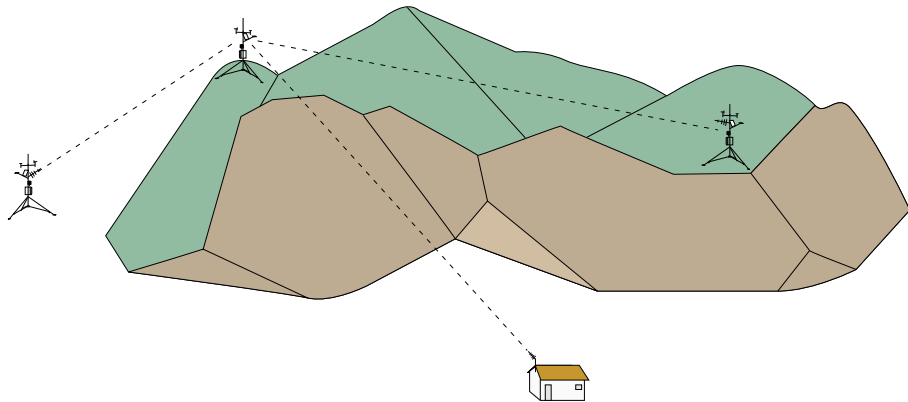


INSTRUCTION MANUAL



21108 RF450 Demo Kit

2/08



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RF450 Demo Kit Table of Contents

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21108 RF450 Demo Kit

This RF450 Demo Kit can be rented for two weeks. The kit can help you determine the best antenna options for your system and ensure that the radios will work in your system's environment.

NOTE The rental time period starts when Campbell Scientific ships the Demo Kit and ends when Campbell Scientific receives the kit. A weekly rental rate will be charged for kits that are returned late.

1. Unpack Equipment

Verify that you have all of the equipment (see the enclosed Component Checklist and Figures 1-1 through 1-3). After unpacking, save the box, foam, and Component Checklist. They will be required for shipping the kit back to Campbell Scientific.

NOTE Contact Campbell Scientific if any of the equipment is missing.



FIGURE 1-1. Top layer of the box contains two (a) plastic enclosures housing the RF450 radio and PS100 Power Supply; two (b) 15966 wall chargers; two (c) 19512 whip antennas; (d) box holding antenna mounting brackets; and diagnostic CD (sits next to (d)).

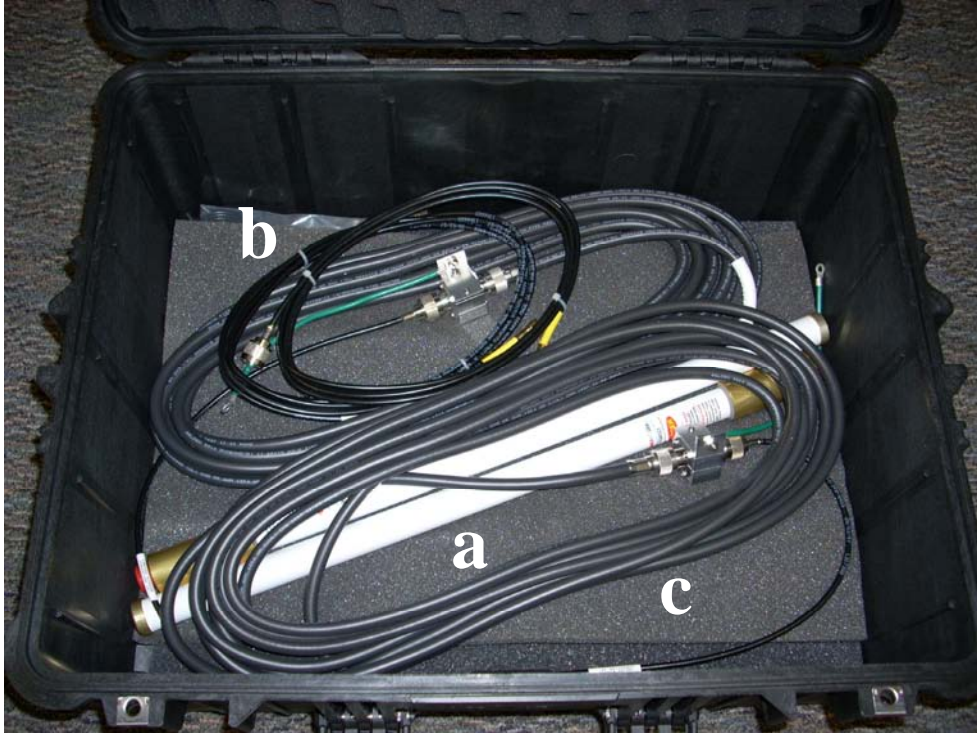


FIGURE 1-2. The middle layer contains two (a) 14221 Omnidirectional antennas; two (b) COAX-SMA antenna cables; and two (c) COAX-NTN antenna cables with surge suppressors attached.

