



MARTS Information Sheet – by 9W2AA

1

144.000		
CW ONLY	144.000 -144.250 144.050	Moonbounce CW calling frequency
144.150		
SSB and CW only		
144.500		
All modes non-channelised		
144.800		
Digital	144.9000	Digipeater Ipoh & Penang
144.990		
FM repeater Inputs	145.0000	RV48
	145.0125	RV49
	145.0250	RV50
	145.0375	RV51
	145.0500	RV52
	145.0625	RV53
	145.0750	RV54
	145.0875	RV55
	145.1000	RV56
	145.1125	RV57
	145.1250	RV58
	145.1375	RV59
	145.1500	RV60
	145.1625	RV61
	145.1750	RV62
145.1875	RV63	
145.2000		

VHF REPEATER FREQUENCY

LOCATION	EXISTING REPEATER OUTPUTS	EXISTING REPEATER INPUTS	REMARKS AREA OF COVERAGE
9V1	145.625T	145.025	SINGAPORE
G. PULAI	145.725T	145.125	JOHOR
BATU PAHAT	145.700	145.100	NEW REPEATER
MELAKA G. LEDANG	145.525	144.925	
ULU KALI	147.900T	147.300T	SELANGOR, WESTPAHANG, NORTH PERAK AND N. SEMBILAN
BUKIT LANJAN	147.980	147.380	KUALA LUMPUR
IPOH G. KELEDANG	145.775	145.175	PERAK
BUKIT BENDERA	147.950	147.350	NORTH PERAK, PENANG AND SOUTH KEDAH
KANGAR PERLIS	147.980	147.380	PERLIS
KUCING	147.950	147.350	
KUCING	147.750	147.150	
G. KINABALU	145.950	145.350	

Note: (a) The frequency's with T next to it requires a CTCSS tone of 203.5 Hz (Tone 32) to operate.

(b) All repeater offsets are -600Khz

Band Plan for VHF

145.200		
Simplex Channels	145.2000	V16
	145.2125	V17
	145.2250	V18
	145.2375	V19
	145.2500	V20
	145.2625	V21
	145.2750	V22
	145.2875	V23
	145.3000	V24
	145.3125	V25
	145.3250	V26
	145.3375	V27
	145.3500	V28
	145.3625	V29
	145.3750	V30
	145.3875	V31
	145.4000	V32
	145.4125	V33
	145.4250	V34
	145.4375	V35
	145.4500	V36
	145.4625	V37
	145.4750	V38
	145.4875	V39
	145.5000	V40
	145.5125	V41
	145.5250	V42
	145.5375	V43
145.5500	V44	CALLING FREQ
145.5625	V45	
145.5750	V46	
145.5875	V47	
145.600		
FM repeater Outputs	145.6000	RV48
	145.6125	RV49
	145.6250	RV50
	145.6375	RV51
	145.6500	RV52
	145.6625	RV53
	145.6750	RV54
	145.6875	RV55
	145.7000	RV56
	145.7125	RV57
	145.7250	RV58
	145.7375	RV59
	145.7500	RV60
	145.7625	RV61
	145.7750	RV62
	145.7875	RV63
145.8000		
Satellite service		
146.000		



The Radio Amateur VHF Band is **144.000 - 146.000 MHz Primary** and **146.000 -148.000 MHz Secondary** on a shared basis. We can only operate in the secondary band (146.000 Till 148.00 MHz) on allocate repeater Frequency's in this segment.

Refrain from using 145.800~146.000 MHz for simplex operation this frequency is exclusive for satellite operation.

Two Meter Repeater Etiquette

The Society's Repeaters system is for Members. MARTS are working to increase repeater coverage. With the increase in new licence operators using the Two Meters. This will mean bigger round table QSO as more people use the repeaters. If everyone employs the following procedures the repeaters will continue to run efficiently.

