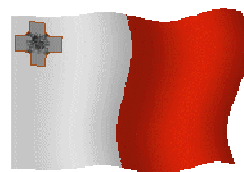


MARL



MALTA



Magazine by MARL

For Maltese and Gozitan  
Radio Amateurs

Number 46

January 2010



**Smoking is prohibited**

**Tpejipx**  
No Smoking

**at the Centre**

**From the Editor**

Friends,

I welcome you to another issue of this magazine for January 2010, which is issue 46 of this series.

The first thing that I want to say is to remind the members that we have come to the end of the year and therefore you should think to pay your membership. Do not forget that the expenses are great especially the electricity and water bills because although we are a non-profit Organization we are just the same considered as a commercial enterprise and bills are issued at commercial rates.

I remind you that the party held at the beginning of each year where the members meet to eat and drink something together is going to be held on **Sunday 17 January 2010 from 10.00 a.m. to 12.00.** Do not forget to pay your membership when you are at the Club.

Here I remind you that no smoking can be made at the Club. Apart from this, the Financial Secretary has just bought some waste bins where one can throw rubbish in and therefore the Committee and all the members expect that no one throws something on the floor, but that everyone should throw rubbish in the bins.

Here I would like to bring to the attention to some members who say that sometimes this and that other Committee member is not seen frequently at the Club. Whoever thinks that job of all the Committee members is to always be at the Club is mistaken because useful work is not only done at the Club but also and more so outside the Club.

Apart from the Committee members holding their meeting to promote the interests of our Organization and of all the radio amateurs, they have other work such as representations, discussions and correspondence with the Authorities in their work, and even with sacrifices to themselves and to their families.

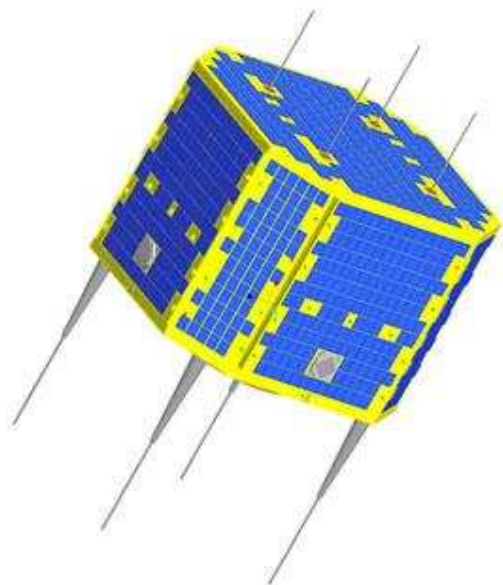
Therefore, while they wish and are not worried to have constructive criticism and for this purpose there is also the members' suggestion box, they do not expect unjust criticism against those who are working for them notwithstanding that they may not be able to be frequently at the Club.

Before closing these few words I wish to convey my wishes as well as those of the **MARL** Committee for the New Year to the members and their families as well as to all those reading this magazine for the New Year.

As always, I hope that you find the information in the magazine useful to you and if you have some article please leave it in my **QSL** box or you can send it to me on my e-mail **9h1av at searchmalta dot com.**

**Lawrence**  
**9H1AV/9H9MHR**

## Chinese Satellite



**Satellite Type: Microsatellite**  
**XW-1**

**Apogee: 1200km**  
**Perigee: 1200km**  
**Inclination: 105**  
**Period: 109**  
**Local time of descending node: 21:30**  
**Weight: 50kg**  
**Dimension:  $\Phi$ 680mm $\times$ 432mm**

**Mode V/U (J) FM Voice Repeater (30 dbm (1 w)):**  
**Uplink: 145.8250 MHz FM, PL 67.0 Hz.**  
**Downlink: 435.6750 MHz FM**

