Following in Marconi's Footsteps:

Portable Operation at the Navesink Twin Lights

The New Jersey Emergency Communications Team honored the early radio visionary by operating from the Navesink Light Station for International Lighthouse and Lightship Weekend.

Cash Dosby, W2DOS, and Glen Ramsay, KD2FFR, operating station NJ2CT for the New Jersey Emergency Communications Team at the Navesink Lighthouse South Tower in Highlands, New Jersey.

David Gold, N2MXX, and Glen Ramsay, KD2FFR

The Navesink "Twin Lights" Lighthouse in Highlands, New Jersey, overlooks the Sandy Hook Bay coast and resides on one of the highest points along the eastern seaboard. It is situated 246 feet above sea level, which made it an optimal location for Guglielmo Marconi's first public US demonstration of the wireless telegraph in 1899. At that same site, Marconi established a telegraph station that remained in frequent use until 1907. The lighthouse is therefore federally listed as a National Historic Landmark and a New Jersey State-designated Historic Site. This article describes how our organization, the New Jersey Emergency Communications Team (NJECT), planned and conducted a radio communications event from the Twin Lights.

Founded in 2015, the NJECT is a public service-oriented club that provides communications support for local events, like marathons, bicycle races, and other nonprofit functions. In honor of International Lighthouse and Lightship Weekend (**https://illw.net**), the New Jersey State Park Service permitted us to operate a portable station at the Twin Lights on August 20, 2022. This amateur radio event occurs annually during the third week of August to promote public awareness of lighthouses and lightships. Hams participate by setting up stations at or near a lighthouse or lightship to log contacts with other stations, especially those at other lighthouses or lightships.

Using Public Spaces — Helpful Tips

Whether you're operating from a national, state, county, or municipal park (or any public location), it is important to know the site-specific conditions. For example, New Jersey parks require you to apply in advance for a Special Use Permit. The application may include a non-refundable fee, but consideration may be given for charitable organizations or those with a significant tie-in to the location. Amateur radio operators can support a site's interests by incorporating its historical/educational value into their activities. For this reason, it is important to make the right friends — get to know the site staff and their concerns and interests. They can be terrific assets for getting the necessary approval.

Safety First

We began the planning stage for this event by using Google Maps to survey the location and better un-

derstand proximity to obstacles, parking, and other logistical considerations. A club member then visited the site to look for potential operating spots and safety concerns. One of the most important preparations was the designation of a safety officer to prevent any injury or damage to property. The candidate had to be experienced and qualified, as they were going to be responsible for reviewing station equipment and practices with a critical eye. Several factors needed to be considered, including RF exposure, the structural integrity of antennas and antenna supports, electrical hazards, and trip hazards. If they observe any dangers, the safety officer is trusted to step in and remedy the problem. Placing an individual in charge of such details allows operators to focus on station setup.

Figure 1 — New Jersey Communications Team members setting up in the shade beside the South Tower.

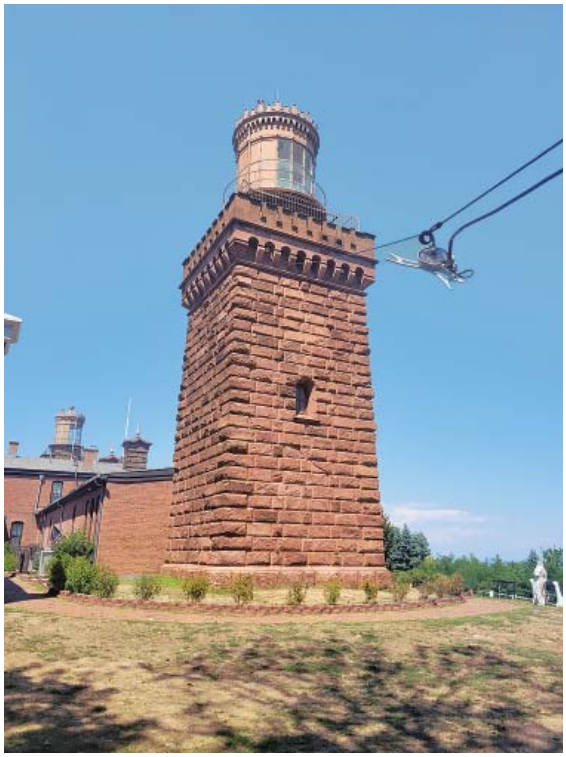

Figure 2 — A view of the 63-foot-long end-fed half-wave wire antenna affixed to the South Tower.

This lighthouse has two towers — hence its name. Marconi used the North Tower for his station. But because our activation was on a roughly 90 °F day, we decided to operate near the base of the South Tower, where there was a picnic bench in the shade (see Figure 1). Our station consisted of two transceivers, and one of them had a 63-foot-long end-fed half-wave (EFHW) wire antenna in sloper configuration, with the top end attached to the balcony of the South Tower (see Figure 2). The other had a base-loaded, 10-foot-tall vertical radiating element with ground radials.

Amateur Extra-class licensee Glen Ramsay, KD2FFR, was our safety officer. He requested that we operate at a maximum of 20 W due to the antennas' proximity to visitors. We also did not have access to commercial electrical power, so this constraint was a reasonable decision. With additional oversight from Glen, we adjusted all of the antennas to minimize hazards to visitors. First, we attached the wire antenna to the tower with a piece of parachute cord, which insulated it from the metal guard encircling the balcony. Next, we secured the opposite end of the antenna (toward the ground) at an angle that ensured the feed point and 49:1 EFHW transformer were out of reach of people walking under the antenna. Our team anchored the vertical antenna with sandbags because stakes were prohibited, and we restricted access to the area so that visitors couldn't touch it.

Community Engagement and a Smooth Operation

We began operating at 10:00 AM and concluded at 3:00 PM. Throughout our time at the lighthouse, many visitors were interested in our activities and approached our station to learn about amateur radio. Additionally, two staff members helped us accurately communicate the Twin Lights' radio history — it seemed as though we spent more time speaking with visitors than we did operating on the air. Our conversations covered many topics, includ-

Figure 3 — Cash Dosby, W2DOS, and David Gold, N2MXX, operating. Their printed educational materials are in the foreground.

ing radio waves, electricity, hazards associated with transmitting antennas, and how licensure requires knowledge about mitigating and avoiding these hazards. We made printed materials about amateur radio beforehand to supplement discussions (see Figure 3). Community outreach for amateur radio is important, so we appreciated the opportunity to explain the value of our service. A lesson we learned from this event is to have some members tasked solely with speaking about amateur radio, and the rest dedicated to operating.

Overall, our club's portable activation at the Twin Lights was a success. We accomplished all of our objectives: make some on-air contacts, educate onlookers, and maintain a safe environment while complying with venue rules and regulations. Assistance from New Jersey State Parks Service Site Historian Nicholas Wood was instrumental in our event; he helped ensure a successful operation by advocating for our club and amateur radio, and he provided guidance as we configured our equipment. Learning about the radio-related significance of this lighthouse was an excellent experience. It was humbling to use modern transceiver equipment while gazing at the bay, just as Marconi did in 1899 with his wireless telegraph.

All photos provided by the authors.

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Glen Ramsay, KD2FFR, was first licensed in 2013 and is now an Amateur Extra-class licensee. He is Secretary of the NJECT and volunteers with the Ocean County Amateur Radio Emergency Service® (ARES®), the ARRL Southern New Jersey Section ARES, the Toms River Community Emergency Response Team, and the Girl Scouts. He holds a Bachelor of Science in microbiology, as well as a Master of Science and PhD in biochemistry.

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