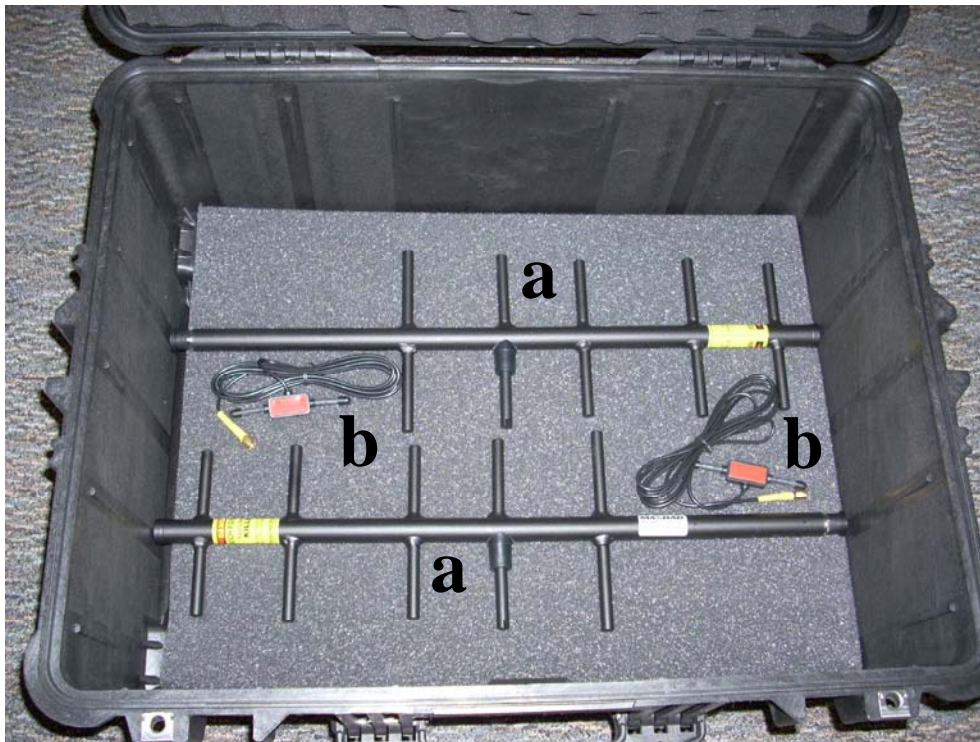


FIGURE 1-3. The bottom layer contains two (a) 14201 Yagi antennas and two (b) 20644 Omnidirectional antennas w/adhesive mount.

2. Antennas, Antenna Cables, Surge Protector, and Accessories Descriptions

Omnidirectional antennas are normally used at the base station and nearby field stations. Yagi antennas are needed at distant stations or other special cases. Descriptions of the antennas and antenna cables included with this kit are listed below:

Indoor, Omnidirectional	
19512	0 dBd, ½ wave whip. SMA connector attaches directly to the Antenna Connection; no antenna cable is needed.
20644	1 dBd, dipole, with window/wall mount. The antenna is shipped with a 10 ft. cable that has an SMA female connector that attaches to Antenna Connection.
Outdoor, Omnidirectional	
14221	3 dBd with rugged FM2 antenna mounts and a Type N female connector. It requires an antenna cable to connect to the Antenna Connection.
Outdoor, Yagi	
14201	9 dBd, with mounts and a Type N female connector. It requires an antenna cable to connect to the Antenna Connection. Please note that because the FCC limits EIRP to 36 dBm, use of this antenna may require a reduction of the RF450's transmit power.
Antenna Cables and Surge Protectors for Outdoor Antennas	
Recommended for cable lengths less than 10 ft.	
COAXSMA-L10	LMR195 antenna cable. It has a type N Male Connector that attaches to the antenna and a type SMA connector that attaches to the Antenna Connection.
Recommended for cable lengths greater than 10 ft and/or use with lightning protection	
COAXNTN-L30	Low-loss (4.1 dB/100') RG8 antenna cable with type N male to type N male connectors. This cable is shipped with the 19533 surge protector attached.
19533	Surge Suppressor Kit is recommended when the length of the antenna cable is greater than 10 feet. The surge suppressor helps protect the radio from electrical discharge being conducted down the antenna cable. It includes a COAXSMA-L1.5 cable for attachment to the Antenna Connection.
Additional Accessories	
20625	FreeWave Diagnostic Cable and CD for advanced users.

3. Base Station

The plastic enclosure containing the Master Radio should reside at the base station (see Figure 3-1).