**Mode V/U (J) Linear Transponder (Inverting) (30 dbm (1 w)):**  
**Uplink: 145.9250 - 145.9750 MHz SSB/CW**

**Downlink: 435.7650 - 435.7150 MHz SSB/CW**

**Mode V/U (J) PacSat BBS (30 dbm (1 w)):**  
**Uplink: 145.8250 MHz AFSK 1200 BPS**  
**Downlink: 435.6750 MHz AFSK 1200 BPS**

**Mode Beacon (23 dbm (200mw)):**  
**Downlink: 435.7900 MHz CW**

**Lawrence**  
**9H1AV/9H9MHR**



**SAQ 17.2 kHz**

**I remind** those who like to listen on very low frequencies that the station is going to be operated again on **24 December Christmas Eve 08.00 UTC** on the frequency of **17.2kHz**. If you hear it send it a report and they will send you a **QSL** and you will have a very nice **Christmas** present.

TO make it easier go to this link from where you can download a programme that uses the computer as a receiver <http://web.telia.com/~u33233109/saqr/saqr.html> Thanks to **Mansweto, 9H1GB** for this link.

This is a small programme of only **26kb** made by **Johan SM6LKM, Wolfgang Büscher DL4YHF and Alberto di Bene I2PHD**.

This programme is not only for one to listen to **SAQ**, but you can receive between **0 u 22 kHz**, has filters of **300Hz, 1000 kHz and 2.4 kHz** bandwidth centered on a **700Hz** tone. The receiver can be tuned in **10Hz, 100Hz and 1 kHz** using the computer mouse wheel.

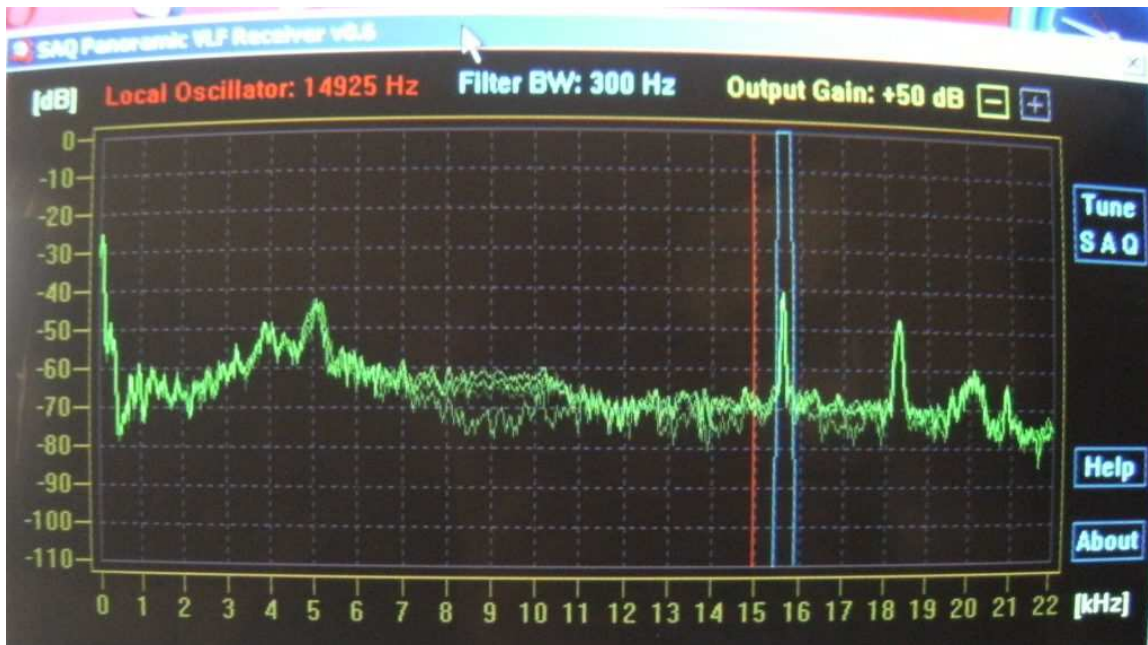
The receiver can also be tuned in **1Hz** steps by pressing the computer keyboard **U** for **up** to increase the frequency and **D** for **down** to decrease the frequency instead of moving the filter curve by the on screen cursor or by the mouse wheel. If you hold the buttons pressed the frequency will self increase or decrease by **1Hz** steps.

