MARL

Fuljett mahruġ mill-MARL

Għad-Dilettanti tar-Radju

Maltin u Għawdxin

Numru 1

Marzu 2005

From the Editur

Welcome to the first edition of this MARL publication that I hope will be the link that unites the members and a source of useful information for all radio amateurs.

This is not the first MARL publication. In the eighties there was another publication, but it was stopped due to lack of interest from the members.

It is therefore important that as members you show your interest and play your part by givng us all kinds of information that is of interest to radio amateurs so that it can be shared with the other members.

Examples are news, articles about equipment and antennae that you may have constructed, propagation, different transmission methods, and any information that interests radio amateurs.

The more information that you give us the more we will have to choose from to make this publication interesting and the burden will be shared and be lighter for everyone.

We have started our work. It now rests with you to give your contribution so that we can promote this publication and the amateur radio hobby in Malta.

Before I close this contribution I would like both personally and as a committee give our thanks to all those who have shown their confidence and elected us at the Annual General Meeting and at the same time thank those who have worked before us to promote and advance the amateur radio hobby.

Good News

In this first edition we have good news for radio amateurs that have a “B” License.

After the previous committee held meetings with the autohrities, the MARL Secretary received a letter dated 7 December 2004 from the Malta Communications Authority.

In this letter, Mr David Jones informed the Secretary that the World Radio Conference that was held between 9 June and 4 July 2003 had amended Article 25 Section 1 of the Radio Regulations, and therefore national administrations could remove the Morse code requirement.

The Malta Communications agreed to remove this requirement and consequently those that have a “B” license could now work on all radio amateur frequencies below 30 Mhz without any other requirement, but could not use Morse code.

If they want to use it they have to sit for the examination that is now being held by MARL and they could obtain an “A” license. We hope to hear more Maltese amateurs below 30 Mhz.

Worrying News

Everyone knows that the authorities want to introduce an internet system that works on electrical cables. This system is known as PLC, PLT or BPL, and works by using radio frequencies to send information on the internet to and from households on electrical cables.

The problem is that the radio signals are not confined to the wires, but as anyone who has the slightest idea about theory and technology know, the electrical wires become antennae and transmit all signals. The greatest problem is that these frequencies start from about 1.7 Mhz up to about 80 Mhz.

You can easily understand the interferance that these signals will cause to radio amateurs, CB’ers, radio listeners, aircraft and maritime communications, emergency, army, police, ambulances, radio statrions and private radio services that use these fequencies and their harmonics.

Great problems resulted in other countries where test were carried out on this system, and it was found that the system suffers a lot from interferance, and does not have

the speed which its proponents claim. Companies were thinking of introducing the system, but dropped it after the tests.

There are other means which are much better to provide fast internet to households, among which are microwave, coaxial cable and fibre optic which doubtlessly have much greater capacity and speed.

At MARL we are attentively collecting all information to inform you and work against this threat.

Please do likewise so that collectively we will prevent the introduction of this system that will destroy our hobby.

Whoever want to can come to MARL where we have a recording made by the BBC and hear a broadcast station being cut to pieces by this system. This is a megawatt broadcast station. Think about what it would do to us.

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Smoking is prohibited at the Club

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Vertical Antenna

One of the problems that radio amateurs have to face is the lack of space to erect antennae that are essential to communicate with other radio amateurs.

An antenna that require a small space and serves our purposes well is the vertical antenna. Each antenna has it advantages and disadvantages, and it is therefore proper to see what they are.

This antenna has the advantage that it is easily matched with the resistance or rather impedance of 52 ohms coaxial cable by changing the angle of the radials.

This antenna radiates a radio signal all round, i.e. 360 degrees, and therefore there is no need of a rotator to turn it in the direction with which we wish to communicate.

It also has the advantage of having a relatively low angle of radiation when compared with a horizontal antenna at the same height.

This means that we have a better signal when the station with which we want to communicate is far away, because radio waves on short waves are reflected from ionised layers that are found high in the ionosphere.

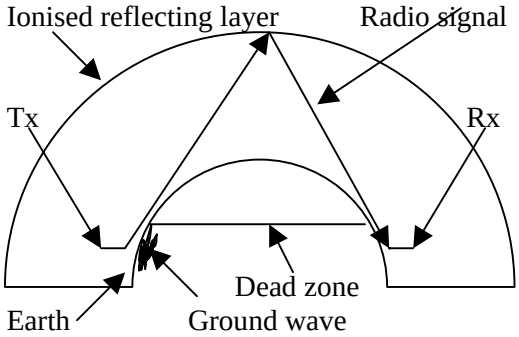
I am using the word reflected or reflections, although the correct word is refraction, because the signals are bent slowly in the ionised layers and are reflected back at the same angle that they are sent. Technically, the angle of incidence is the angle of refraction.

