



ANTENNA TUNING BY COUNTERPOISE ONLY

The following testing has been done in my apartment balcony, which is located at the second floor of an apartment building. That location was selected because the recommended antenna setup, which required 4 radials well, grounded was impossible to achieve.

The antenna was installed on a tripod at about 2' high. No tuner was used. An antenna analyzer was used and is required to obtain the data. The results and the counterpoise lengths will be different from a location to another. Those numbers might not work at all for someone trying to use it to another location under different conditions but they're a good start.

So what is important to remember here are the basic principle and the process to obtain the counterpoise lengths. This test required time and patience but when the counterpoise lengths have been found for a location and for a specific antenna installation **they'll always be the same.**

How to obtain the counterpoise lengths for 10M to 30M

1. Install the antenna with the following accessories as recommended: UNUN right under the antenna and 2 Ferrite Beads right under the UNUN.
2. Install one 25' long counterpoise in a straight line to the "location A" (see picture) and distribute the counterpoise evenly on the floor. Make sure that the counterpoise is not overlapping on itself and is away from metal surfaces.
3. Install the Coax Cable in a straight line with no coils and no turns to the antenna analyzer. In this exercise 20' of RG-8X was used.
4. Choose the middle of a band: Example 10M = 28.850 MHz
5. Do a reading with the antenna analyzer. To change the SWR add or reduce the size of the counterpoise 1' or 2' at the time. To reduce the size of the counterpoise simply roll the excess of it on coil around your hand and put a weight on it to make sure that nothing will move when placed on the floor.
6. Note the counterpoise length.

How to obtain the counterpoise length for 40M to 80M

1. Install the antenna with the following accessories as recommended: UNUN right under the antenna and 2 Ferrite Beads right under the UNUN.
2. Install 100' long counterpoise in a straight line to the "location B" (see picture) and distribute the counterpoise evenly on the floor. Make sure that the counterpoise is not overlapping on itself and is away from metal surfaces.
3. Ground the "location A" to a water pipe, aluminum windows/doorframe or any other available good metal ground at your location.
4. Install the Coax Cable in a straight line with no coil and no turns to the antenna analyzer. In this exercise 20' of RG-8X was used.
5. Choose the middle of a band: Example 40M = 7.150 MHz
6. Do a reading with the antenna analyzer. To change the SWR add or reduce the size of the counterpoise 1' or 2' at the time. To reduce the size of the



- counterpoise simply roll the excess of it on coil around your hand and put a weight on it to make sure that nothing will move once on the floor.
7. Because the SWR obtained for 80M will be relatively narrow some adjustments on the counterpoise length will be required whether a low SWR is desired for the top or the bottom part of the band (SSB phone or CW).
 8. Note the counterpoise length.



ANTENNA TUNING BY COUNTERPOISE ONLY

| Bands | Ground A | Counterpoise A | Counterpoise B |
|------------|----------|----------------|----------------|
| 80M | YES | NO | 97' |
| 40M | YES | NO | 108'6" |
| 30M | NO | 7'6" | NO |
| 20M | NO | 25' | NO |
| 17M | NO | 20'6" | NO |
| 15M | NO | 18'2" | NO |
| 12M | NO | 15' | NO |
| 10M | NO | 25' | NO |

Ground A

The ground used was the aluminum frame of the balcony door. The cable connecting the PL-259 (Counterpoise A location see picture) with the door frame was 14' long.

Counterpoise A

The Counterpoise A is connected to the PL-259 under the UNUN 9:1. The other extremity is not connected to anything.