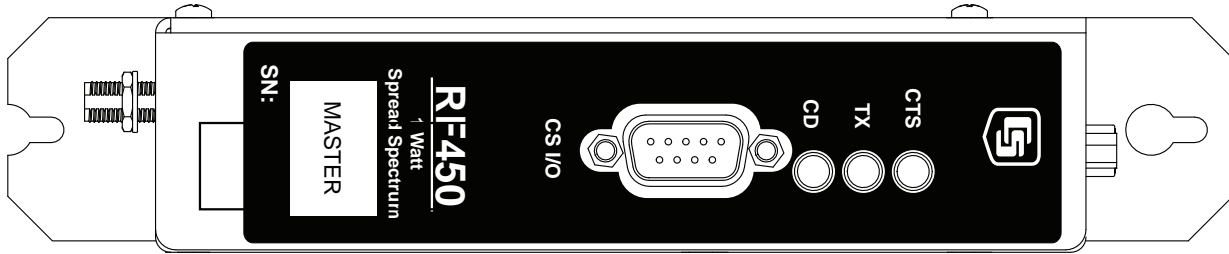


FIGURE 3-1. The Master Radio

Attach the barrel plug on the wall charger to the connector on the plastic enclosure labeled Charger Connection (see Figure 3-2), and then plug the wall charger in a wall socket. To turn power on, flip the PS100's switch to the on position.



FIGURE 3-2. Charger Connection

Choose an appropriate antenna for the base station (see Section 2). Attach the antenna cable or whip antenna to the connector labeled Antenna Connection (see Figure 3-3).



FIGURE 3-3. Antenna Connection with the Whip Antenna Attached

Once connected, the Master Radio should show a constant red light on the CD LED (see Figure 3-1).

4. Remote Sites

The plastic enclosure containing the Slave Radio will be carried around to act as the remote site (see Figure 4-1).

Before carrying the equipment to the remote sites, use the voltmeter to verify that the battery is fully charged. If needed, recharge the battery via the wall charger (see Figure 3-2).

LEDs on the slave radio indicate the quality of the connection (see Figure 4-1 and Table 4-1).

Try each antenna until you get an excellent connection. The Yagi antenna will need to be aimed directly at the base station.

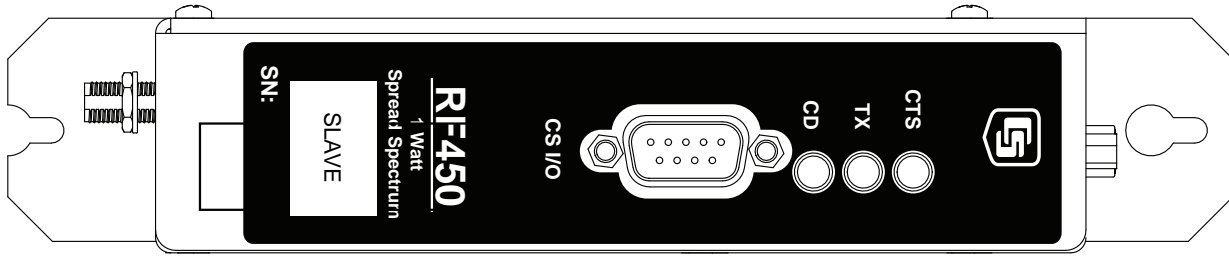


FIGURE 4-1. The Slave Radio

TABLE 4-1. LED Description		
Connection Quality	CTS LED	CD LED
Excellent	solid red	solid green
Good	blinks red frequently	solid green
Poor	blinks red infrequently	solid green
None	blinks red frequently	solid red

5. Returning the Equipment

Pack the equipment in the boxes the equipment originally came in (see Figures 5-1 through 5-3). Use the Component Checklist to ensure that the boxes contain all of equipment that was originally shipped.

CAUTION

It is the responsibility of the customer to ensure that all components of the kit are returned to Campbell Scientific. Customers will be charged for lost or damaged components.