Here I am not going to lecture on the different layers that reflect radio signals, because this is a complicated subject that ought to be treated separately due to the many factors which affect the layers and their ionisation level.

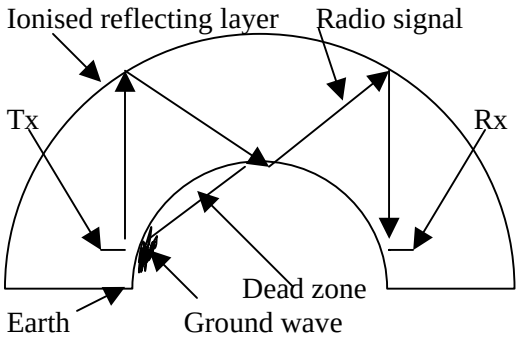
However, it is easy to understand that the lower the angle of radiation from the antenna, the less reflections there will be for the signal to arrive at its destination, and that is is better if the signal arrives with one reflection than if it arrives with two reflections or more, because its strength decreases rapidly with each reflection.

How much it decreases depends from where it is reflected. If it is reflected from the sea it would be stronger than if it is reflected from land, especially if it is from a desert or a built-up area.

The following diagrams illustrate what is meant. The signal in drawing “A” is reflected once, while the signal in diagram “B” is reflected twice.



"**A**"



"**B**"

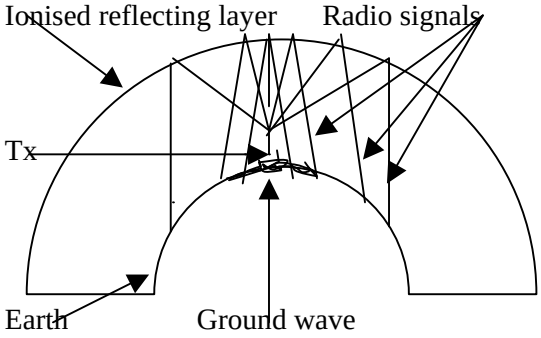
It is important to note that the ground wave only travels a short distance, and that from where it ends to the place of arrival of the first reflection, radio signals will not be heard. This is known as the dead zone.

Therefore, if we wish to communicate with stations at a short distance, say three or four hundred miles, it is required that we use an antenna that has a radiation angle as high as possible, even straight up, provided that the frequency to be reflected and the conditions are good. We can also use more than one reflection for longer distances.

To have radiation straight up or at high angles, the antennae should be horizontal and at low height, so that the ground reflects the radio signals straight up. Consequently, there is also an advantage that in an emergency there will be no difficulty to fix the antenna at great height.

This system is used mostly on 3.5 Mhz and 7 Mhz when there is an emergency to reach places that would be difficult to reach on very high frequencies, VHF, due to the distances involved.

It is also being used on 5 Mhz where foreign radio amateurs are carrying out experiments. It could also be used on other frequencies if the conditions are right. There is no dead zone with this system. The following drawing illustrates what is meant.



It is imprtant to remember that the radiation is not on one single angle but on a number of degrees that depend on the type of antenna and its height.

A disadvantage of the vertical antenna is that as it radiates all round 360 degrees, it also receives signals 360 degrees. Signals, therefore, that arrive from directions other than that from where we want to communicate with may interfere.

On the other hand, we can turn a horizontal antenna, if it is one that concentrates radiation in one direction, in the direction where we want to communicate, and therefore reduce interferance and concentrate transmission in that direction.

A vertical antenna can be made for one or more frequencies. We used to use a fishing rod with three wires for 14, 21 and 28 Mhz. We used to connect the three together and use one coaxial cable.

Now there are modern fishing rods which are not only stronger, but also longer and we can therefore use them for lower frequencies.

An antenna that I had made (1980's) and used for years was made using this system, and it was mounted on a home-made tower.

To make this antenna you require:

A 10-metre fishing rod; 1 mm or thicker plastic covered wire for the radiator and radials; a piece of iroko or other strong hard wood; a plastic switch box and cover; plastic tape and connectors; nylon fishing line; 52-ohm coaxial cable; linseed oil; varnish; screws.