Download this programme and try to listen on these low frequencies especially for those stations that I gave you their frequencies in the previous Magazine.

Once we are talking about a computer programme that used what is known as Digital Signal Processing (**DSP**) it will be good for those who are interested to read about this digital signal processing system can go to <http://www.dspguide.com/> and download the book "**The Scientist and Engineer's Guide to Digital Signal Processing**" By **Steven W. Smith, Ph.D.**

It is a very interesting book and when one reads it one will start to understand the processes that are conducted by the digital signal processing system.

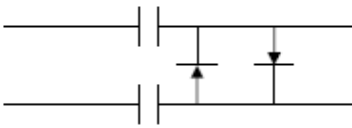
This can be downloaded Chapter by Chapter and it has 34 Chapters, but you won't take more than 5 minutes to download them all. Give yourselves a Christmas present by downloading the programme to listen between **0 – 22 kHz** and this book.



This is a photo that I took from my computer and shows the **300Hz** filter centred on **15.625kHz** which is television line timebase that was being received from a television. As you can note the oscillator frequency appears on top **14.925 kHz** (**red vertical line**) which if you add to it **700Hz** where the filter is centred it comes to **15.625kHz**.

A signal on **18.25kHz** also appears and if you note between approximately from **2 kHz** upwards that what is known as a whistler is seen passing which if you hear it appears as if someone is tuning a receiver when you hear the note variation when tuning.

To connect this receiver to the antenna all you need to do is construct that circuit that I had given you in Magazine number 19 to protect the computer if you connect a large antenna. A copy of it is found hereunder.



What you have to do is to connect the antenna on one side of the circuit and the other end of the circuit to the microphone or line input of the computer.

Do not forget that the side connected to the computer has to be earthed and if you want to you can do the same on the other side, but this is not required if you use a long wire antenna.

The two capacitors may be **0.1 uF** and two silicon diodes to limit the signals to around **0.6** to **0.7** volts. The diodes may be **1N4001** etc. or what you may have.

Do not forget that this is a very small programme that you can download in a few seconds and install it in another few seconds and you can make this circuit in a few minutes.

Even if perhaps you do not manage to make it to listen to **SAQ** on **Thursday 24 December** because perhaps you may not have read this Magazine, you can make it whenever you want or whenever you can and try it later on, both to listen for other signals as well as to listen to **SAQ**.

**Lawrence**  
**9H1AV/9H9MHR**

### Special Stations

In the November Magazine I brought you details about the special station **DL0PFB** to commemorate the granting of the Nobel Prize to **Professor Ferdinand Braun** and **Giuglielmo Marconi** in the year 1909. I also mentioned that the weather station **DDH47** that is found in **f'Pinneberg** in **Germany** was going to be used.

I received an e-mail from **Ottfried, DL9YG, 9H3JW** where he not only told me that he lives not far from that station and went to visit it together with other radio amateurs, but kindly sent me a number of photos that you will find further down so that we can publish them on this Magazine.

**Ottfried** came to Malta 19 times already since 1989 and intends to come again. Last summer he also came to the MARL Club. Thanks to **Ottfried** for the information and photos of **DDH77** and hope to see him when he comes for holidays.



**Final Amplifier**





**Rohde & Schwartz HF Xcvers**



**Control Desk**



**Control Desk**



**TX**



**TX**



**Antenna**

Other information that I found about the station is that the antenna is 99 metres high and in fact it has two towers of this height.

Hereunder you also have the details about the frequencies and call signs used by the German Weather Service.

