229	2830	2564
DXCC Challenge	2412	2052	1841

Award Program - include deleted countries?

DXCC (includes deleted)
 TOP (non-deleted only)

Summary

Update

Generate Reports

Progress

Summary

The chart shows the total DXCC score for IK2YCW Remote Station since 2005:

324HR Entities worked
 2412 DXCC Challenge
 9DXCC Verified.

Final Considerations:

If you decide to Build a Remote Radio Station, consider:

- Make a good planning.
- Decide on “Desk Top Connection” or “Local-Remote” like SEC application (analyze your Internet connection).
- Select equipment and software and learn it very well.
- Make sure you have a very good grounding.
- Remember that when nobody is present, every small problem is a big problem.
- All Software and Hardware must work properly.
- Good knowledge of Internet Server set-up, particularly about Firewalls and Ports redirection.
- “RF” is your big enemy.
- Buy thousands of “chokes” and use “chokes” on every wire.

IK2YCW
Stazione Radio Remota

Thanks

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(ik2ycw)

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