If you do not find a 10-metre fishing rod you can use a 9-metre one and fix the plastic box lower on the hard wood part. You can also wind the last part of the radiator around the fishing rod to reduce the length to that of the fishing rod.

Round about 3 feet of the hard wood so that you can mount the fishing rod on it. Slightly plane the wood and start painting it with linseed oil twice or more each day. Continue until the wood does not absorb any more oil. Leave it for a while and repeat. If you want you can finally give it two coats of varnish.

Prepare the plastic box by making a hole to pass the coaxial cable, and a number of holes to pass the other wires, all at the bottom of the box to prevent the ingress of water.

Open the fishing rod and mount it on the wood. Fix the plastic box on the wood, connect a 33-foot piece of wire to a plastic connector or solder it to a piece of printed circuit that has two parts isolated from each other. Mount the wire along the fishing rod and temporarily tie it with plastic tape

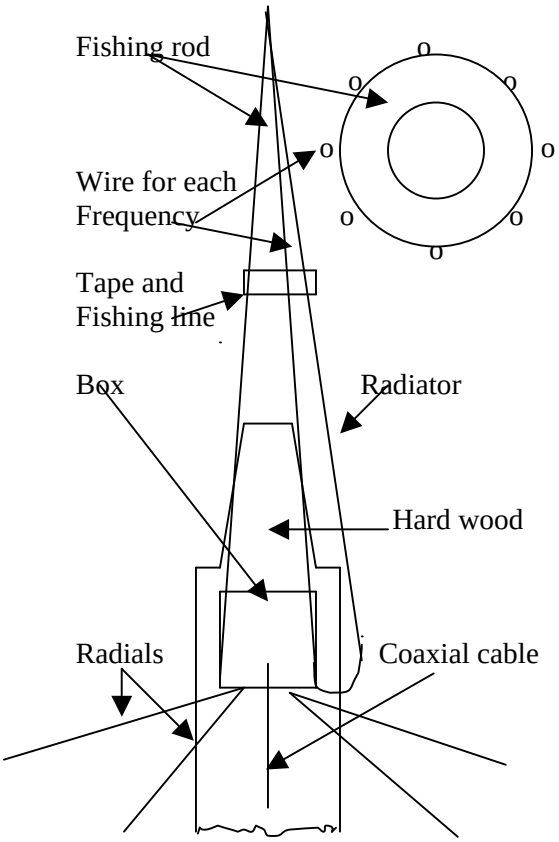
Put four 33-foot wires into the box and connect them to another connector or the other part of the printed circuit.

This antenna can be on 7 Mhz as a quarter (¼) wave, as well as on 21 Mhz as three quarters (¾) wave. In both cases it will present be a good match to 52-ohms coaxial cable.

You can cut other radiators for 10, 14, 18, 25, 28 and 50 Mhz and connect them together in the box. Don't forget to cut 4 radials for each frequency, although you may use only 3 radials. You may try the antenna with the 7 Mhz radials only and see if you can bring the vswr down

Connect all wires by connecting the radiators together in the same connector and connect all the radials together in the other connector or printed circuit.

Place all the radiators on the fishing rod and tape every 24 inches. Then tie with nylon fishing line to prevent the tape from becoming detached.



Temporarily connect the radiator with the coaxial cable centre conductor and the radials with the shield. This cable should be a half wavelength (½) long corrected by the cable velocity factor for a frequency of 7 Mhz. This factor is 66% for RG58, RG8 and similar coaxial cables, and therefore would be about 44 feet or slightly more than 13 metres.

It should be remembered that the impedance repeats every half wave (½) irrespective of the cable impedance, and this is the reason that we use a half wavelength of cable. This makes it easier for us to connect the vswr indicator to the antenna and do our measurements further down on the roof.

Fix the antenna in its place as high as possible and put the radials down around it. Connect a vswr indicator, key the transmitter on low power, and find the frequency of lowest vswr.

First vary the radials angle for the lowest vswr, and if the frequency of lowest vswr is lower than 7.05 Mhz, cut an inch at a time to bring the lowest vswr on 7.05Mhz.

This procedure should be repeated on all other frequencies using a half wavelength of cable corrected by the velocity factor instead of the 7 Mhz cable.

On 21 Mhz the 7 Mhz antenna would be used as a ¾ wave, and you may have to compromise a little for the lowest vswr between 21 and 7 Mhz. If you want you can also use a radiator and radials for this frequency.