1. Pressing your mike button for a second before you speak, this ensures that the others on the repeater will hear your entire call sign. (It takes time for relays to click over when the repeaters switch to transmit from receive.)
2. Always give your full call sign, using proper phonetics, when you call. This assists the other station to copy your call sign correctly the first time, which reduces confusion and the need for repeats (i.e. 9 Whiskey 2 Alpha Alpha this is 9 Whiskey 2 Alpha Charlie).
3. You must direct transmissions to duly Licensed Ham stations. You should not acknowledge unlicensed stations wishing to break in or speak to you.
4. Monitor the repeater before making your call.
5. Keep contacts and arrangements brief. If you can't finish an arrangement in a couple of sentences, please make arrangements to QSY.
6. When making a call, remember to speak S * L * O * W * L * Y and normally keeping to the speed of natural conversation. It is a good idea to think before you speak.
7. When using the repeaters, please remember that you are on a party line In other words, you are not the only one who may want to use the system. Please leave a two-second pause before you start your QSO exchange with the party you are talking to. This will give someone else who may need to use the repeater a chance to identify themselves or in case of emergency traffic.
8. When calling another station, please make sure the repeater is not in use. Monitor for a few seconds to make sure there is no QSO in progress. If you hear nothing you are mostly assured the frequency is clear. This is especially important when using the repeater system, as you could end up jumping into the middle of a net or emergency situation. When breaking in on an on-going QSO, please do so only if, it is an emergency, if you need to make a short call, or if you intend on joining the QSO. It is considered very rude to break in on a QSO just to start up your own. Give the first parties time to finish their QSO before you take over the repeater. During your QSO please note the courtesy tone that the repeater gives. The idea of the courtesy tone is to allow other stations to have time to break-in, in the event of an emergency. Please do not start your transmission until you hear the tone. If the repeater you are on does not have a tone then please wait for the squelch tail or the carrier to drop. **REMEMBER:** Emergency Traffic takes priority over all other traffic.

9. Repeater Usage Priority

Priority	Type of Usage
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- | | |
|----|--|
| 1. | Emergency Traffic or calls |
| 2. | Mobile / Portable stations, |
| 3. | Fixed stations / Control to open close repeater. |
| 4. | Public service events / Non emergency nets |
| 5. | General QSO |



10. Call Signs

Hams are very famous it seems, for needless conversation. By this, I mean the constant exchange of identifying your station, and that of the other party. You only need to identify your station when you first start your QSO and at the end of your QSO or over. You do not have to identify the other party's station, that is their responsibility. It is suggested that you always use international phonetics (i.e. Mike, Alpha, November) when giving your call sign. This especially true when you are on the fringe of the repeaters footprint, or during nets and emergency situations. A lot of letters sound the same when spoken quickly, or with QRM (i.e. C, D, E, G, T, and V). Please try to remove the heedlessness from our airwaves.

11. Mobile Operation

When travelling around the city where the repeater is located, you may from time to time experience dead spots. Do not worry, simply move to another location and try again. If you are in your car please make sure that you have eliminated as much of the background QRM as possible. (i.e. broadcast radio, wind noise, etc.). The repeater system is designed to provide superior audio throughout the entire linking system. Any noise that goes into the system will be amplified several times, and could end up being stronger than your voice at the receiving end of the QSO. Do not speak directly into the microphone, this just ends to producing popping sounds. It is suggested that you hold the microphone approximately 4-6 cm. from your face and speak across (diagonal) to the microphone. Please make sure that when you are finished with your QSO that your microphone is placed back on its bracket, and is not left on the seat where the PTT may be stuck in the closed position. Nothing is more embarrassing than tying up the repeaters with an open microphone. Squelch should be adjusted when getting near the fringe of the repeater coverage, as the signal gets weaker.

12. Portable Operation

Amateurs these days are using small hand held rigs. While these are adequate for most city operations, they are not intended for use along the highways. The current set-up of MARTS repeaters is for operation of mobile rigs with 25 watts of power to a 5/8 wave booth mounted antenna. When your signal is too weak to make it to the repeater, so is the repeater's ability to make it back to your vehicle. Portable rigs just do not have the power for this type of operation. Please use your portable rigs only when in the vicinity of the local repeater. If you run with low power, please make sure that it is enough to make it to the repeater without needless noise. Remember that a noisy signal into the repeater; means a noisy signal out all repeaters.

If you are one of these hams please remember that not only are you kerchunking the local repeater, but you are also kerchunking many other repeaters and hundreds of radios monitoring those repeaters. One possible reason to kerchunk a repeater would be to test if your rig is transmitting (always use a dummy load for this). The another possible reason would be to test if the repeater is transmitting. For that one-second transmission it is suggested that you also send some audio along with your transmission. This should be your call sign.

The administrators are always monitoring the repeaters that may not be functioning properly. If there is kerchunking, it is very hard to know if it is an ungrateful ham or a malfunction on a repeater. Hams in these areas leave their rigs on all day long in the event a fellow hams is in need of assistance while travelling. If there is constant kerchunking, they just might end up turning off their rig and missing that emergency call for help. Please be courteous and think of your fellow Ham.