Counterpoise B

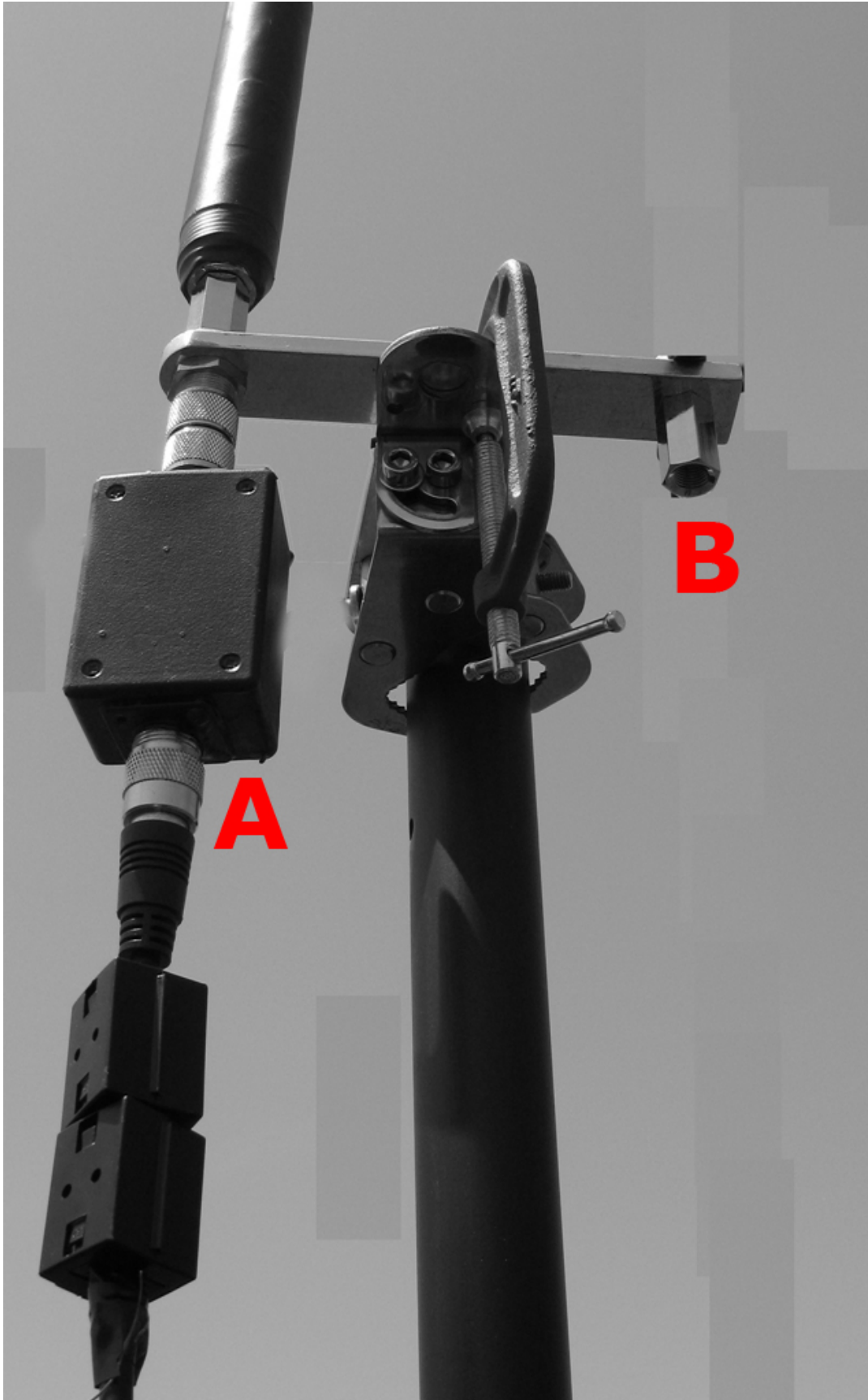
The Counterpoise B is connected to the regular Counterpoise bolt on the flat bar mount and the other extremity is not connected to anything.

