

ARU Ready?

DIWATA-2 Amateur Radio Unit (ARU)
Utilization Manual

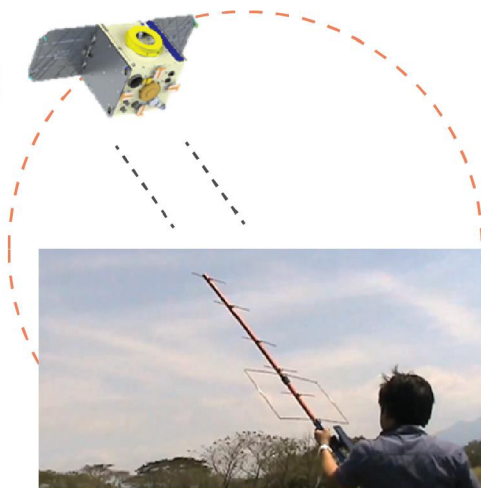
DIWATA-2 ARU

at a glance

Diwata-2 Amateur Radio Unit

Call Sign: DW4TA

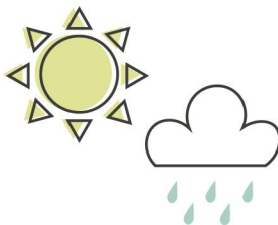
- designed, developed and fabricated locally
- FM Voice Repeater (half-duplex)
- Automatic Packet Reporting System (APRS) - based digipeater for real time text messaging



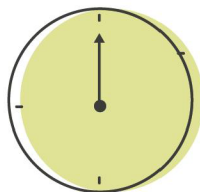
CAPABILITIES



Country-wide
communication



Operation is not affected
by ground conditions



Regular Pass Time

How do I use the AMATEUR RADIO UNIT?

Gears you'll need!

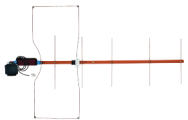
NTC License



Radio Transceiver



Antenna



1. First things first.

Register as an amateur radio operator. Being a licensed ham is attainable for everybody, even a 12-year-old child can be one! To know more on being a ham, visit the Philippine Amateur Radio Association for more information: www.para.org.ph

2. Things you need

a VHF/UHF handheld transmitter, directional antenna (homebrew or bought in stores), *orbit tracker app is recommended*

3. Set the transmitter.

Downlink (receive) frequency of your transmitter should be at 145.900 MHz. Uplink (transmit to Diwata-2) frequency is at 437.500 MHz with a tone of 141.3 Hz.

4. At Diwata-2 (PO-101) flyby

Search the horizon for the location of Diwata-2. Use an orbit tracker for faster and more accurate search. Point the antenna to the current direction of the satellite and wait for signal downlink. When signal is received, you are ready to transmit. Listen first for ongoing calls before pressing the push-to-talk (PTT) button in your transmitter.

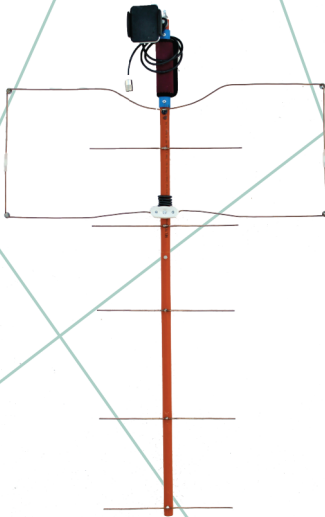
5. Enjoy having conversations (QSOs) with fellow hams!

Always observe proper etiquette when using amateur radio satellites. Keep messages short and transmit only with minimum power (recommended is from 5 W to 10 W). This is to keep Diwata-2 and other satellites available for those who need it for emergencies.

Want to know more?

Twitter: @Diwata2PH

MOXON-YAGI ANTENNA



FEATURES:

Very good RX and TX signals
Easy to build.
Elegant design
Easy to tune
Lightweight and portable
Durable
Low-cost

Designed by:

Anthony Guiller E. Urbano, DU1AU

Visit <https://nightskyinfocus.com/>
for more info.