It will be interesting not only for one to try to listen to this station during the operation to commemorate **Professor Ferdinand Braun** that I mentioned in the previous Magazine, but also to receive the weather reports that are sent.

<b>Frequency</b>	<b>Transmission</b>	<b>Call Sign</b>
147.3 kHz	RTTY 50 Bd	DDH47
490.0 kHz	RTTY 100 Bd	DDH49
518.0 kHz	RTTY 100 Bd	DDH51
3855.0 kHz	FAX	DDH3
4583.0 kHz	RTTY 50 Bd	DDK2
7646.0 kHz	RTTY 50 Bd	DDH7
7880.0 kHz	FAX	DDK3
10100.8 kHz	RTTY 50 Bd	DDK9
11039.0 kHz	RTTY 50 Bd	DDH9
11638.0 kHz	RTTY 50 Bd	DDK8
13882.5 kHz	FAX	DDK6
14467.3 kHz	RTTY 50 Bd	DDH8
15988.0 kHz	RTTY 50 Bd	DDK7

Lawrence  
**9H1AV/9H9MHR**

### We give our Condolences

We are sorry to announce the death of our friend **9H1LR, Raymond Livori** at the young age of 54 years.

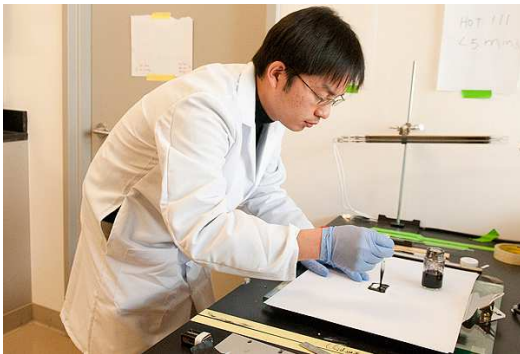
In the name of the committee as well as the members of our Organization **MARL** I wish to give our condolences to the wife and children of **Raymond Livori 9H1LR** as well as all their family for his death that happened on Sunday 20 December 2009.

We also give our condolences to all the families of those radio amateurs who were bereaved of someone dear to them in their families during this year and we will remember them in our prayers.

Lawrence  
**9H1AV/9H9MHR**

### Paper Batteries

Another bit of really interesting news is that at Stanford University they have developed [paper batteries. These have the advantage that they can bend without suffering any damage and are made by depositing ink on the paper that contains millions of nano tubes.



They can also be made on walls by painting them and charging them like normal batteries with the difference that it is estimated that they can be charged and discharged around 40,000 times, much more than other batteries.

Professor Yi Cui who developed these batteries says that even if you crumble them they will remain working just the same and in the video appears lighting a LED from this battery.

In the photo, Bing Hu, a post-doctoral fellow, appears making one of these experimental batteries <http://news.stanford.edu/news/2009/december7/nanotubes-ink-paper-120709.html>