13. Nets

Nets are becoming popular on 2meters. The Society encourages people who have a need for a net to start them, and then ensure that they continue. If anyone wishes to start a net they are more than welcome. The repeaters have been established for the use of fellow hams for their enjoyment of the hobby. They are also there for use in the event of an emergency situation. The use of controlled nets is a way of training net controller operators and monitoring hams, proper technique and skill, should they ever be required. If you have a net you would like to get started, please contact the president of the MARTS, who will help to co-ordinate a scheduled time for the net to take place.



Signal Strength

READABILITY

- 1—Unreadable.
- 2—Barely readable, occasional words distinguishable.
- 3—Readable with considerable difficulty.
- 4—Readable with practically no difficulty.
- 5—Perfectly readable.

SIGNAL STRENGTH

- 1—Faint signals, barely perceptible.
- 2—Very weak signals.
- 3—Weak signals.
- 4—Fair signals.
- 5—Fairly good signals.
- 6—Good signals.
- 7—Moderately strong signals.
- 8—Strong signals.
- 9—Extremely strong signals.

International Phonetics

- A — Alfa (**AL** FAH)
- B — Bravo (**BRAH** VOH)
- C — Charlie (**CHAR** LEE OR **SHAR** LEE)
- D — Delta (**DELL** TAH)
- E — Echo (**ECK** OH)
- F — Foxtrot (**FOKS** TROT)
- G — Golf (GOLF)
- H — Hotel (HOH **TELL**)
- I — India (**IN** DEE AH)
- J — Juliet (**JEW** LEE ETT)
- K — Kilo (**KEY** LOH)
- L — Lima (**LEE** MAH)
- M — Mike (MIKE)

- N — November (NO **VEM** BER)
- O — Oscar (**OSS** CAH)
- P — Papa (PAH **PAH**)
- Q — Quebec (KEH **BECK**)
- R — Romeo (**ROW** ME OH)
- S — Sierra (SEE A/R RAH)
- T — Tango (**TANG** GO)
- U — Uniform (**YOU** NEE FORM or **OO** NEE FORM)
- V — Victor (**VIK** TAH)
- W — Whiskey (**WISS** KEY)
- X — X-Ray (**ECKS** RAY)
- Y — Yankee (**YANG** KEY)
- Z — Zulu (**ZOO** LOO)

Note: The **Boldfaced** syllables are emphasized. The pronunciations shown in the table were designed for speakers from all international languages. The pronunciations given for "Oscar" and "Victor" may seem awkward to English-speaking people



ANTENNA PROJECT

Quarter-wave vertical antennas

Quarter-wave vertical antennas are useful for local communications when size, cost and ease of construction are important.

Construction Materials

The antennas shown in the following sections are built on a coaxial connector. Use UHF or N connectors for the fixed station antennas. BNC connectors are good for mobile and portable antennas. BNC and N connectors are better than PL-259 connectors for VHF/UHF outdoor use because: (1) they provide a constant impedance over the frequencies of interest, and (2) they are weatherproof when the appropriate connector or cap is attached. The ground-plane antennas require a panel-mount connector (it has mounting holes to hold the radials).

If the antenna is sheltered from weather, copper wire is sufficiently rigid for the element and radials. Antennas exposed to the weather should be made from 1/16- to 1/8-inch brass or stainless-steel rod.

Radials may be made from 3/16-inch aluminum rod or tubing and mounted on an aluminum sheet. Do not use aluminum for the antenna element because it cannot be easily soldered to the coaxial-connector center pin.

Where the figures call for #4-40 hardware, stainless steel or brass is best. Use cadmium-plated hardware if stainless steel or brass is not available.

Fixed-Station Antennas

The ground-plane antenna in **Fig 1** uses female chassis-mount connectors to support the element and four radials. If you have chosen large-diameter wire or tubing for the radials refer to **Fig 2**. Cut a metal sheet as shown (size is not critical, and the mounting tab is optional). Drill the sheet to accept the coaxial connector on hand (usually 11/16 inch) and the 4-40 hardware for the radials and connector. Bend the plate or radials as shown with the aid of a bench vise. Mount the coaxial connector and radials to the plate.

Small diameter (1/16-inch) radials may be attached directly to the mounting lugs of the coaxial connector with 4-40 hardware. To install 3/32- or 1/8-inch radials, bend a hook at one end of each radial for insertion through the connector lug. (You may need to enlarge the lug holes slightly for 1/8-inch rod.) Solder the radials (and hardware, if used) to the connector using a large soldering iron or propane torch.

Solder the element to the center pin of the connector. If the element does not fit inside the solder cup, use a short section of brass tubing as a coupler (a slotted 1/8-inch-ID tube will fit over an SO-239 or N-receptacle center pin).

