First for a bit of formal introduction, I am a researcher and Program Director of the COMPS (Coastal Ocean Monitoring and Prediction System) project operated at the University of South Florida's/College of Marine Science (USF/CMS). COMPS is a regional coastal ocean observing system operating along the Gulf of Mexico's west Florida coast and was implemented in 1997 as a State of Florida legislative initiative. Data and model products are disseminated in real-time to federal, state, and local emergency management officials by various means including the Internet (URL http://comps.marine.usf.edu). The COMPS overall program goal is to provide real-time data for emergency management use and to improve description and understanding of the relevant physical processes that control coastal flooding, and gulf circulation driven effects on red tides, oil spills and Coast guard search and rescue operations. In addition to COMPS, USF/CMS has been involved in a federal project called SEACOOS (SouthEast Atlantic Coastal Ocean Observing System) and its successor program SECOORA (Southeast Coastal Ocean Observing Regional Association) whose goal is to develop a regional coastal ocean observing system for the southeast (NC, SC, GA, FL) United States – all part of the ever evolving IOOS (Integrated Ocean Observing System).

As part of this observing effort, funds were awarded to install an Oceanographic High Frequency (HF) Radar Surface Current Ocean Monitoring System along our Tampa Bay/West Florida shelf coastline to measure the near-shore surface currents and direction. In HF Radar, a transmitter sends out a radio frequency that bounces off the ocean surface to a receive antenna where using the principles of the Doppler shift, the speed and direction of the surface currents can be computed. Several manufacturers now make commercially available HF Radar systems that offer differing resolution and capabilities (e.g., waves as well as currents). Three Coastal Ocean Radar (CODAR) HF Radar surface current suites have been purchased and have been in operation under existing license WD2XVR (see the following web site for information on CODAR and the company http://www.codaros.com/about.htm) for several years. Data from these essentially real-time CODAR sites are available via the Internet from our COMPS web page http://seacoos.marine.usf.edu/HFRadar1/ and have assisted in our program goal to improve description and understanding of the relevant physical processes that control coastal flooding, and gulf circulation driven effects on red tides, oil spills and coast guard search and rescue operations.

As part of this continuing effort, funds again have been awarded to add to our existing HF Radar network through the purchase of a pair of WEllen RAdar (WERA) higher resolution, surface current and waves determining HF Radar suites which will operate with in the foot print of the existing network (for information on WERA and the company http://helzel.com/helzelmed/index.php?prefix=med&lang=en&main=home).
The purpose of this request is to add the additional WERA locations and frequency to our existing license by filing Form 442, using the modification of license option.

Based on experience gained thus far, we would like to operate the two WERA sites within the 12.23 to 13.2 MHz Maritime Mobile Band. WERA operation is different than that of the CODAR systems in that it operates over a broader frequency band with a varying center frequency. During operation, WERA uses a "listen before talk" mode in

which the system scans the entire radio band first and looks for a free gap in the allowable licensed frequency spectrum. Then the center frequency is adjusted to jump to that free gap. If the gap is not wide enough, the system will reduce the sweep bandwidth (increase the range cell size) to match the required bandwidth to the width of the free gap. This option can be programmed by the user to define the worst case range cell size. The advantage is that it would be better to get return from the ocean with coarse resolution than getting fine resolution with lots of interference.

A PDF describing/discussing WERA operation is included with this application to provide additional information. What's important is that the flexibility to make use of this option increases with a FCC license of a wider bandwidth. From page 6 of the attachment, you can see that to get 1 km range resolution requires that I need to sweep 125 kHz. That means I can work with a permit for 125 kHz but 250 kHz would be much better and 500 kHz excellent. So I'm not sure how to specify my desired frequency or emission designator, just that I'd like the frequency within the 12.23 to 13.20 MHz Maritime Mobile band with a preferred bandwidth > 300 kHz to allow for the "listen before talk" frequency adaptation option. The station class, authorized power and frequency tolerance will be the same as my existing sites.