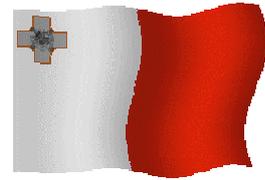


MARL



MALTA



Magazine by MARL

For Maltese and Gozitan
Radio Amateurs

Number 23

February 2008



Smoking is prohibited at the Centre

By the Editor

Friends,

I welcome you to issue 23 of this magazine for February 2008, which is issue 23 in this series.

In this issue you have photos of radio amateurs who went to operate from Bahrija where they used the masts that are still there. Whoever wants to can still go and use and see the difference between these big antennas and those he can make at home.

Further down we have news about the death of **Alan, 9H1AW**, who fell from the roof while he was making an antenna. Be careful so that when you are working you do not hurt yourselves or others or worse because we only have one life.

We are also giving you information on the latest developments outside Malta on the frequency of 500 kHz, as well as an appeal so that if there is someone who knows about programming integrated circuits and is ready to give some lectures about them to contact us to fix some lectures.

You also have a number of internet links from where you can download a number of books that are useful and you will do well to download them so that you read them when you have some spare time.

Do not forget that the New Year has begun and the Assistant Financial Secretary is waiting for you to pay your membership so that he can close the books. If the Assistant Financial Secretary is not there, there will be the Secretary whom you can pay.

As usual, I thank all those who work and give their share in any way in the interests of our Society while I hope that you find the information in the magazine useful for you and if you have any article please leave it in my QSL box.

Lawrence 9H1AV / 9H9MHR

Silent key

We are sorry to announce the death of **Alan, 9H1AW** who died accidentally when he fell from the roof while he was installing an antenna so that he could communicate with his equipment.

We give our condolences to his widow **Maureen, 9H1JN** and his family and join them in their sorrow.

I take the occasion to bring to your attention that whoever is working on an antenna at a height not to take any risks, take all precautions and be absolutely certain about what he is doing.

The same applies to whoever is working on high voltage equipment and even on household voltage because this is also dangerous.

Remember your family and the sorrow that you will leave in all those who you will leave behind you.

Lawrence 9H1AV / 9H9MHR

500 kHz

Today we have other news about an allocation on **500kHz** that is coming from **Rik Strobbe, ON7YD**, who is one of the main persons who work on low frequencies and has a good write-up on antennas for **136 kHz**.

He reported to **G3YXM** that the **UBA**, which is the national organisation of Belgian radio amateurs, had received from the **BIPT**, which is equivalent to our Malta Communications Authority, that they can use frequencies between **501 – 504 kHz** on a secondary basis, **CW**, with a transmitter power **5W ERP**.

Thus, radio amateurs in Belgium, became united with radio amateurs from other countries that were given an allocation on a frequency of **500 kHz**.

This same information was also reported on the internet webpage of the ARRL where there is also a report on the greatest distance that up to now a radio amateur signal has been heard on **500 kHz**. On the ARRL webpage there is also a picture of the signal on a computer programme.

The signal was of **WD2XSH/20** which is an experimental station operated by **Rudy Severns, N6LF** in Cottage Grove, Oregon. On 17 January his signal was heard very well by **Neil Schwantz, V73NS/WD8CRT** who is on Roi-Namur in the Marshall Islands.

Roi-Namur Island is found on the Kwajalein atoll and the distance was 4747 miles. The signal was so good that it was also copied normally, that is by the operator and not on the computer, while it was being sent at 13 words per minute CW.

Whoever wants further information may go to the American experimental group webpage on <http://www.500kc.com/>

We hope that the Maltese authorities will at last wake up to what is happening in the world and perhaps they will give us an allocation so that Maltese radio amateurs will not be the last persons in the world who are given an allocation on frequencies that radio amateurs in other countries would have been given many years before.

Presently the **70 MHz** frequency comes to mind which we have been requesting for many years while it has been given to radio amateurs in other countries, among them countries that were under the Soviet Union and the United Kingdom who have been given this frequency more than 50 years ago.

Lawrence 9H1AV / 9H9MHR

Lectures

Many modern equipment, even that made by radio amateurs themselves, uses types of integrated circuits such as those known as PICs, EEPROMS, etc. that have to be programmed before they can be used.

If therefore, there is any radio amateur who knows or has experience on how they work and how to programme these types of integrated circuits and is ready to give a few lectures on them at our Club, please contact us to see how we can make a lectures programme.