One mounting method for fixed-station antennas appears in **Fig 1**. The method shown is probably the easiest and strongest. Alternatively, a tab (**Fig 2D**) or "L" bracket could be fastened to the side of a mast with a hose clamp. Once the antenna is mounted and tested, thoroughly seal the open side of the coaxial connector with SILICON sealant, and weatherproof the connections with rust-preventative paint.

Table 1—1/4-Wavelength Vertical Antenna Element and Radial Sizes

Band	144 MHz	430 MHz
Lengths	19-1/4"	6-5/16"
DIAMETER		
Brass rod	1/8"	1/16"
Stainless- steel rod	3/32"	1/16"

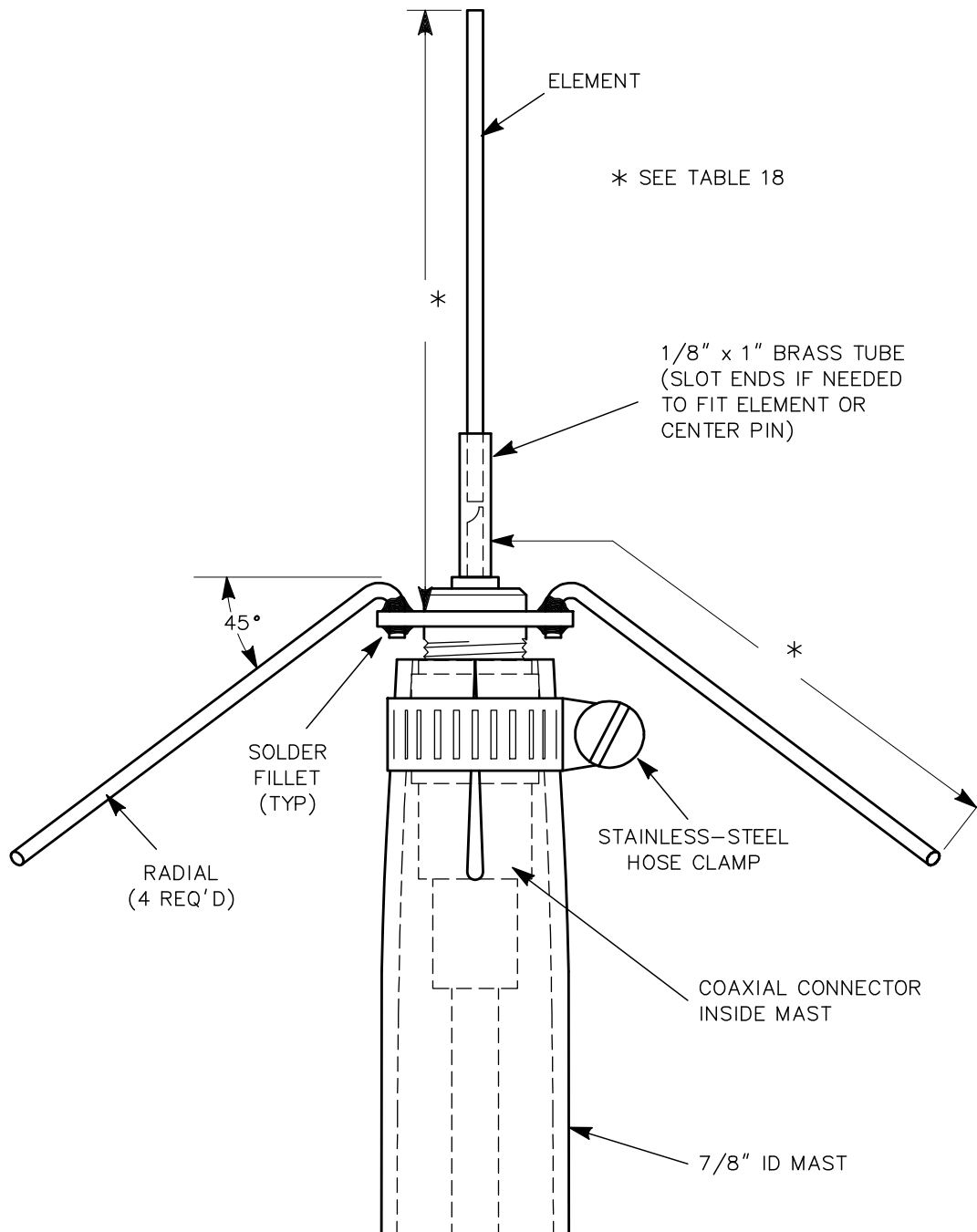


Fig 1—A simple groundplane antenna for the 144, 222 and 440-MHz bands. The feed line and connector are inside the mast, and a hose clamp squeezes the slotted mast end to tightly grip the plug body. See Table 20.22 for element and radial measurements.