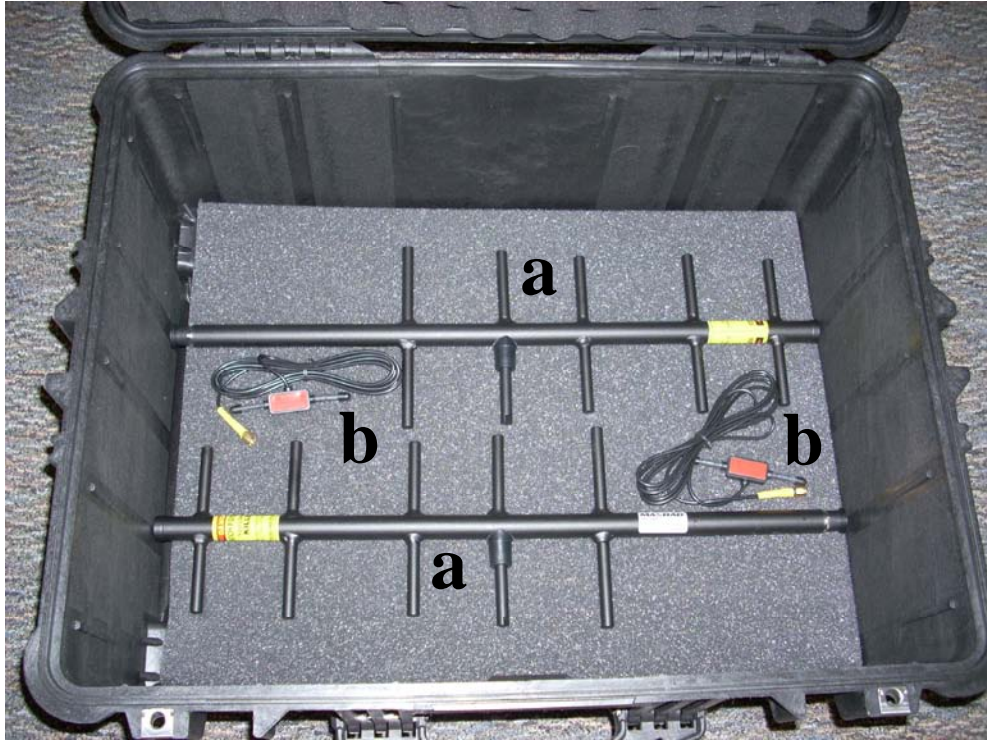


FIGURE 5-1. Bottom layer contains two (a) 14201 Yagi antennas and two (b) 20644 Omnidirectional antennas w/adhesive mount.

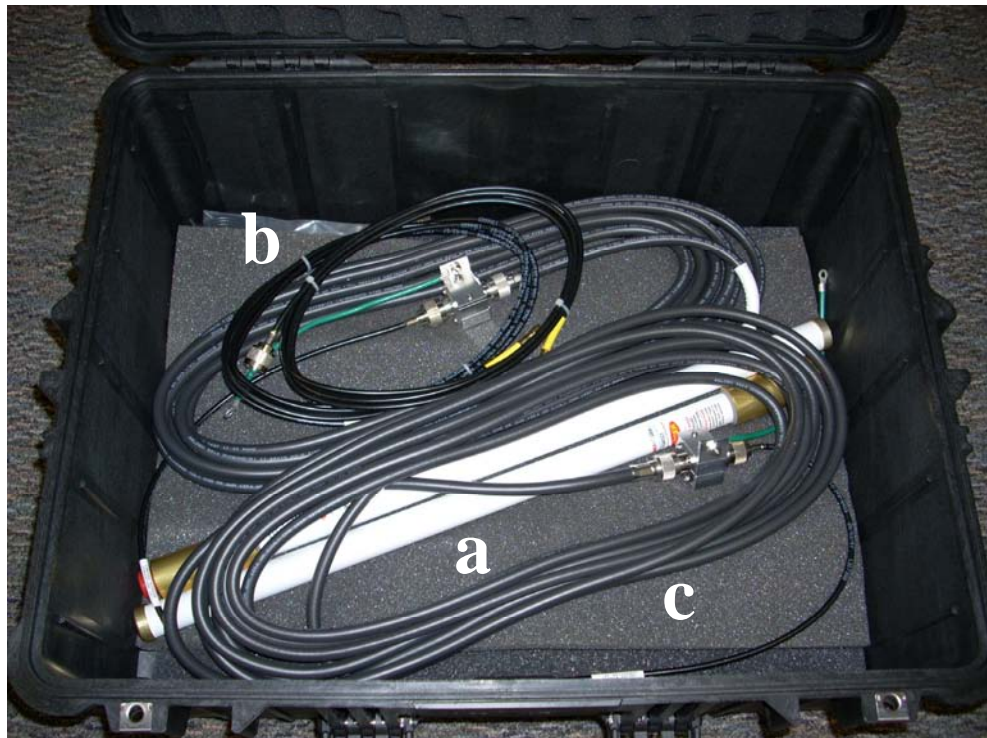


FIGURE 5-2. Middle layer contains two (a) 14221 Omnidirectional antennas; two (b) COAX-SMA antenna cables; and two (c) COAX-NTN antenna cables with surge suppressors attached.



FIGURE 5-3. The top layer contains two (a) plastic enclosures housing the RF450 radio and PS100 Power Supply; two (b) 15966 wall chargers; two (c) 19512 whip antennas; (d) box holding antenna mounting brackets; and diagnostic CD (sits next to (d)).

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