Start the procedure from 7 Mhz and continue working upwards on each frequency. Re-check on each frequency and connect a final length of cable that reaches to the operating position.

This procedure is carried out to match the antenna impedance with that of the coaxial cable.

If you want you can use a length of cable that reaches to the operating position and carry out the previous procedure. This does not mean that you will have the best match between the antenna and coaxial cable, but the transmitter will see an impedance of 52 ohms on all frequencies.

I had no difficulty in bringing the vswr down and the antenna gave me a very good service even on 144 Mhz.

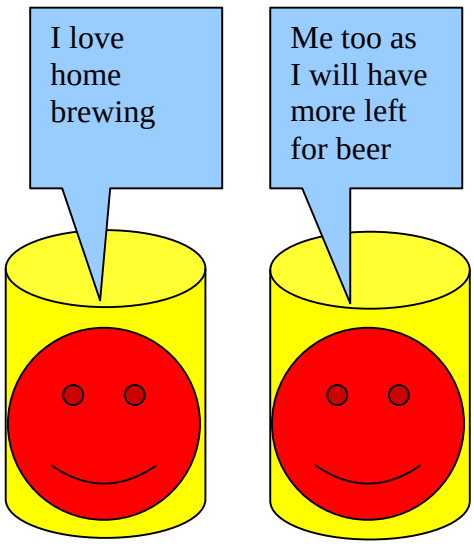
When you are ready put a few drops of oil on the connectors and screws to facilitate later servicing. Tie the radials securely or glue them with strong two-tube glue inside the box so that they will not be pulled out. Drill a few holes on the underside of the box to let condensation and water out. Close the box.

If you want you can make the antenna from aluminium tubing, but in this case it would be better to use separate coaxial cable and separate the antennae as much as possible.

If you want you can use a flagpole, and it would be easier to make a 3.5 Mhz antenna if the flagpole is long enough, even if you have to wind the radiator arounds it. In this case you may have to experiment with the radiator length if you have a lot of winding, and it would be better to cut the radiator longer to be able to adjust the antenna.

Whatever materials you use there is no doubt that the cost will be very much lower than if you buy a commercial antenna. You will also have the satisfaction that you have made it yourself.

Remember that it is wasteful to spend more when you could make it with less, and that if you spend less you will have more for other things.



The formula for the radiators and radials is 234 divided by the frequency in Mhz (234/f Mhz) and the answer will be in feet. Remember to cut the wires a little longer to have a few inches for tuning.

Lawrence 9H1AV/9H9MHR

Special Gozo Station

9H2NCC is a special station operating from Nadur, Gozo, which started operating on 1 st March and will continue until 31 st May as part of the celebrations as Nadur has been granted the title of Carnival City. This station is using all HF frequencies, 6 and 2 metres. According to www.qrz.com, QSL card is from 9H4DX, Michael Muscat, "Biarritz", Triq G.P.F. Agius De Soldanis, Nadur, Gozo, Malta, NDR 102.

DX

1S Spratley DK0K up to 15 Mejju QSL 4F2KWT;

3D Swaziland 3DA0 June K5LBU QSL K5LBU all freqs and modes;

Antarctica 8J1RF Fuji Dome base QSL JA0WJN;

9A0CI 14 to 21 May from Croatian islands & lighthouses QSL DE0MST;

A25 Botswana DL7CM/A25 & DM2AYO/A25 6-20 April All freqs & modes QSL DL7CM & DM2AYO;

A35 Tonga VE7YL/A35 & VK3DYL 8 to May to 28 June QSL VK3DYL;

C6 Bahamas C6AWF 15-29 April CW/RTTY QSL G4WFQ;

CY0 Sable American operators 26 July to 1 August QSL K8LEE;

CY9 St Paul CY9SS 7 June to 7 July 11 operators;

FP St Pierre 29 July to 7 August K9OT u KB9LIE QSL K9OT & KB9LIE All freqs & modes;

FR/G Glorioso 15 to 30 May QSL F5CQ;

HB0 Liechtenstein 22 to 26 April IZ1DSH & IZ1DSH as /HB0 QSL 1Z1DGB & IZ1DGB;

J2 Djibouti up to 19 April J20FH All freqs & modes QSL F5PRU;

J3 Grenada 4 to 23 June K5AND, W7XU u ON4IQ as /J3 QSL K5AND, W7XU & ON4IQ;