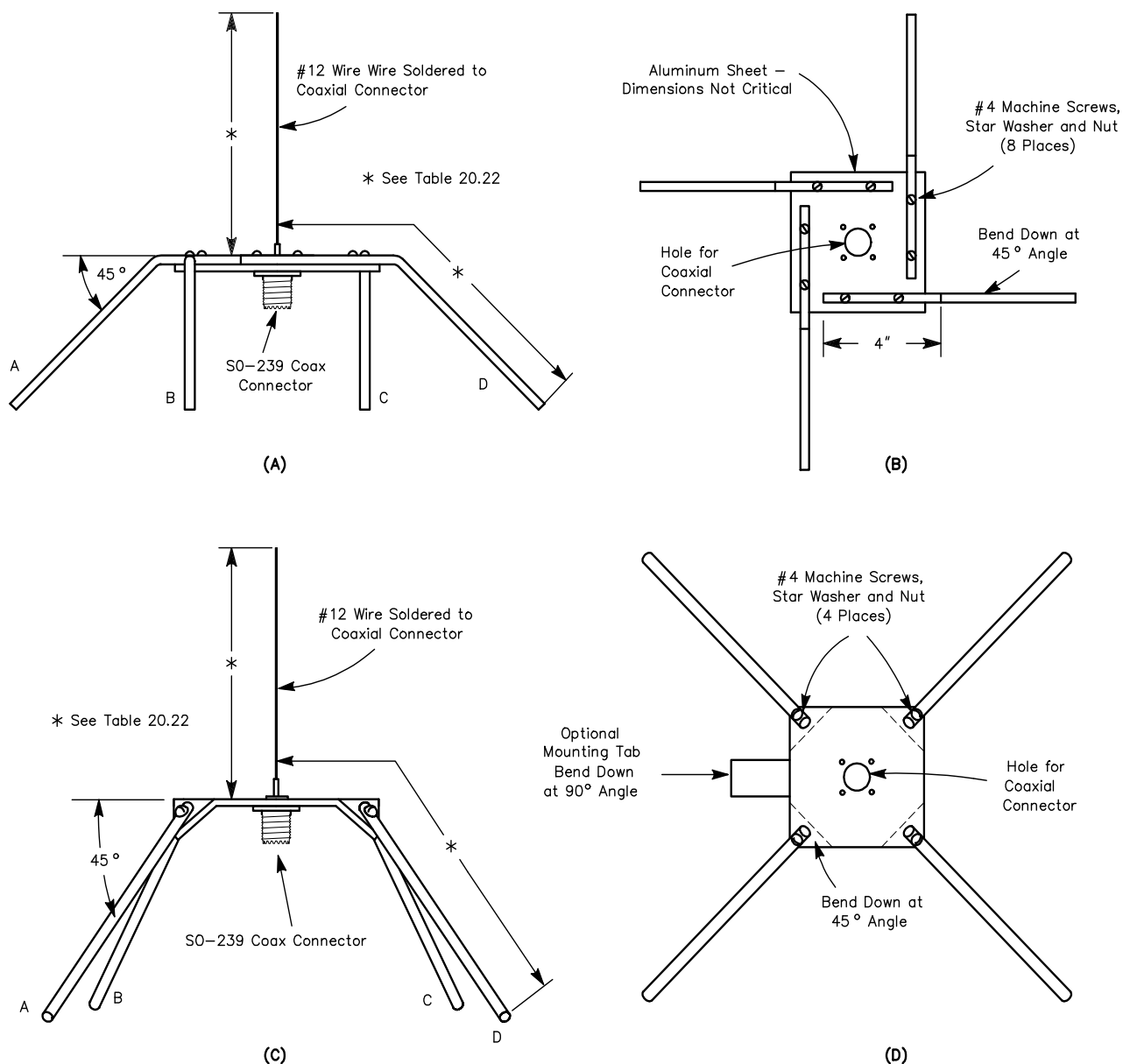


Fig 2—Methods of mounting 3/16-inch aluminum-rod radials to a VHF/UHF groundplane antenna. At A and B the radials are made approximately 1-1/2 inches longer than l , then bent (45°) and attached to a flat aluminum sheet. At C and D, the radials are somewhat shorter than l , and the corners of the aluminum sheet are bent to provide the 45° angle. In both cases, l is measured from the radial tip to the element. The size of the aluminum sheet is not critical. The mounting tab shown at D is optional; it could be added to the sheet in A and B if desired.