



*“All bands all
the time”*

Proposed “Standard” Station Configuration

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(Digital Hardware added Oct 2018

Bridgecom BCM-220 substituted for the Alinco DR235 July 2020)



Rationale for a “Standard” Station Configuration

- If there were no constraints, what is the recommended complement of radios and antennas for each station
 - Of course each station has constraints
 - Use as a yardstick to measure the current station capabilities against and identify shortfalls
 - Management decision whether/how to remedy the shortfalls
- Make the best use of the radios and antennas in stock
 - Propose non-stock items only where it makes sense
- Objective: Cover all bands from 1.8 to 450 MHz
 - Simultaneous operation on 2m, 220, 6m and 10m
 - Plus 70cm coverage to communicate with contact/contract cities
 - Support NVIS on HF



“Standard” Radio Positions

- Two 2m positions
 - Motorola CDM 1550 with PD220-2 Super Station Master VHF high band collinear antenna
 - Frequency agile Icom IC-2200H with PD220-2 Super Station Master VHF high band collinear antenna
- One 220 position
 - Alinco DR-235 Mk III with PD220-8 Super Station Master collinear antenna
- Separate 10m and 6m positions plus 70cm capability
 - Yaesu FT 8900R 10m/6m/2m/70cm quad band radios (8.5a), with dual band antennas for 10m/6m and 2m/70cm plus a duplexer
- One HF 160 to 10 meters multi-mode (including 60 meters)
 - Yaesu FT 897D HF/6m/2m/70cm and LDG AT-897 tuner with horizontally polarized (for NVIS) broadband dipole with a dual band 2m/70cm vertical
- Radios believed to be in stock; Station Master antennas in stock; just need the other complementary antennas



Two 2m Positions



Motorola CDM1550
(13.5a @45w)



Icom IC2200H
(15a @65w)

PD-220-2
142-150 MHz
Cell wave Super
Station Master

PD-220-2
142-150 MHz
Cell wave Super
Station Master

- Both radios and antennas are in stock
 - CDM 1550 may be packaged with its power supply and external speaker





One 220 MHz Position



Bridgecom BCM-220
(6.7a @ 30w)

PD220-8B
220-225 MHz
Cell wave Super
Station Master

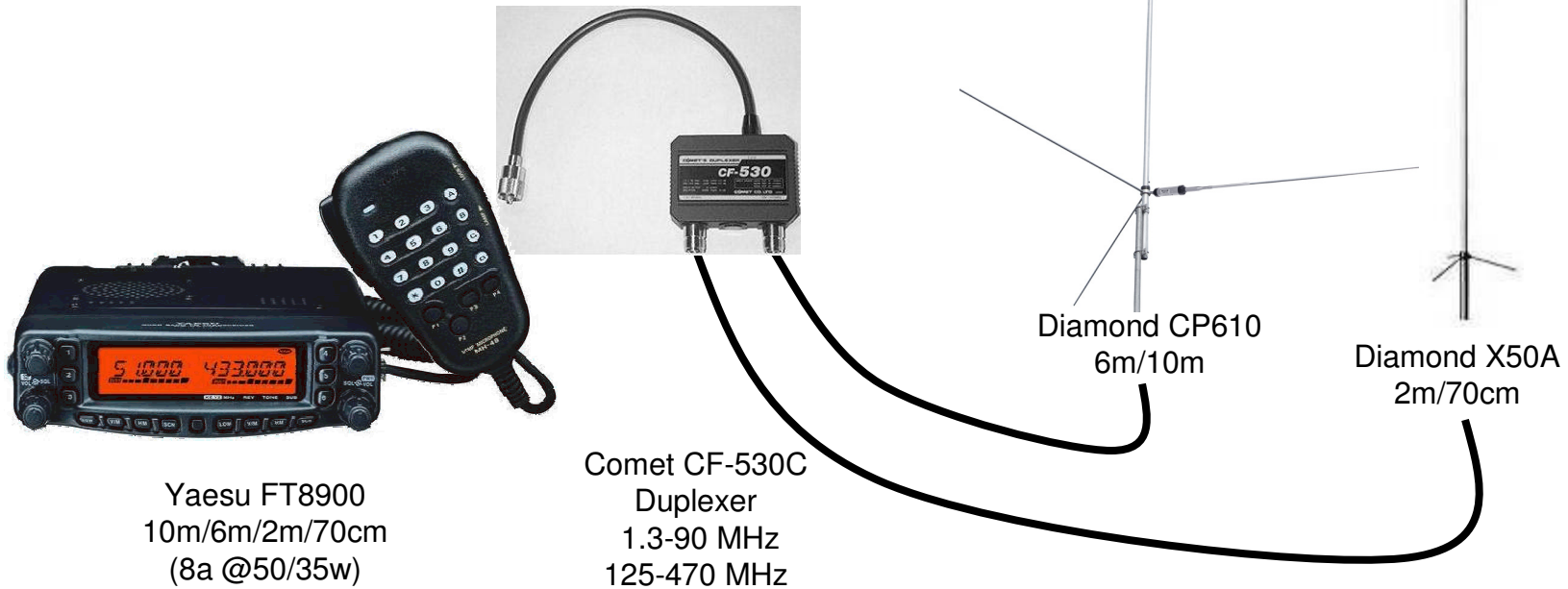


- Antenna is in stock
- BCM-220 being ordered
- If the station has a working Alinco DR-235 Mk III it should be retained in place until we have a replacement