J6 St Lucia 30 March to 2 April WB5ZAM/J6 QSL WB5ZAM;

JT Mongolia 21 April to 3 May JT1Y QSL I0SNY;

JW Svalbard 4-10 April F8DVD/JW All freqs QSL F8DVD;

OX Greenland 2-8 August 20, 15 10 Mtrs EA3EKS/OX QSL EA3EKS direct;

ST Sudan ST2PN QSL PA7FM; ST2T up to 30 April mostly RTTY QSL S57CQ;

SU Egypt 23 April to 1 May SU8IOTA New area QSL SU1SK;

TF Islanda 6-13 August EA3EKS/TF 20, 15 & 10 Metri QSL EA3EKS;

VK9X Christmas Is 25 October to 6 November 12-20 Mtrs VK9XD QSL VK2CZ; VK9XG 25 October to 6 November 160, 80 u 20 Metrs QSL W0YG;

VQ9 Chagos up to July VQ9LA All freqs & modes QSL VQ9LA;

VU Antarctica Base VU2BPS QSL VU2BPS;

XW Laos up to 15 December XW3DT operator RK3DT QSL Box T511 Vientiane;

YA Afghanistan YA4Y QSL DL4VCR; VE3YF/YA All freqs & modes QSL VE3YF;

YI Iraq YI9RVT All freqs & modes QSL KE4RVT;

YJ Vanuatu 2-21 May VE7YL/Y5 & VK3DYL QSL VE7YL & VK3DYL;

ZD9 Tristan De Cunhan April N6TQS QSL N6TQS;

ZK2 Niue VE7HA mostly SSB QSL VE7HA.

Source : http://www.ari.it

Prefix List

Prefix	Country Other Prefix
1A0	Sovereign Military Order of Malta
1B	Northern Cyprus (Turkish area)
1C	Chechnya Republic
1P	Seborga Principato (Italy)
1S	Spratly Archipelago
1Z	Karen State (Myanmar)
2D	Isle of Man (**GD**)
2E	England (**G**)
2I	Northern Ireland (**GI**)
2J	Jersey (**GJ**)
2M	Scotland (**GM**)
2U	Guernsey & Dependencies **(GU**)
2W	Wales (**GW**)
3A	Monaco
3B6	Agalega Is
3B7	Cargados Carajos (St Brandon)
3B8	Mauritius
3B9	Rodriguez I
3C	Equatorial Guinea
3C0	Annabon I
3D2	Repubblic of Fiji
3D2	Conway Reef
3D2	Rotuma I
3DA0	Swaziland
3E-3F	Panama (**HP**)
3G	Chile & Is (**CE CE9 CE0**)
3V	Tunisia
3W	Vietnam (**XV**)
3X	Republic of Guinea
3Y	Bouvet I
3Y	Peter I Island
3Z	Polond (**SP**)
4A-4C	Mexico & Is (**XE XF4**)
4D-4I	Philippines (**DU**)
4J 4K	Azerbaijan
4L	Georgia
4M	Venezwela & Islands (**YV YV0**)
4N1 6-0	Yugoslavia (**YU**)
4S	Sri Lanka
4T	Peru (**OA**)
4U	UN Organisation
4U1ITU 4UnITU	UN Geneva
4U1SCO UNESCO	Paris **F**
4U1UN 4UnUN	UN **NY**
4U1VIC	UN Vienna (**OE**)
4U1WB	World Bank Washington DC (**W**)
4V	Haiti
4W	East Timor
4X 4Z	Israel
5A	Libya
5B	Cyprus
5C	Morocco (**CN**)
5H	Tanzania
5J 5K	Columbia & Islands (**HK HK0**)
5L	Liberia (**EL**)
5N	Nigeria
5P	Denmark (**OZ**)
5R	Madagascar
5T	Mauritania
5U	Niger
5V	Togo
5W	Western Samoa
5X	Uganda
5Z 5Y	Kenya
6C	Syria (**YK**)
6D-6J	Mexico & Islands (**XE-XF4**)
6K 6L	Republic of Korea (**HL**)
60	Somalia (**T5**)
6P	Pakistan (**AP**)
6T 6U	Sudan & South Sudan (**ST ST0**)
6W 6V	Senegal
6Y	Jamaica
7J-7N	Japan (**JA**)
7O	Rep of Yemen
7P	Lesotho
7Q	Malawi
7S	Sweden (**SM**)
7X 7W	Algeria
7Z	Saudi Arabia (**HZ**)
8A 8B 8E 8I	Indonesia **(YB)**
8J	Japan (**JA**)
8O	Botswana (**A2**)
8P	Barbados
8Q	Maldives
8R	Guyana
8S	Sweden (**SM**)
9A	Croatia
9G	Ghana
9H	Republic of Malta
9J 9I	Zambia
9K	Kuwait
9L	Sierra Leone

