



*“All bands all
the time”*

Proposed “Standard” Station Configuration

Deane Bouvier,
N5DQ, Staff 50

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(Digital Hardware added Oct 2018)



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 Position



Alinco DR-235 MkIII
(8a @25w)

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

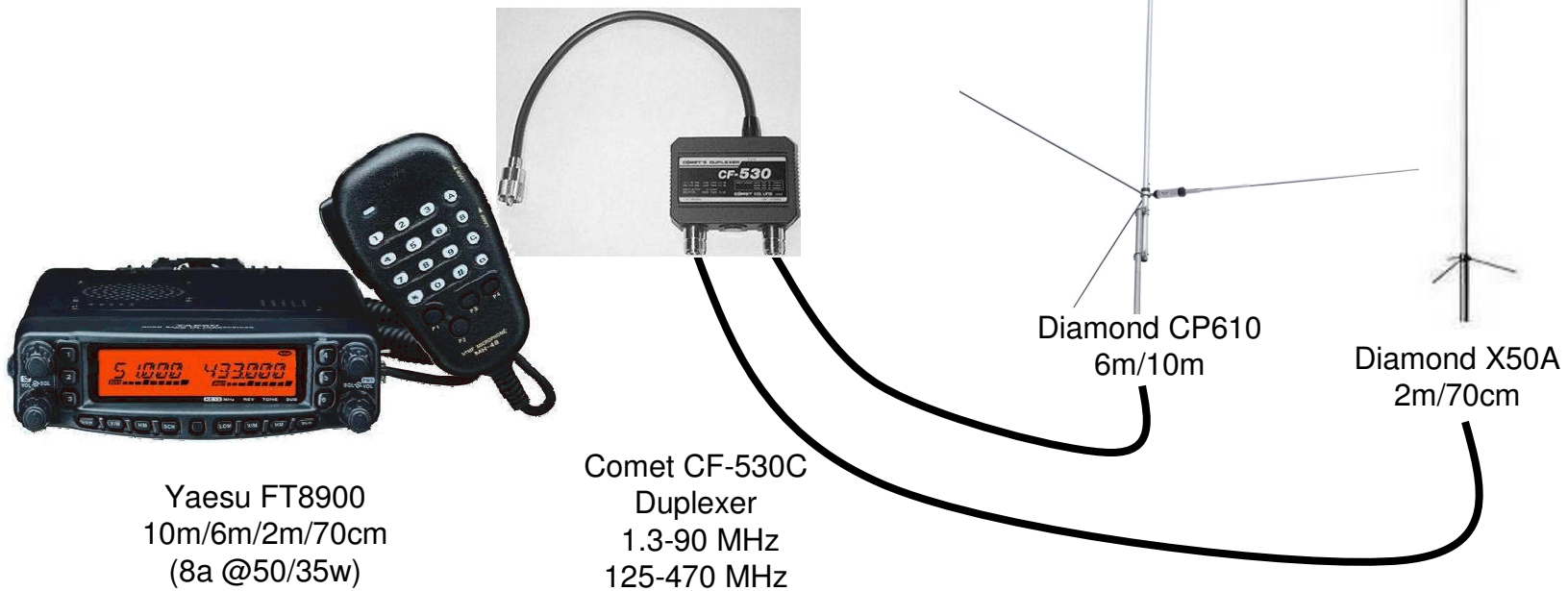


- Radio and antenna is in stock



Two FT8900s for 6m and 10m Recommended Configuration

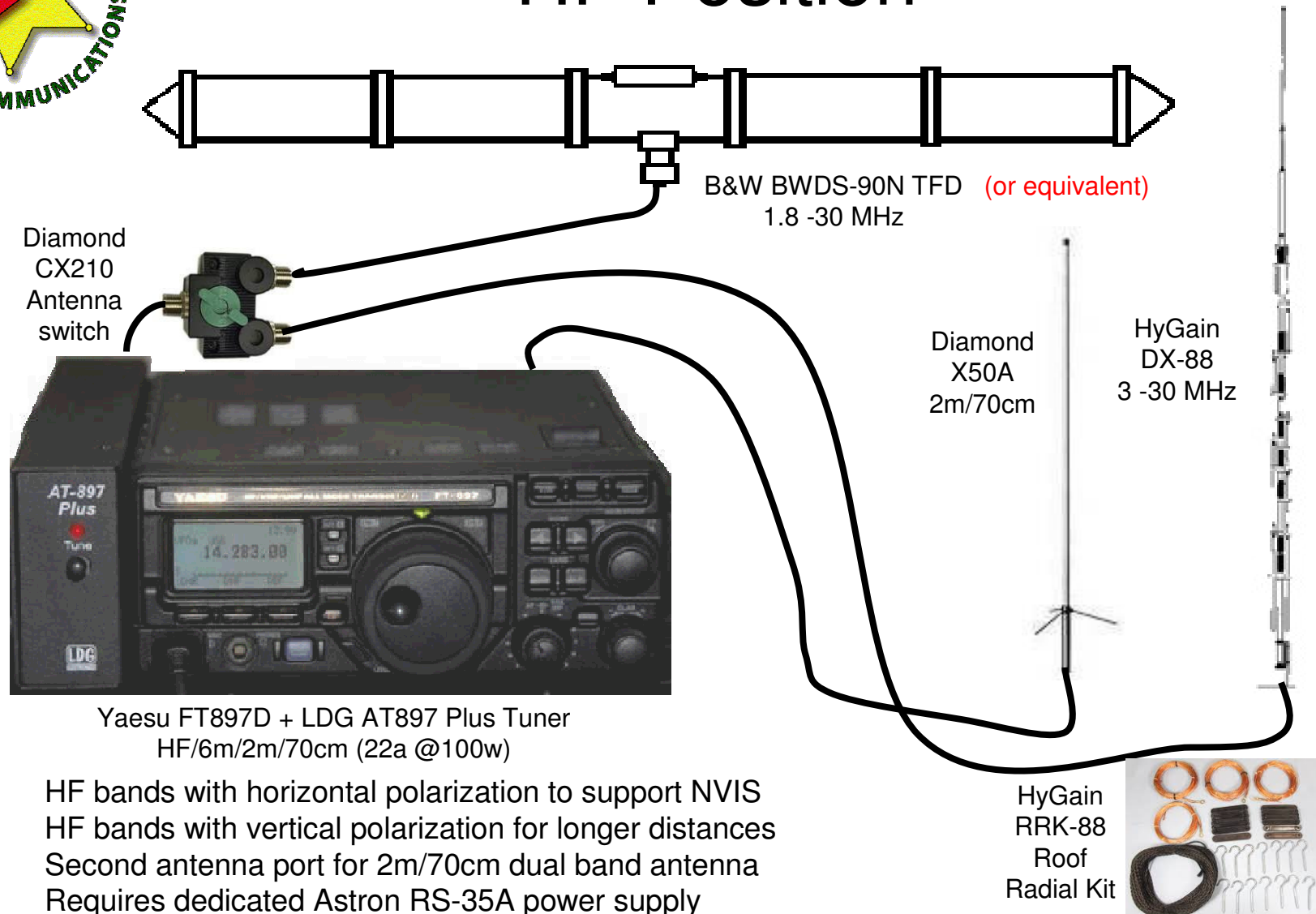
- Two dual band antennas and a duplexer to achieve 4 bands
- Supports 440 MHz



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



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 and DX-88 in stock, but not the tuner or other antennas



Power Supplies

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

Radio Model	Current Draw
CDM1550	13.5 amps
IC2200H	15 amps
DR235	8 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*	IC-2200H	DR235	FT8900	FT897		
			13.5	15	8	8.5	22		