At least, we will start with some lectures on how they work and how they are programmed, that is putting in information when you have a programme ready, the equipment required to programme them, and afterwards we can continue on how to write a programme.

Such lectures should be of general interest and we hope that not only we will find someone who will be ready to give the lectures, but that there will be interest so that every radio amateur would be adjourned with the latest developments which are useful for our hobby.

Lawrence 9H1AV / 9H9MHR

Small Components

When someone opens a piece of electronic equipment these days he finds many components such as resistances, capacitors and other components that if you have your vision a little out of specs it will be difficult to see them well due to their small size.

Such components are without wires at the ends as we who have been making and constructing our equipment, especially when one is used to work on valve equipment and even integrated circuits and other components of what can be called normal size.

This is not to also mention very small integrated circuits especially when they have many leads, such as, some integrated circuit that will only be a little more than one inch, that is 28 square millimetres, and have some 128 lead to be soldered.

Such components are fitted flat on printed circuits and sometimes even between one side of the printed circuit and the other and there are techniques of how the work is done so that damage is not caused to the components that have to be fitted and neither to the rest of the circuit.

Since they are fitted on the surface of the printed circuit, these components are called surface mounted devices.

Today I am not going into the soldering of components and such other items, but I am going to give you the sizes of these components so that if you are making a circuit you will know the size if the components that you will have to use.

These modern components have a number of names that give an insight of their size and looks. The sizes are also known by one or more numbers and therefore when you see a number or numbers you will know what they mean.

Two ended components

These components are known as passive components, mostly resistors and capacitors. Their sizes are the following.

Resistors and Capacitors

| Number | Size inches | Size mm |
|-------------|---------------|-----------------|
| 01005 | 0.016 x 0.008 | 0.4 x 0.2 |
| 0201 | 0.024 x 0.012 | 0.6 x 0.3 |
| 0402 (1005) | 0.04 x 0.02 | 1.0 x 0.5 |
| 0603 (1608) | 0.063 x 0.031 | 1.6 x 0.8 |
| 0805 (2012) | 0.08 x 0.05 | 2.0 x 1.25 |
| 1206 (3216) | 0.126 x 0.063 | 3.2 x 1.6 x 0.6 |
| 1806 (4516) | 0.177 x 0.063 | 4.5 x 1.6 |
| 1812 (4532) | 0.18 x 0.12 | 4.6 x 3.0 |
| 1825 | 0.25 x 0.177 | 6.35 x 4.5 |
| 2512 | 0.25 x 0.12 | 6.35 x 3.0 |

Tantalum Capacitors

| Size | EIA | Size mm |
|------|---------|-----------------|
| A | 3216-18 | 3.2 x 1.6 x 1.6 |
| B | 3528-21 | 3.5 x 2.8 x 1.9 |
| C | 6032-28 | 6.0 x 3.2 x 2.2 |
| D | 7343-31 | 7.3 x 4.3 x 4.1 |
| E | 7343-43 | 7.3 x 4.3 x 4.1 |

Note that if you look carefully at the EIA number, the first four numbers are an indication of the size. The first two numbers are one size and the next two numbers are the second size. The third is their thickness.

Small Diodes SOD (Small Outline Diodes)

| Number | Size mm |
|---------|--------------------|
| SOD-323 | 1.70 x 1.25 x 0.95 |
| SOD-123 | 3.68 x 1.17 x 1.60 |
| SOD-80C | 3.50 x 1.50 x |

MELF (Metal Electrode Leadless Face)

These are components mostly resistors and diodes. They have a round form and even if there are some numbers similar to other components, they do not tally.

| Number | Length mm | Diameter mm | Comments |
|--------|-----------|-------------|---------------------|
| 0201 | 2.2 | 1.1 | Solder as size 0805 |
| 0204 | 3.6 | 1.4 | Solder as size 1206 |
| 0207 | 5.8 | 2.02 | |

BPL/PLC

Its been some time since I've written on this subject, but today I am going to give you some news which will fill you with courage that this system is being terminated.

To remind you, this is an internet system that is sent over electrical cables on frequencies approximately between **1.7 MHz** to **80 MHz**. Wherever it was implemented it created strong interference with radio services.

In fact, it was not only radio amateurs who were against it, but there were also broadcasters organisations as well as reports were made on the interference it creates from organisations such as NATO.