9M2 Malaya (Malaysia) (**9M8**)
9M6 Sarawak (Malaysia)
9M8 Sarawak (Malaysia)
9M0 BV9S 1S DU Spratly Archipelago
9N Nepal
9Q 9R Dem Rep of Congo
9U Burundi
9V Singapore
9W 9M2 9M8 Malaysia, Sabah & Sarawak
9X Rwanda
9Y 9Z Trinidad & Tobago

A2 Botswana
A3 Tonga
A4 Sultanate of Oman
A5 Bhutan
A6 United Arab Emirates
A7 Qatar
A8 Liberia (**EL**)
A9 Bahrain
AA-AG USA (**W**)
AH1-AH0 USA Pacific Islands (**KH1 KH0**)
AI-AK USA (**W**)
AL Alaska (**KL**)
AM-A0 Spain, overseas territories & Islands (**EA6 8 9**)
AP AR Pakistan
AT Indja (**VU**)
AX Australia & Islands
AY-AZ Argentina (**LU**)
B0 Quemoy Matsu (**BV**)
BS Scarborough Reef
BV Taiwan
BV9P Pratas I
BV9S Spratly Archipelago (**9M0)**
BY China (**BA BD BG BT BZ**)
C2 Nauru
C3 Andorra
C4 Cyprus (**5B**)
C5 Gambia
C6 Bahamas
C9 Mozambique
CE Chili
CE0 Easter I
CE0 San Felix & San Ambrosio Is
CE0 Juan Fernandez Is
CF-CK Canada **(VE**)
CL CM Cuba (**CO**)
CN Morocco
CO **C**uba
CP Bolivia
CT1CQ-CT2 4-8 0 Portugal
CT3 CQ-CS3 CT9 Madeira Is

CU Azores
CX CV CW Uruguay
CY CZ Canada (**VE**)
CY9 St Paul I
CY0 Sable I
D2 D3 Angola
D4 Cape Verde
D6 Comoros
D7 Republic of Korea (**HL**)
Dl DA-DD DF-DH DJ DV-DZ Fed Rep of Germany
DS Republic of Korea **(HL)**
DU DV-DZ Philippines
DU Spratly Archipelago (**9M0**)
E2 Thailand (**HS**)
E3 Eritrea
E4 Palestine
EA EB EH1-5 7 0 Spain
EA6 EB6-EH6 Balearic Is
EA8 EB8-EH8 Canary Is
EA9 EB9-EH9 Cueta & Melilla
EI EJ Republic of Ireland
EK Armenia
EL Liberia
EM EN EO Ukraine (**UR**)
EP Iran
ER Moldova
ES Estonia
ET Ethiopia
EU EV EW Belarus
EX Kyrghyzstan
EY Tajikistan
EZ Turkmenistan
F France
FG Guadeloupe
FH Mayotte
FJ St Barthelemy (French St Martin) (**FS**)
FK New Caledonia
FK-/C Chesterfield Is
FM Martinique
FO Austral Is
FO French Polynesia
FO Marquesas Is
FO8X Clipperton I
FP St Pierre & Miquelon
FR Reunion I
FR-/E Europa I (**FR-/J**)
FR-/G Glorioso Is
FR-/J Juan de Nova
FR-/T Tromelin I
FS French St Martin
FTnW Crozet Is
FTnX Kerguelen Is
FTnZ Amsterdam I & St Pawl I