Installation Note

Coax Length = 20'
 2 Ferrite Beads
 UNUN 9:1

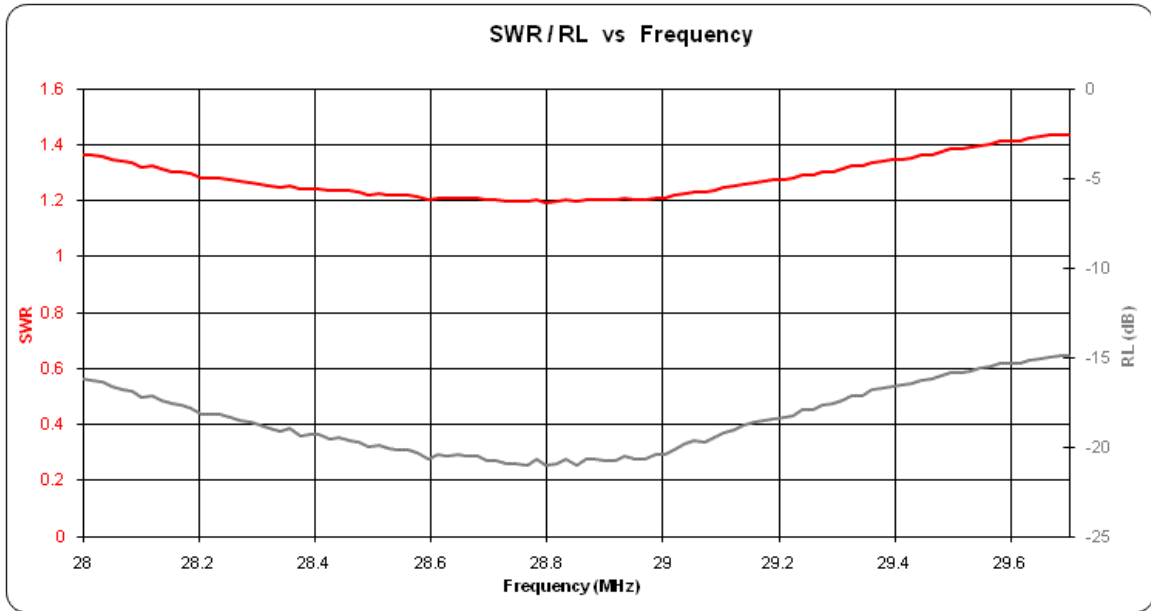
Antenna installed at about 2' from the floor on a tripod. Counterpoise evenly distributed on the apartment floor. The apartment is located at the second floor.