RS-20A	20	16	1					13.5	
				1				15	
					1			8	
								1	8.5
RS-35A	35	25	1		1			21.5	
			1			1		22	
				1	1			23	
				1		1		23.5	
						1	2	25	
								1	22
RS-50A	50	37	1	1	1			36.5	
			1	1		1		37	
			1		1	1		30	
			1			2		30.5	
			1				1	35.5	
				1	1	1		31.5	
				1		2		32	
						1	2	25	
							1	1	30
							1	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 DB9M adapter configured

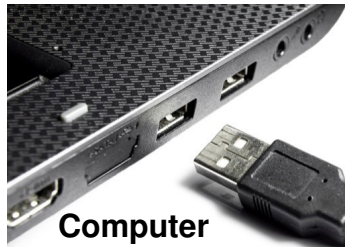




Typical
Installation
Photo



DCS Digital Hardware Configuration Design



Computer

Standard
USB-A/USB-B
cable



Signalink



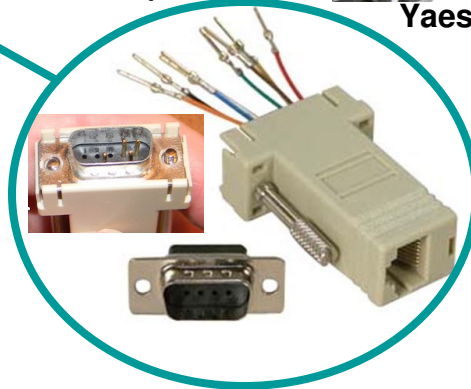
Network Switch

No connection



Yaesu FT-8900

RJ45 / DB9
Adapter



Yaesu FT-897



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



Alinco DR-235



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

DCS Standard Configuration

- Objective: Cover all bands from 1.8 to 450 MHz
- Simultaneous operation on 2m, 220, 6m and 10m
- 70cm coverage to communicate with contact/contract cities
- Full HF including NVIS

