

# CQ Ham Radio

Japanese Amateur Radio Magazine  
Dec 2019 p98-101

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## Import and practical report of the Dual Beam Pro

This is a report on the use of the UK's first imported HF multi-band rotary dipole antenna in Japan. This antenna, which can be installed compactly without using a coil, is suitable for the narrow homes in Japanese residential areas.

### HF multi-band dipole antenna made as compact as possible

Installation is on a 3x4m long veranda surrounded by vertical grid railings in a 2-story house in a residential area. I have a 6m aluminum telescopic pole fixed to a corner with a stainless steel pipe band, which is my main antenna array base. I was looking for an HF rotary dipole that could be mounted here.

In Japan, V-type dipoles are on sale, but they are all too large. I wanted to be able to lower the telescopic pole so that the antenna can be brought down to the height of the eaves to avoid high winds.

While searching the Internet, I came across Dual Beam Pro (DBP) by PronAntenas (PA) in the UK (Photo 1). This is a horizontal dipole with a total length of 5m. 2.5m sub-elements are mounted horizontally at each end of the main element, forming an H-shape. The website shows the DBP pole mounted on a protruding bracket on the wall of a house, like a TV antenna. Table 1 shows the specifications of the DBP.

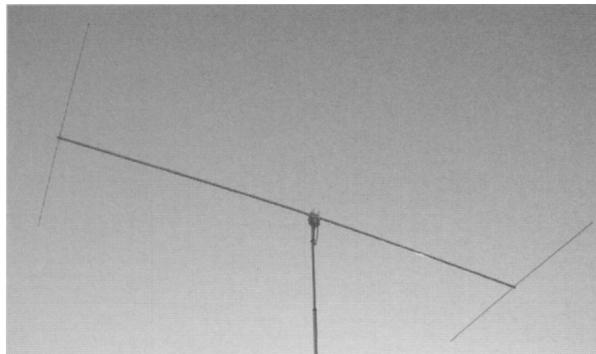


Photo 1

Compatible bands	7 / 10 / 14 / 18 / 21 / 24 / 28 / 50 Mhz				
Main element length	5.0m	End element length	2.5m	Turning radius	2.6m
Weight	4.0kg (including support bracket)			Mast diameter	32-50mm
Power input (PEP)	7-10MHz 600W 14-50MHz 1kW				

Table 1

### Is this the first import in Japan?

Before ordering from PA's website, I sent an enquiry email asking "Can it be attached to the telescopic pole on the veranda?" and "Can it be sold to Japan?" A photo of the veranda at home was also attached to the email. There was an immediate reply from M0IVK, Mr Tony parkin of PA company. "If there is

space for the 5m element length, it can be installed and sold to Japan, although it has not been sold in Japan in the past. The unit price is 250 pounds (about 36,000 yen), but the shipping fee would be 60 pounds (9,000 yen). Is this OK?". He also wrote "Please ask questions until you are satisfied". You can see Tony's kind personality.

By the way, I used Google's translation service to communicate with Tony. It amused me when Tony's first email said "You speak good English".

## Non-resonant design antenna?

I decided to ask Tony more questions: "Japanese multi-band antennas are shortened by using a coil, but how does the DBP support multi-band operation without a coil?" Tony replies that it's a "non-resonant design", and I didn't know what this meant. With a further exchange of emails I understood that the DBP supports 9 bands, but the SWR is not matched and that an auto antenna tuner (ATU) is essential.

## ATU recommendation

I asked Tony "I have a dedicated FC-30 tuner for the FT897 and also a manual FC-700 tuner is this OK?" The reply was negative and he recommend LDG's YT-100 or an equivalent external tuner with a matching range of 4 to 800  $\Omega$ . He added, "If the space is not sufficient for the DBP and the antenna performance cannot be achieved we would like to postpone the sale".

Tony's diligence (ATU, space, shipping) was appreciated but my desire to purchase was growing. Fortunately I had a friend who offered to lend me a YT-100 tuner for a while. Tony was delighted to hear this and the sales contract was agreed. Payment was made using PayPal on PA's website and immediately after completing the purchase, I received an email saying, "I'm making it right now and I'll send it right away." I thought it would take about a month, but four days later, a 3m long cardboard tube and a small box were delivered to my home (Photo 2). Transportation was by UPS and domestic delivery was by Yamato Transport

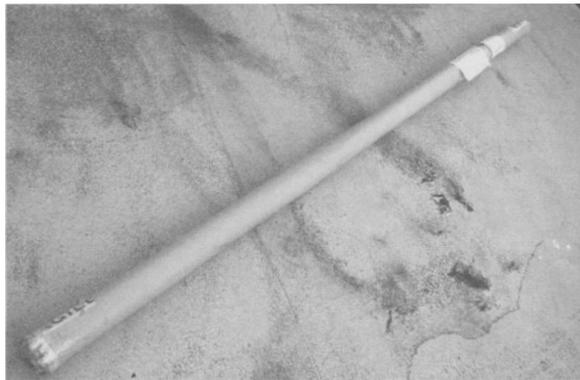


Photo 2a



Photo 2b

After confirming the contents, there was a charge of 1,600 yen for domestic consumption tax. However, I was most impressed that such a package could arrive in four days from the UK.

## Construction

The matching transformer, mounting brackets, nuts, bolts, end caps and tape were packed in the small box, whilst two 2.5m thick aluminum tubes and two thin aluminum tubes came in the cardboard tube (Photo 3). The number of parts is small. If the element is mounted on the roof of a car, it could be used for mobile operation. It had a handmade feeling such as the oil-based pen's markings on the aluminum tube. This must have been made by Tony.