FW Wallis u Futuna Is
FY French Guyana
G GX England (**G GD GI GJ GM GU GW**)
GD GT Isle of Man
GI GN Northern Ireland
GJ GH Jersey
GM GS Scotland
GU GP Guernsey & Dependencies
GW GC Wales
H2 Cyprus (**5B**)
H3 Panama (**HP**)
H4 Solomon Is
H4O Temotu Province
H5 Bophuthatswana (**ZS**)
H6 H7 Nicaragua (**YN**)
H8 H9 Panama (**HP**)
HA Hngary
HB Switzerland
HB0 Liechtenstein
HC HD Ecuador
HC8 HD8 Galapgos Is
HE Switzerland (**HB**)
HF Poland (**SP**)
HG Hungery (**HA**)
HH Haiti
HI Domenican Republic
HK HJ Colombja
HK0 Malpelo I
HK0 HJ0 San Andreas & Providencia
HL Republic of Korea
HP HO Panama
HR HQ Honduras
HS Thailand
HT Nicaragua (**YN**)
HU El Salvador (**YS**)
HV Vatican City
HZ Sawdi Arabia
I IA-IH IK IL IN IP IR IT IV-IX Italy
IS0 IM0 Sardinia
J2 Djibouti
J3 Grenada
J4 Greece (**SV**)
J5 Guinea-Bissau
J6 St Lucia
J7 Dominica
J8 St Vincenz & the Grenadines
JA JE-JS Japan
JD 7J Minami Torishima
JD 7J Ogasawara Is
JT JU JV Mongolia
JW Svalbard
JX Jan Mayen
JY Jordan

K KA-KZ USA & US Islands (**W KC6xx KG4xx KH1-0 KP1-5**)
KC6xx Republic of Palau
KG4xx Guantanamo Bay
KG6xx Guam
KH1 Baker I & Howland I
KH2 (KG6) Guam
KH3 Johnston I
KH4 Midway Is
KH5 Palmyra I
KH5J Kingman Reef
KH6 7 Hawaii
KH7K Kure I
KH8 American Samoa
KH9 Wake I
KH0 North Mariana
KL Alaska
KP1 Navassa I
KP2 US Virgin Is
KP3 4 Puerto Rico
KP5 Desecheo I
L2-L9 Argentina (**LU**)
LA LB LC LG LI LJ LN Norway
LU LO-LT LV LW Argentina
LX Luxembourg
LY Lithuania
LZ Bulgaria
M MX England (**G**)
MD MT Isle of Man (**GD**)
MI MN N. Ireland (**GI**)
MJ MH Jersey (**GJ**)
MM MS Scotland (**GM**)
MU MP Guernsey & dependencies (**GU**)
MW MC Wales (**GW**)
N NA-NG NI-NK NM-NO NQ-NZ USA (**W**)
NH1-NH0 KH1-KH0 US Pacific Is
NL Alaska **(KL**)
NP1-NP5 KP1-KP5 US Caribbean Is
OA OB OC Peru
OD Lebanon
OE Austria
OH OF OG OI Finland
OH0 OF0 OG0 Aland Is
OJ0 OF0M OH0M Market Reef
OK OL Czech Republic
OM Slovak Republic
ON OO-OT Belgium
OX Greenland
OY Faroe Is
OZ Denmark
P2 Papua New Guinea
P3 Cyprus (**5B**)
P4 Aruba
P5 Dem People Rep of Korea