Position 1 - 2m

	<u>DC Current</u>	<u>In Stock?</u>	<u>Cost</u>	<u>Source</u>
Motorola VHF CDM 1550	13.5a	Yes	\$ 1,200.00	Estimate
PD220-2 Super Station Master VHF high band collinear antenna		Yes	\$ 1,000.00	Estimate
Plantronics HW720 headset		On order	\$ 168.00	Plantronics
Plantronics SHS1890 PTT switch		On order	\$ 170.00	Plantronics
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

Position 2 - 2m

Icom IC-2200H frequency agile 2m	15a	Yes	\$ 179.95	HRO*
PD220-2 Super Station Master VHF high band collinear antenna		Yes	\$ 1,000.00	Estimate
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

Position 3 - 6m & 70 cm

Yaesu FT 8900R 10m/6m/2m/70cm quad band radio	8.5a	Yes	\$ 329.95	HRO
Diamond CP-610 10m/6m dual band antenna		On order	\$ 229.95	HRO
Diamond X50A 2m/70cm dual band antenna		On order	\$ 94.95	HRO
Comet CF-530C Duplexer, 1.3-90 MHz/125-470 MHz		On order	\$ 74.95	HRO
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

Position 4 - 10m, 70 cm, 2m voice and digital

Yaesu FT 8900R 10m/6m/2m/70cm quad band radio	8.5a	Yes	\$ 329.95	HRO
Diamond CP-610 10m/6m dual band antenna		On order	\$ 229.95	HRO
Diamond X50A 2m/70cm dual band antenna		On order	\$ 94.95	HRO
Comet CF-530C Duplexer, 1.3-90 MHz/125-470 MHz		On order	\$ 74.95	HRO
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

Position 5 - 220 voice and digital

Alinco DR-235 Mk III	8a	Yes	\$ 239.95	HRO
PD220-8 Super Station Master collinear antenna		Yes	\$ 1,000.00	Estimate
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

Position 6 - HF 160m to 10m voice and digital

Yaesu FT 897D HF/6m/2m/70cm	22a	Yes	\$ 1,409.95	HRO*
LDG AT-897 tuner		Received	\$ 239.95	HRO*
Diamond CX210 Antenna Switch		Received	\$ 49.95	HRO
HyGain DX-88 3-30 MHz vertical		Yes	\$ 369.95	HRO
HyGain RRX-88 Roof Radial Kit		Yes	\$ 99.95	HRO
Diamond X50A 2m/70cm dual band antenna		On order	\$ 94.95	HRO
Horizontal Polarized NVIS Antenna B&W BWDS-90N TFD		Decision?	\$ 995.00	B&W
Assumes mounting does not require B&W MK112-312R heavy duty masts				
Hardline and Coax		ISD Stock?	\$ 300.00	Estimate

NBEMS Digital Hardware Interfacing with Positions 4, 5 & 6

Computer		Received	\$ 1,000.00	Estimate
Monitor		Received	\$ 250.00	Estimate
Black & White Laser Printer		Received	\$ 250.00	Estimate
TigertronicsSL-USB-6PM Signalink sound card interface + FT8900 Interface Cable		Received	\$ 114.95	HRO
Tigertronics SLMOD6PM Jumper Module		Received?	\$ 4.95	HRO
Tigertronics SLCAB6PM Extra Interface Cable for FT897		On order	\$ 21.95	HRO
6 foot Ethernet Cable (Network Switch to DR235)		Received	\$ 7.00	Amazon
1 foot Ethernet Cable (Signalink to Network Switch)		Received	\$ 5.00	Amazon
RJ-45 to DB9 M Adapter for the DR 235		Received	\$ 3.00	Amazon
4 Position Manual Network Switch		Received	\$ 15.00	Amazon

Note: Positions 4, 5 and 6 should be within 6 feet of the Network Switch & Signalink

Power Supplies

Enough capacity for simultaneous continuous operations

Astron RS-50A for Positions 1 (CDM1550), 2 (IC-2200H) & 3 (FT8900)	37a	ISD Stock?	\$ 279.95	HRO
Astron RS-35A for Positions 4 (FT8900) & 5 (DR235)	25a	ISD Stock?	\$ 179.95	HRO
Astron RS-35A for Position 6 (FT897)	25a	ISD Stock?	\$ 179.95	HRO
			<u>\$ 13,788.90</u>	

* Item no longer in production. Price is for equivalent item being sold

Tax	\$ 1,378.89
	<u>\$ 15,167.79</u>

No way to evaluate an aggregated shipping allowance.

No way to evaluate the ISD labor cost