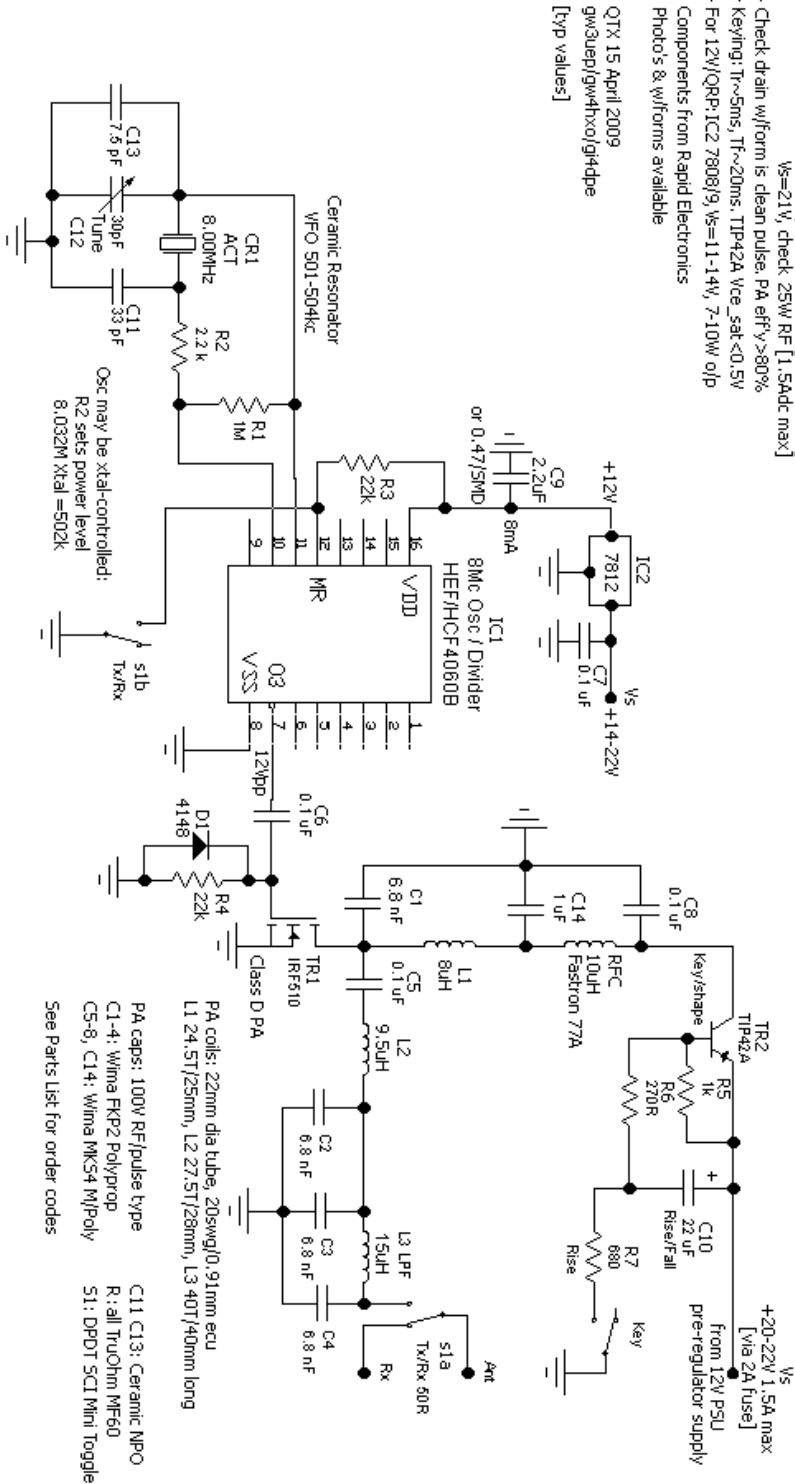
## 500 kHz

Today you have a transmitter circuit for all those who want to prepare one so that if at some time we are given permission they will be ready to operate at once on this frequency.

### Quick MF CW TX: 501-504Kcs 25W output

- Low cost, high efficiency, simple repeatable design [no toroids]
  - PA tests 50R load:  $V_s=14V$ , check 10W RF [0.9A dc max]
  - $V_s=21V$ , check 25W RF [1.5A dc max]
  - Check drain waveform is clean pulse, PA effV > 80%
  - Keying: Tr ~ 5ms, Tf ~ 20ms, TP42A vice .sat < 0.5V
  - For 12V/QRP: IC2 7808/9,  $V_s=11-14V$ , 7-10W o/p
- Components from Rapid Electronics  
Photo's & w/form available

### QTX Quick Low-Cost MF Tx



As one can see this only costs a few euros and it will be good for one to experiment by using a 50 ohm resistance that matches the transmitter instead of an antenna.



As a receiver antenna one can use a wire as long as possible and use coils to resonate it on this frequency. One can also use antennas normally used for other frequencies, such as some **80** or **160 metre** dipole and tune them for this frequency.