CHAMELEON™
ANTENNA

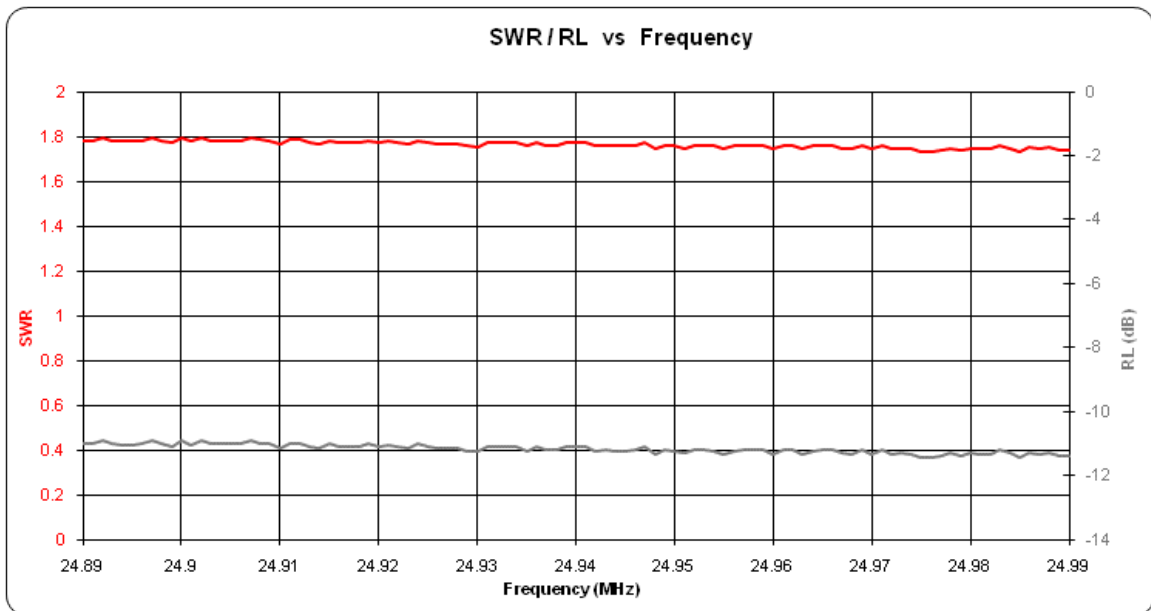




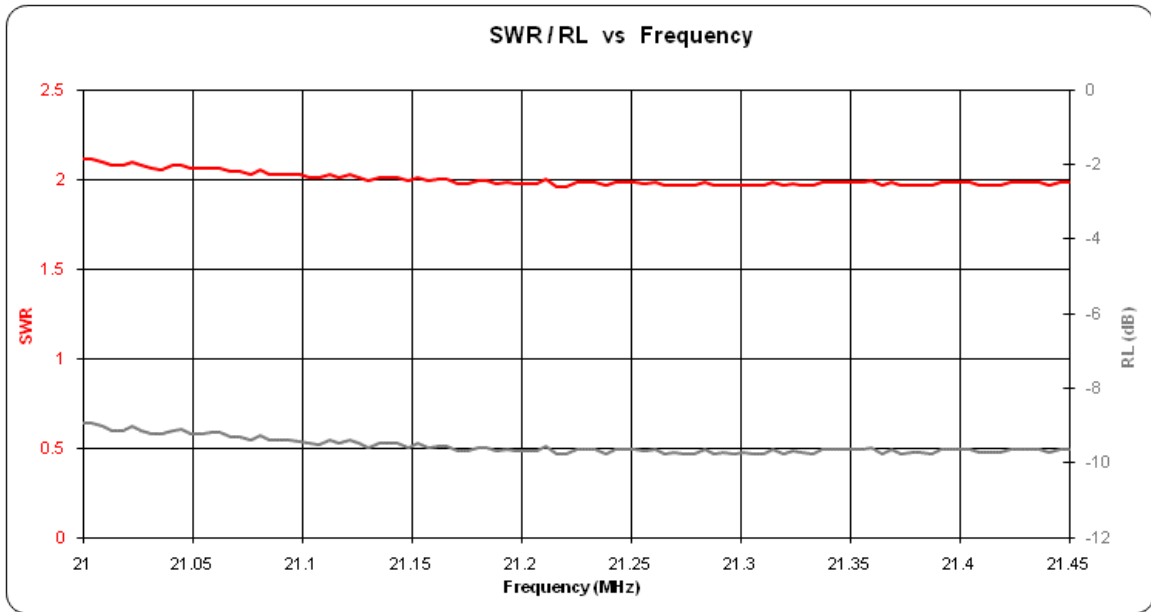
SWR GRAPH