I applied an antenna coating agent, contact grease, and assembled it. As it was not at height on a tower or roof, I could work alone. Also assembly was easy due to the simple structure and number of parts. There is no drain hole at the end of the main element. I'm sure it rains in the UK so, for the time being, I assembled it as it was. Later, when asked, Tony replied, "I haven't had any problems with water accumulating, but it's okay to make a 5mm drain hole at the end of the element."

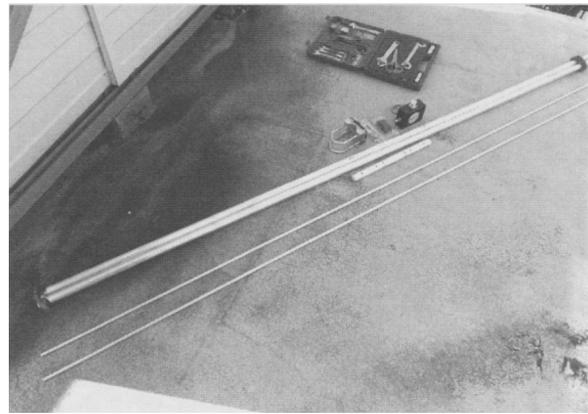


Photo 3



Photo 4

I installed the assembled antenna on the mast and raised it. My radio station is in Tokyo so I aligned it to 30 degrees east of true North to make the beam follow the Japanese archipelago (Photo 4).

The DBP can be set at the height of the eaves by lowering the telescopic pole. There is a convenient steel structure on the veranda and, once tied to this, there was no need to worry about it being swung by the wind. There was no problem in the

typhoon this fall and the antenna is as compact as expected (Photo 5).

## Operation

First I connected an antenna analyzer. It was impossible to measure the SWR in all the bands - it was too high and the impedance was several hundred ohms. Is this what an antenna with a non-resonant design looks like? I wondered if the analyzer was broken. I connected the YT-100 to the FT-897 (50W) and selected "Tune", you hear a jingling sound and get a good match. The nine bands that are said to be compatible are generally covered.

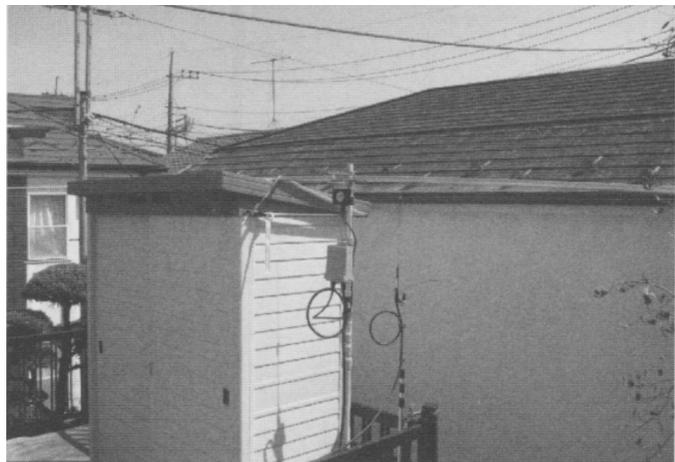


Photo 5

The 7MHz band is widespread and I picked up messages from all over the country. I

responded to mobile stations and can be picked up smoothly. PA's website states that 7MHz performance is degraded relative to the other bands, but there seems to be no shortage of domestic communications.

After that, I participated in contests such as "CQ World Wide WPX" and "All Asian DX". With 7, 14 and 18MHz SSB operation, radio stations in the Philippines, Malaysia, Indonesia, and Hawaii, and in the northeast, Alaska, California, and other stations responded. It seems that the antenna has a figure eight directivity. Of course, I can also communicate with China and Korea.

## General purpose tuner

I wondered if the FC-700 Tuner, which Tony stated would have limited matching capability, could be used. I tried connecting the antenna analyzer through the FC-700 and tuning was possible on 7, 14 and 28MHz, but not on the other bands. The FC-700 is usable with this band limitation but frequent matching operations are necessary.

The YT-100 was borrowed, and only compatible with Yaesu Radios FT-897, 857 etc. The trial with the YT-100 proved the performance of LDG's ATU. After the effort of importing the DBP I decided to invest in a



Photo 7

The RT-100 is installed directly below the antenna (Photo 8). Simply connect it to the radio with a coaxial cable via the RC-100, no power connection is required. To tune, press the "TUNE" button on the RC-100 while transmitting a CW carrier with the output reduced to 2-3W. The first time, the needle of the SWR meter placed between the RC-100 and the radio goes up and down, and then falls off in about 10 to 15 seconds. The setting is automatically stored in memory, so the next time you transmit at that frequency, tuning is completed immediately. Once you have tuned each band, you can QSY stress free. In the "ALL JA" contest, I moved back and forth in the band and responded to the CQ stations, during which time I hardly worried about tuning.

The DBP is an antenna that has fulfilled my demand for a multi-band HF dipole in a limited space with a weak antenna base. Although the need for an ATU with a wide matching range increased the overall cost, I am very with its performance and functionality.



Photo 6

general-purpose ATU to allow me to use it with other radios. The RT-100 (and RC-100 controller) is an ATU that seemed to meet the requirements and Tony confirmed that there was no problem, so I immediately introduced it (Photo 7).



Photo 8