There are also other antennas such as in the form of loops that are also tuned to the required frequency, and although the signal of these loops is normally very much less than a big antenna, normally it will be more readable because the interference is very much reduced. This is apart from that one can turn the direction to remove or reduce local interference, always if it is not in the same direction that one wants to receive from.

If one thinks that he is going to have great difficulty to make a transmitting antenna when we are granted permission to use it, he can use the same 80 and 160 metres antennas and use coils to resonate them.

If we take the example of **VX9MRC** from **Canada**, they use **100 Watts** that gives them a current of **1.7 Amps** in the antenna that is **100 metres** long and its height is about **10 metres** <http://www.ucs.mun.ca/~jcraig/500kex.html>

If one sees what **Peter, G3LDO** uses he will find that the antenna that he uses is an HF Quad 43 feet high and the feeder is tuned by means of a coil. The transmitter uses valves and uses a **1632** valve (**6L6** with a 12 Volt heater) and **PL519** that was a television valve. Go to **VX9MRC** link and you have other links from where you can see what others are using.

If one has interference he can also use equipment both passive as well as active with which he introduces an anti-phase signal to that he is receiving from the antenna so that the interference is removed or reduced.

All these things especially loop antennas and passive or active equipment to remove the interference all apply to the **136 kHz** frequency and other frequencies and therefore if one constructs them he can use them on any frequency.

If you go to <http://www.500kc.com/> you will find a number of other links and you can also go to the **W5JGV** <http://w5jgv.com/> link and find further information about **500kHz**

### **Another bit of News**

Another bit of news about this frequency is that according to **Sjoerd PA0SHY**, **Dutch** radio amateurs id-dilettanti as of 1 January 2010 will be able to ask for permission to experiment on this frequency between **501 kHz** to **504 kHz** and use **5 watts** and a signal bandwidth up to **100 Hz**.

And here in Malta?

**Lawrence**  
**9H1AV/9H9MHR**

### **The Chinese XW-1 Satellite**

Here you have news about the satellite that I gave you information about it on page 3 of this Magazine. This satellite is already in use and there were a number of contacts between radio amateurs in a number of countries.

The trials on the **V/U FM** repeater, the **V/U linear transponder**, and **V/U AFSK packet** have already been held. In fact, **Michael Chen, BD5RV/4** reports that he used the special station **BT3WX** to talk to a number of radio amateurs from **E2, BY, VR2, XX9** with **FM** when **XW-1** passed during the evening and said that everything is working correctly.

**JA0CAW** also received **AFSK** packets on the satellite downlink **435.675 MHz AFSK 1200bps**.

**JE1CVL, JH1EKH, BD4SY, JF2CTY, JH1BCL, JA5BLZ** succeeded in making contacts by means of the **VHF (LSB) 145.950 MHz** linear transponder satellite uplink and **UHF (USB)** with the linear transponder that inverts the signal on the satellite **435.740 MHz** downlink.

One can find videos on

<http://www.youtube.com/watch?v=n4-0yuC4Sx4&feature=related>

<http://www.youtube.com/watch?v=WwyTZT6JkC4>

Luciano Fabricio **PY5LF** made a video recording on how he was receiving this satellite on <http://tinyurl.com/yjgett6>

**BD5RV/4** is asking all those who hear this satellite to please send audio recordings, notes on what he had received from it, your **QTH**, date and time of the beacon to **AMSAT China** by means of e-mail to [michael.bd5rv@gmail.com](mailto:michael.bd5rv@gmail.com)

One can download a **CW** telemetry decoder by Mike Rupprecht, **DK3WN** from <http://www.dk3wn.info/software.shtml>

A copy of updated telemetry may be downloaded from

[http://www.camsat.cn/index.php?option=com\\_phocadownload&view=category&id=1:xw-1&download=1:xw-1-telemetry&Itemid=66](http://www.camsat.cn/index.php?option=com_phocadownload&view=category&id=1:xw-1&download=1:xw-1-telemetry&Itemid=66)