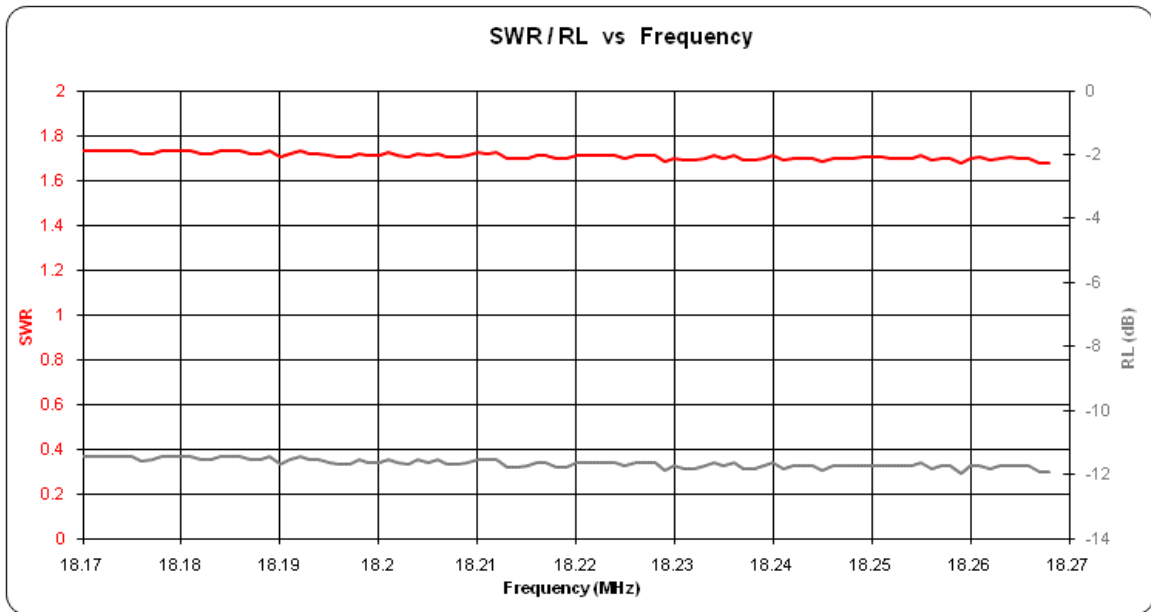
10M



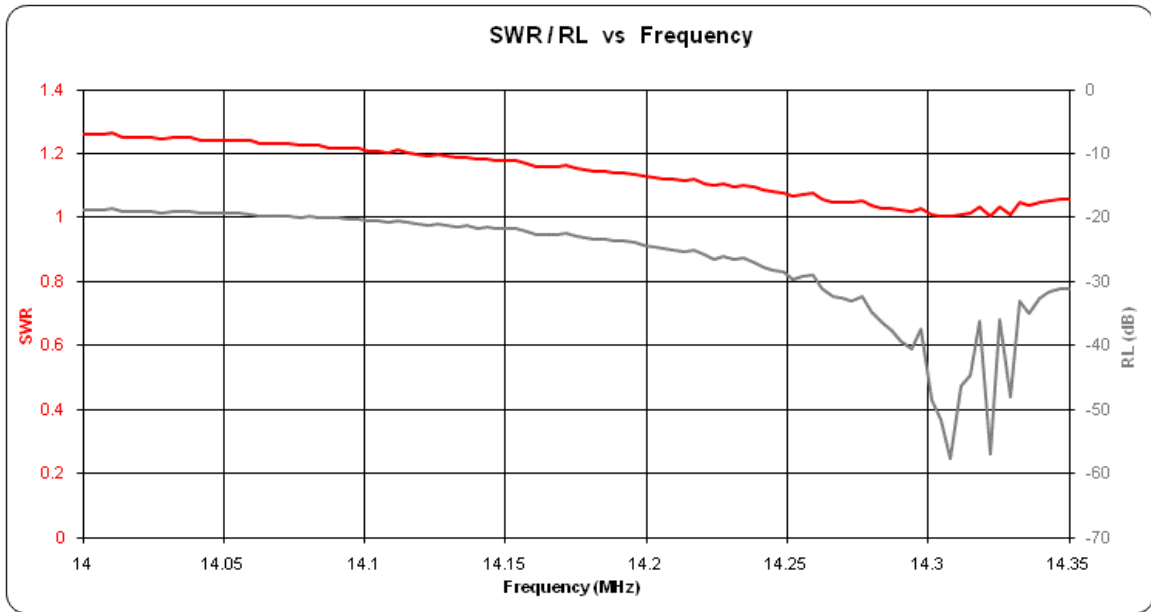
12M



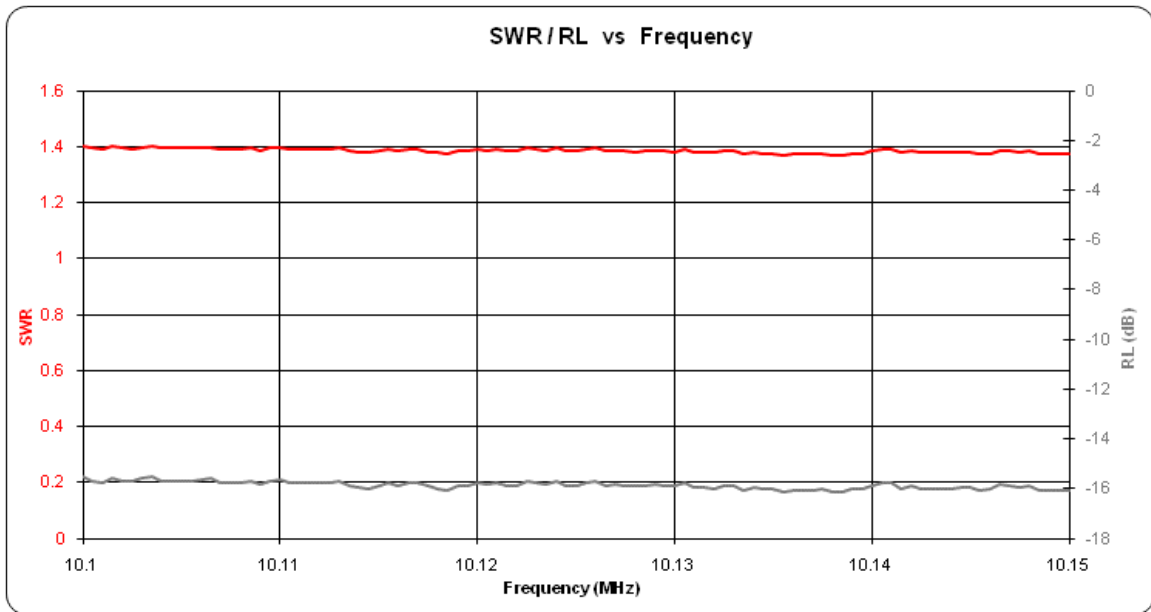