Two FT8900s for 6m and 10m Recommended Configuration

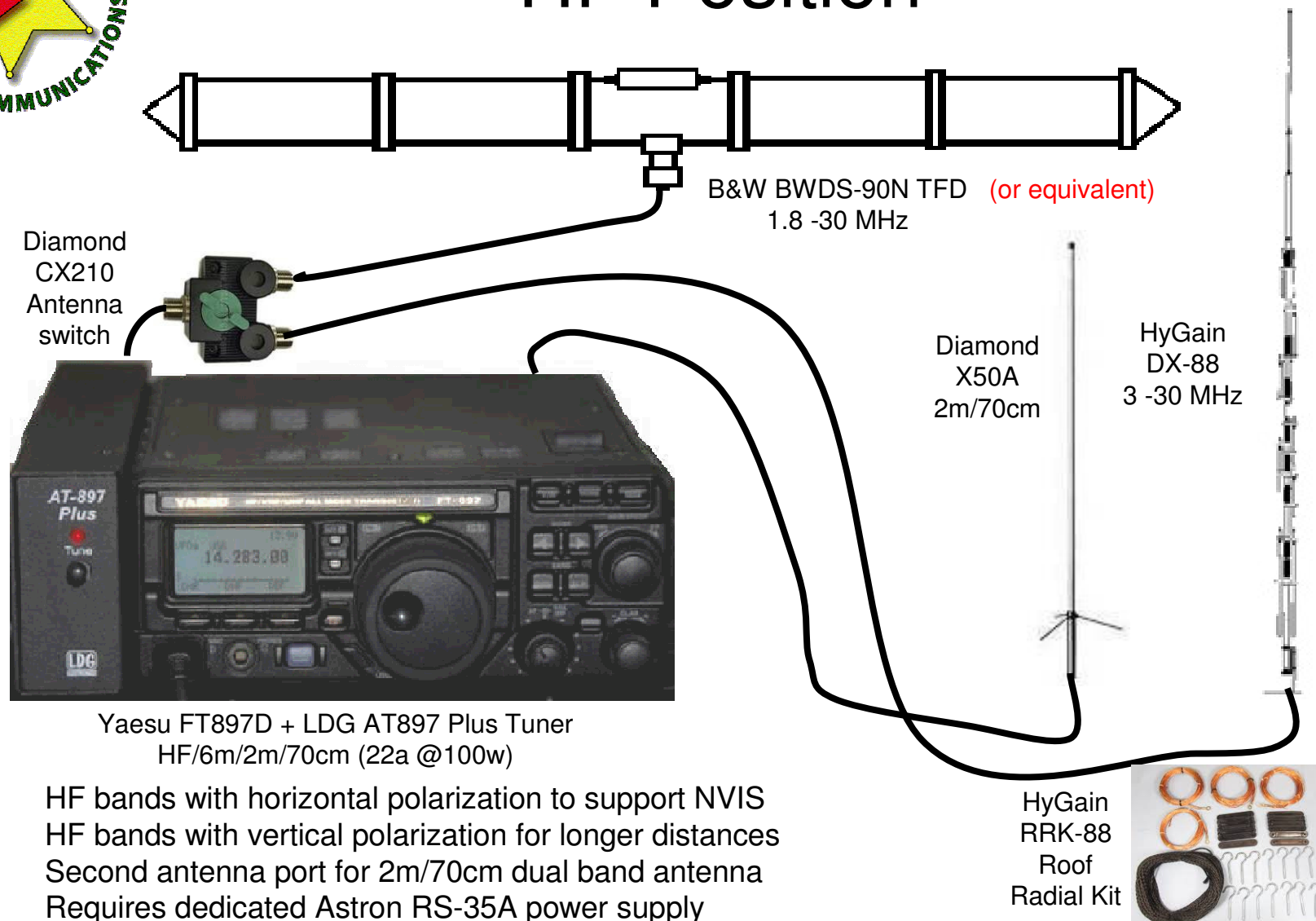
- Two dual band antennas and a duplexer to achieve 4 bands on each radio
- Supports 440 MHz to the cities



- Radios and antennas are in stock, but not the duplexer



HF Position



- HF bands with horizontal polarization to support NVIS
- HF bands with vertical polarization for longer distances
- Second antenna port for 2m/70cm dual band antenna
- Requires dedicated Astron RS-35A power supply
- Radio, tuner and DX-88 in stock, but not the B&W antenna