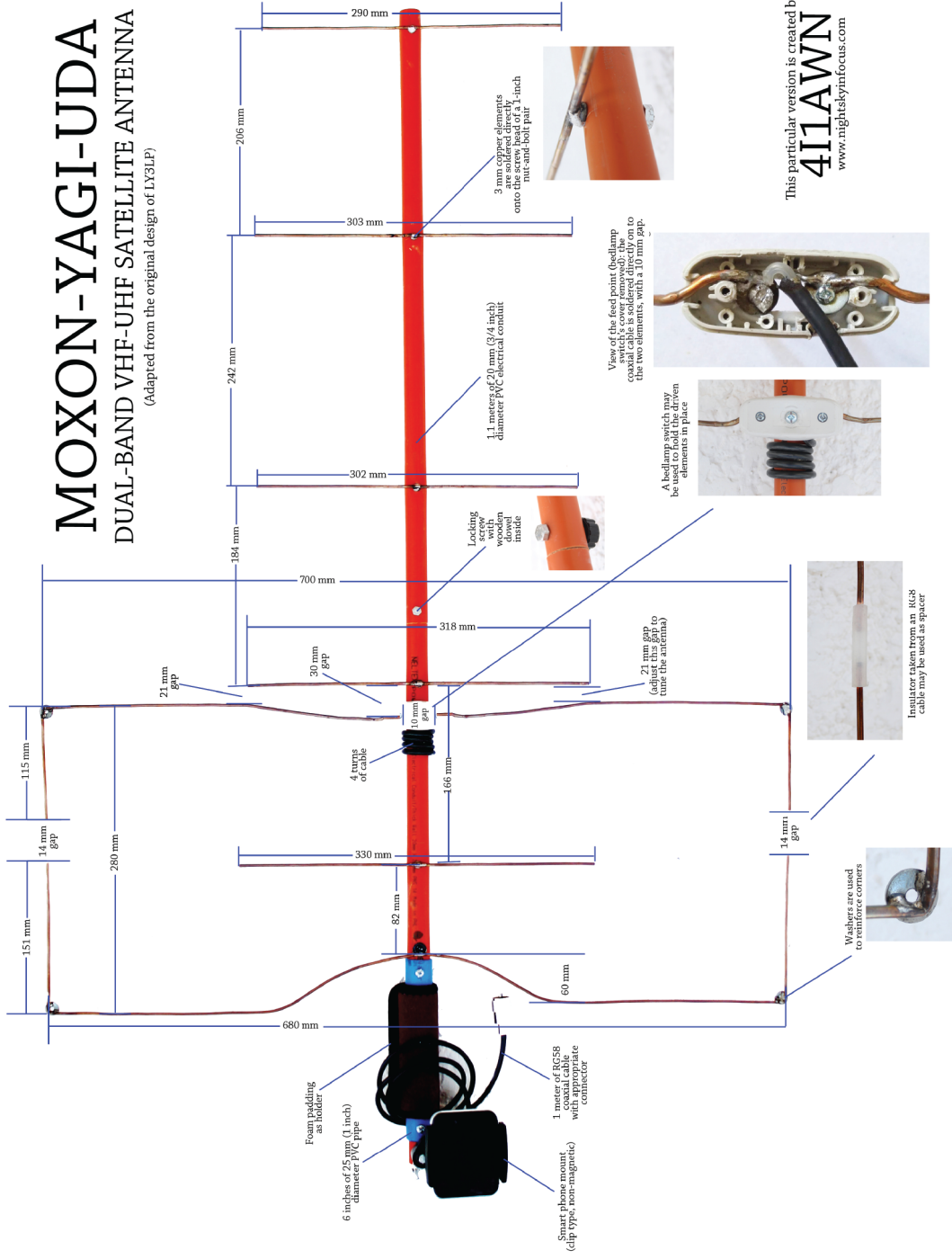
Materials you'll need:

- 4 meters of 1/8 inch copper tubing—the one used in refrigerators, costs about 950 pesos per 1 roll (15 meters per roll)
NOTE: only 2-3 meters are needed, but we must have extras, very easy to make mistakes)
- 1.2 meters PVC pipe (3/4 inch diameter, orange only, do not use other color such as blue—blue is too flexible)
- 12 pcs of 1/8 inch screw, 2 inch length, complete with 2 washers and 1 nut
- 6 pcs extra washers
- 6 pcs extra nuts
- 3 used ball pen casing (we only need it as an insulator, Panda pen may be used, any brand will work)
- cable ties about 6 inches long (buy one big pack for the whole group)
- 1 meter Rg58 coax
- some foam padding or strips of soft cloth to be used as holder
- electrical tape
- 1 PL259 plug
- soldering iron 100 W and lead 2-3 meters
- metal grinder/cutter (power tools)
- electric drill with drill bits (power tools)
- carpenter's meter
- pliers
- cutters
- lighter torch/pencil torch file set (needed for tuning)
- SWR meter
- radio

MOXON-YAGI-UDA

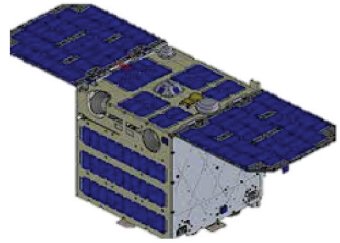
DUAL-BAND VHF-UHF SATELLITE ANTENNA

(Adapted from the original design of LY3LP)



This particular version is created by
411AWN
www.nightstkyinfocus.com

Block Diagram of **UP ARSS**



RADIO ETIQUETTE



When you want to communicate on a frequency, listen for a while before talking, there may be a conversation in progress.



If you are listening and would like to have a conversation, just give your call sign. You can add “monitoring”, or “listening”. Using the term “CQ” on a repeater is generally discouraged.

**ALPHA
BROWN
CHARLIE**

Use English and standard phonetics “Alpha, Bravo, Charlie”. Avoid jargon as much as possible.



If you want to join into a conversation, just give your call between transmissions rather than using the term “Break Break”. You will be acknowledged and allowed into the conversation.



In an emergency, give your call and say “emergency” rather than using “Break Break”. Saying “emergency” will make it clear why you are interrupting and it will also get more attention from those just listening.



If you want to talk to a certain person, call their call sign once or twice, then your call sign.



Give your call sign clearly, and slowly.

CONNECT WITH US!

For more information about the
UP ARSS,



uparss@stamina4space.upd.edu.ph

For more information about the
S4S Program,



STAMINA4Space



STAMINA4Space
Diwata2PH (Diwata-2 ARU updates)



[stamina4space](https://www.instagram.com/stamina4space)



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