The transponder manual may be downloaded from the **AMSAT** webpage

[http://www.amsat.org/amsat-new/satellites/documents/XW-1\\_Store-forward\\_Transponder\\_Users\\_Manual.pdf](http://www.amsat.org/amsat-new/satellites/documents/XW-1_Store-forward_Transponder_Users_Manual.pdf)

One can find details about this satellite on

[http://www.camsat.cn/index.php?option=com\\_content&view=article&id=56&Itemid=67](http://www.camsat.cn/index.php?option=com_content&view=article&id=56&Itemid=67)

### **Hope-OSCAR 68**

Apart from this, this satellite has now been given a new name **AMSAT** and is now named as **Hope-OSCAR 68** or **HO-68**.

This is because **XW** in Chinese means **Hope** and therefore on a request to the **AMSAT-NA** and satellite number coordinator **Bill Tynan, W3XO** authorized that this be given the mentioned name.

Whoever wants to know the latest Keplerian elements of a number of satellites he can find them on <http://www.arrl.org/w1aw/kep/>

Who is going to be the first Maltese or Gozitan radio amateur to use this satellite?

**Lawrence**  
**9H1AV/9H9MHR**

## MARL Activities

# Happy New Year



The **MARL** Committee wishes a Merry Christmas and a Happy New Year to **MARL** members, of the Yahoo Group and to all the Maltese and Gozitan radio amateurs and their families.

May you have a Better Christmas than past years and the New Year will be better than this year and have all that your heart wishes.



## Yearly Party

The yearly party where members meet together to eat and drink something together at the **MARL** Club is going to be held on Sunday 17 January 2010 between 1-10.00 and Middyay.

The members are invited to this party and may take the occasion to pay their membership.



The Financial Secretary is going to be at the Club to receive membership payments that has to be paid prior to the Annual General Meeting.

The members can also take the occasion to make their suggestions and can leave them in the suggestions box so that the Committee can study them and implement them where possible.



We will be happy to see you and will be happier to see you frequently at the **MARL** club.

We encourage you to come more frequently because the more you come the more



**MARL** can be a live Organization and the more you will have the chance to make your suggestions and be informed with the latest developments.

## Club Closure

We wish to inform our members that the **MARL** Club will be closed on Thursday 24 December Christmas Eve and on Thursday New Years Eve.

## Annual General Meeting

The Annual general Meeting is going to be held on Sunday 28 February at 10.00. If there is no quorum up to 10.30 the meeting will be held with the members present. This is the meeting agenda is this:

Reading and discussion of the Minutes  
Reading and discussion of the Administrative Report  
Reading and discussion of the Financial Report  
Other matters

We wish to remind you that whoever has any suggestions, seconded motions and any points for discussion please send them to the Secretary at least 10 days before the Annual General Meeting.

## Payment of Membership

We remind you that when you receive this Magazine is the last month of the year and the time has come for one to pay his/her membership to remain a **MARL** member. The financial secretary is always ready to accept membership fees whenever the **MARL** Centre is open or if you cannot some you can pay by cheque payable to **MARL**. Membership is €23

We remind you that the **MARL** is open every Tuesday and Thursday between 6.00 p.m. and 8.00 p.m. and Sunday between 10.00 and Middy.

## Yahoo Group

Be attentive and become members in the yahoo group to be fully informed with the latest activities that we intend to hold.

Do not forget that we may have activities which may not be able to appear on this magazine because it may have already been issued and therefore the notice will be sent on the yahoo group.

Send an e-mail to Ivan, **9H1PI** ivan.privitera at gmail.com to become members in the group.

We remind you that whoever wants to can download the Magazine from [www.9h1mrl.org/newsletter.htm](http://www.9h1mrl.org/newsletter.htm)

Lawrence  
**9H1AV/9H9MHR**