Power Supplies

- Adding more radios may require reassigning and adding more power supplies

Radio Model	Current Draw
CDM1550	13.5 amps
IC2200H	15 amps
BC-220	6.7 amps
FT8900	8.5 amps
FT897	22 amps

Astron Model	Continuous Duty	Peak
RS-20A	16 amps	20 amps
RS-35A	25 amps	35 amps
RS-50A	37 amps	50 amps

- Radio combinations connected need to be lower than the power supply continuous duty rating
- Motorola CDM 1550 can come with its own power supply making it independent of the Astrons



Possible Power Supply Assignments to Radios

Model	Peak	Cont.	CDM 1550* 13.5	IC-2200H 15	BC-220 6.7	FT8900 8.5	FT897 22	
RS-20A	20	16	1					13.5
				1				15
					1	1		15.2
RS-35A	35	25	1 1		1			20.2
				1	1	1		22
				1				21.7
				1		1		23.5
					1	2		23.7
			1			22		
RS-50A	50	37	1 1 1 1 1	1	1			35.2
					1		1	37
						1	1	28.7
							2	30.5
								35.5
					1			30.2
					1		2	32
						1	2	23.7
							1	28.7
							1	30.5

*Disregard rows with the CDM 1550 if it comes with its own power supply



Digital Hardware Configuration

- Provide digital messaging from 1.8 to 450 MHz using minimal hardware and inventory radios
 - Yaesu FT-8900 (10m/6m/2m/440)
 - Alinco DR235 MkIII(220)
 - Yaesu FT-897 (HF/6m/2m/440)
 - One Signalink USB sound card interface
 - 4 position network switch with mounting brackets
 - Interface cables and configured adapter
 - Fldigi/FImsg software for NBEMS
 - Winlink capability with RMS Express software
 - AX.25 packet capability with TNC emulator software
 - Computer, display and printer
- Radios need to be within 6 feet of the network switch



Ancillary Equipment Packaged as Kits

- Signalink USB soundcard radio interface device
- Jumper block configured
- USB computer cable
- 6-pin mini din cable (second one on order)
- Manual 4-position network switch
- Network switch mounting brackets and zip ties
- 6-foot and 1-foot network cables
- RJ-45 to DB15M* adapter configured



* RJ-45 to DB9M adapter for stations with the Alinco DR-235



Typical Installation Photo



DCS Digital Hardware Configuration Design



Computer



Signalink



Network Switch

Standard USB-A/USB-B cable



Standard RJ45 / RJ45 Cat5 network cable



No connection



Yaesu FT-897

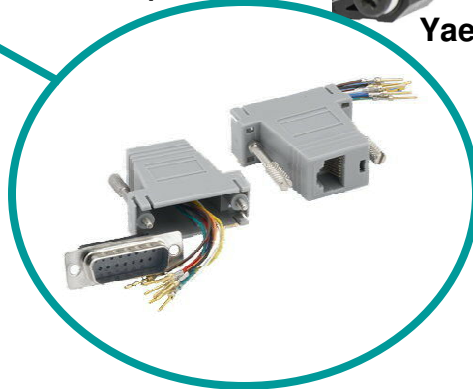


RJ45 / 6-pin Mini-DIN network cable (ordered with Signalink)



Bridgecom BCM-220

RJ45 / DB15 Adapter



Yaesu FT-8900



RJ45 / 6-pin Mini-DIN network cable (ordered with Signalink)



Radio Antenna Inventories

Feb 2015



Radio Inventory

Make & Model	Purchased	Issued	Installed	Balance	Comments
Alinco DRM06T			1		
Alinco DR-235	21		12	9	220
Icom IC-706			1		
Icom IC-726			9		
Icom IC 2200H	20		12	8	2m
Icom IC 2720H			1		
Kenwood TM 231			1		
Kenwood TM 241			1		
Kenwood TM 641			4		
Kenwood TM 741			4		
Kenwood TM 271			1		
Kenwood TS 2000			3		
M/A Com Master III			1		
M/A Com Orion			1		
Motorola CDM 1250			5		
Motorola CDM 1550 LS	25		11	14	2m
Motorola Micor C7R3RCB			1		
Yaesu FT 897D	42	4	3	35	HF/6m/2m/70cm
Yaesu FT 8900R	39		6	33	10m/6m/2m/70cm



Antenna Inventory

- Qty: 38 Stationmaster series collinear verticals
 - 27 for 145 MHz
 - 11 for 220 MHz
- Qty: 50 DB201 VHF low band $\frac{1}{4}$ wave ground plane vertical
 - Can be cut for 10m, 6m or 39 MHz
- Qty: 37 DX88 HyGain HF trap vertical multi-band
 - Covers 10, 12, 15, 17, 20, 30, 40, and 80 Meters
 - Wrong polarization for NVIS
- 2018 antenna procurement
 - Diamond X50 dual band 2m/440 antennas
 - Diamond CP610 dual band 6m/10m antennas