PA PB PD PE PI Netherlands
PJ1 PJ2 4 9 Netherlands Antilles
PJ5 PJ6 7 8 Sint Maarten, Saba & St Eustatius
PY PP-PX Brazil
PY0F Fernando de Noronha Archipelago
PY0M PU0T Martin Vaz I
PY0R PY0F Atol das Rocas
PY0S St Peter & St Paul Rocks
PY0T Trinidade I
PZ Suriname
R1A Antarctica
R1F Franz Josef Land
R1M Malyj Vysotskij I
R RA RK RN RU-RZ European Russia (**UA)**
R RA RK RN RU-RZ Asiatic Russia (**UA9)**
R2 RA2 RK2 RN2 UA2 Kaliningradsk (**RY2)**
S2 Bangladesh
S4 Ciskei (**ZS**)
S5 Slovenja
S6 Singapore (9V)
S7 Repubblika tas-Seychelles
S8 Transkei (ZS)
S9 Sao Tome u Principe
S0 Western Sahara
SM SH-SL Svezja
SP SN-SR Polonja
ST Repubblika tas-Sudan
SU Egittu
SV SX-SZ Grecja
SV-/A Muntanja Athos
SV5 Dodecanese Is
SV9 Kreta
SVO SV SV5 SV9 non-nationals in Greece & Islands
T2 Tuvalu
T30 West Kiribati
T31 Central Kiribati
T32 East Kiribati
T33 Banaba
T4 Cuba (**CO**)
T5 Somalia
T6 Afghanistan
T7 San Marino
T9 Bosnia-Hercegovina
TA Turkey
TD Gwatemala (**TG**)
TE Costa Rica (**TI**)
TF Iceland
TG Guatemala
TI Costa Rica
TI9 Cocos I
TJ Cameroon
TK Corsica
TL Central African Republic
TM France + overseas Terr & Depts (**F**)
TN Congo
TO France + overseas Terr & depts **FG FJ FM FP FR FS FY**
TP Council of Europe Strasbourg
TR Gabon
TT Chad
TU Cote d'Ivoire
TX France + overseas Terr & Depts **FK FO FW**
TY Benin
TZ Mali
UA U UA UE 1 3 4 6 Ewropean Russia
UA2 U UA UE 2 Kaliningrad
UA9 U UA UE 8-0 UM Uzbekistan
UN UN1-0 UP UQ Kazakhstan
UR US-UZ Ukraine
V2 Antigua & Barbuda
V3 Belize
V4 Fed of St Kitts & Nevis
V5 Namibia
V6 Micronesia
V7 Marshall Is
V8 Brunei Darussalam
V9 Vendaland (**ZS**)
VE Canada (**VA-VG)**
VE0 Canadian **/MM** stations
VK VI Australja
VK9C Cocos Keeling Is
VK9L Lord Howe I
VK9M Mellish Reef
VK9N Norfolk I
VK9W Willis I
VK9X Christmas I
VK0 Heard I
VK0 Macquarie I
VO1 VO3 5 7 9 Newfoundland (**VE**)
VO2 VO4 6 8 0 Labrador (**VE**)
VP2E Anguilla
VP2M Montserrat
VP2V British Virgin Is
VP5 Turks & Caicos Is
VP6 Pitcairn Is
VP8 Antarctica
VP8 Falklands Is
VP8 South Georgia
VP8 AZ1 5 ED0 L Orkney Is
VP8 South Sandwich Is
VP8 CE9 CX0 ED0 South Shetland Is

HF0 HL5 UnZx South Shetland Is (**ZX0 4K1)**
VP9 Bermuda
VQ9 Chagos Is
VR2 Special Administrative Region of Hong Kong
VU India
VU Lakshadweep
VU Andaman Is & Nicobar Is
VX VY Canada **VE**
VY1 Yukon Territory **VE**
VY2 Prince Edward I **VE**
W WA-WG WI-WK WM-WO WQ-WZ USA
WH1-WH0 KH1-KH0 USA Pacific Is
WL Alaska **KL**
WP1-WP5 KP1-KP5 USA Caribbean Is
XE XB-XH Mexico
XF4 Revilla Gigedo Is
XJ-XO Canada **VE**
XQ XR Chili & Is **CE CE9 CE0**
XT Burkina Faso
XU Cambodia
XV Vietnam **3W**
XW Lao Peoples Democratic Rep
XX3 Madeira Is **CT3**
XX9 Macao
XZ XY Myanmar
XZ5 XZ9 Karen State **XZ**
YA Repubblic of Afghanistan
YB YC YE-YH Indonesia
YI Iraq
YJ Vanuatu
YK Syria
YL Latvia
YM Turkey **TA**
YN Nicaragwa
YO YP-YR Romania
YS El Salvador
YU YT Yugoslavja
YV YW-YY Venezuela
YV0 Aves I
YZ Yugoslavja **YU**
Z2 Zimbabwe
Z3 Macedonia
ZA Albania
ZB ZG Gibraltar
ZC UK Sovereign Bases in Cyprus – Akrotiri & Dhekelia
ZD7 St Helena
ZD8 Ascension I
ZD9 Tristan da Cunha & Gough I
ZF Cayman Islands
ZK1 Northern Cook Islands
ZK2 ZK9 Niue
ZK3 Tokelau Is
ZL New Zealand
ZL7 Chatham Is
ZL8 Kermadec Is
ZL9 Aukland I & Campbell I
ZM New Zealand & Islands **ZL ZL7 ZL8 ZL9**
ZP Paraguay
ZS ZR ZU Repubblic of South Africa
ZS8 Prince EdwardI & Marion Is
ZV-ZZ Brazil & Islands **PY PY0**

Source : http://www.rsgb.org

The Final Touches

The Wouff Hong

Picture From the ARRL website

When radio was still in its infancy, there was a lot of interferance. An instrument of torture was therefore invented so that those who interfered with others were first warned, and if they persisted, this instrument was used on them.

Although it's not stated, I don't think that you need to overload your brain to know how it was used. Let this be a warning to those who do not care about others.