15M



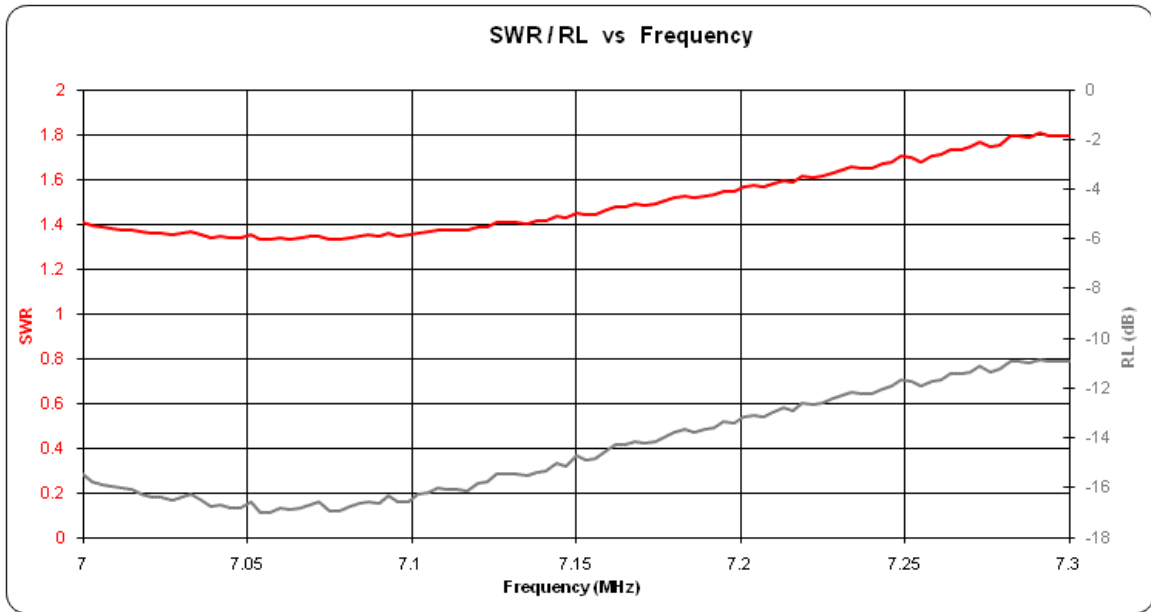
17M



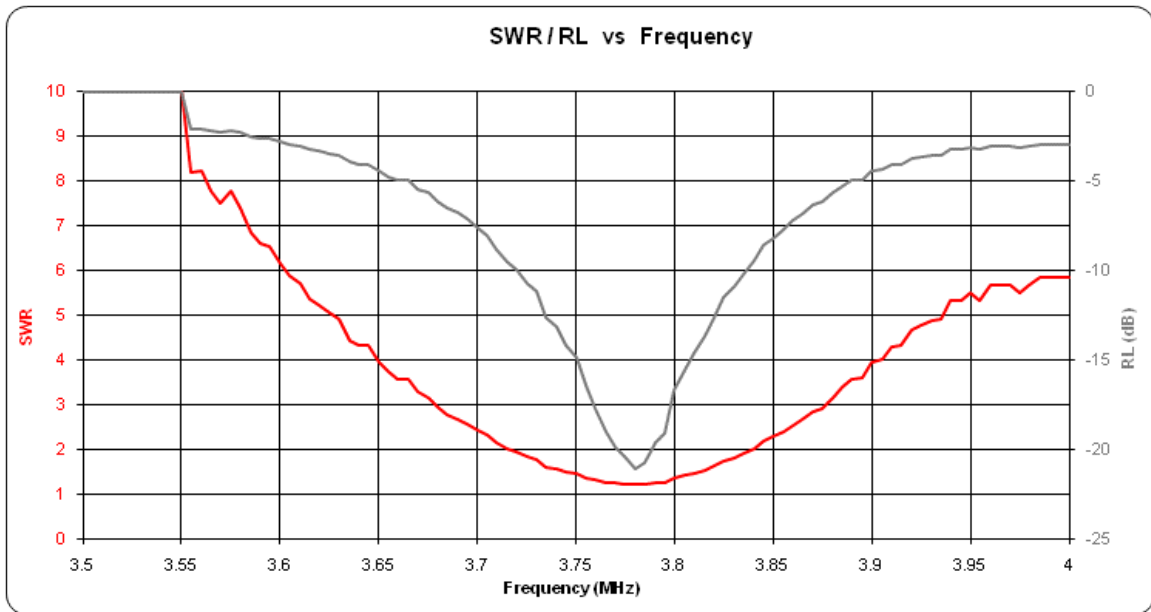
20M



30M



40M



80M