In the United States of America, and also in Europe there were problems wherever it was implemented for trials, and also in Australia. In America there were companies who became aware that it was not financially sustainable because there are other systems that are more efficient and cheaper, and had to stop it.

Now there was a company in Australia, Aurora, that was experimenting with it and stopped it. This was announced on the **WIA (Wireless Institute of Australia)** webpage, as well as on the **ABC** webpage and on the Aurora webpage itself.

The WIA webpage is on <http://www.wia.org.au/news/20071127-01.php>

The ABC webpage is on <http://www.abc.net.au/news/stories/2007/11/27/2102466.htm>

while the Aurora webpage is on

<http://www.auroraenergy.com.au/news/default.asp?file=27-november-2007.txt>

The Aurora Executive Chief Peter Davies is reported to have said that “the Aurora BPL trials do not have the resources to maintain its viability”, and “it was certainly not a good money-making exercise for Aurora”.

While such examples should open the eyes of companies that will be thinking whether to deploy such a system that has found opposition from every side, this is another example where investors money were spent on useless projects notwithstanding that everything showed that it will be wasted money.

Such things will continue to be done until those who run the companies are not held personally responsible for wrong investment that they had made, because it is one thing to make an investment that has certain risks and it failed, and another when you make an investment when everyone is proving to you that that investment will be useless.

Although it does not appear that there were ever any companies that were interested in such projects, we hope that no company dreams about it because it will not only find us against it, but we will show them foreign investments that had to be stopped because such systems are not sustainable.

There is no doubt that serious persons that have shares in companies and would know about investment that was made in other countries that was a waste of money will not accept that companies in which they hold shares make such investment.

Apart from this, it will be great irresponsibility on the part of the directors if they decide to make such an investment when they have the facts before them.

Lawrence 9H1AV / 9H9MHR

AMSAT OSCAR 16

This satellite was launched into space in January 1990, that is, it is now 18 years old. It had stopped working due to problems in its computer, but they have now succeeded to make it work again and there is going to be a trial period.

Uplink transmissions are on **FM** and it retransmits them back on **SSB**. The uplink transmission frequency is **145.920 MHz**, and due to the uplink being on **FM** there is no need for Doppler correction for this frequency. The satellite transmits the signals back on **437.026 MHz** where you will have to make corrections for Doppler shift.

Whoever uses this satellite should not transmit to it if he cannot hear the downlink, while he should use the minimum amount of power possible.

Details on this satellite are found on
<http://www.amsat.org/amsat/sats/n7hpr/ao16.html>

while reports may be sent to ao16@amsat.org

Lawrence 9H1AV / 9H9MHR

Legal Notices

This year two Legal Notices were issued that are connected with radio. These are **LN 6/2008** and **LN 7/2008**.

These Legal Notices removed some payments for boat licences and some other things. What interests us is that there is reference to small power equipment that is licence exempt because some of it is on our frequencies.

As an example, certain equipment that works between **433.05 MHz** and **434.79 MHz** that has a power between 1milliwatt and 10 milliwatts e.r.p.

There is also other licence free equipment that works between **135 kHz** to **140 kHz** as long as its filed strength is not greater than 42 dbuA/m within 10 metres.

Do not forget that as from 1 January next year, there is a worldwide secondary allocation between **135.7 kHz** and **137.8 kHz** for radio amateurs, and it will be a lack of responsibility on the part of the authorities to allow such equipment to be imported and used in Malta.

Other licence free equipment works between **148.5 kHz** and **5 MHz** with a field strength up to -15 dbuA/m within 10 metres. Although the field strength is low it may be near a radio amateur's house and cause interference when one considers the sensitivity of the receivers.

Another frequency that interests radio amateurs is **500 kHz** where there is a proposal before the World Radio Conference that is to meet in a few years time.

Other licence free equipment is between **400 kHz** and **600 kHz** where the field strength is not greater than -8 dbuA/m within 10 metres.

There are a number of other frequencies, including HF where equipment on these frequencies may have different field strengths, but what is good about it is that these do not have priority and complaints cannot be made that they are receiving interference and they cannot interfere with those who are licensed.

It is good to know these things so that if you have any interference you will know from where it could be coming.

Apart from this, it will be good if you download these Legal Notices to see whether there is something that in your opinion may have effect on our allocations so that we will examine it and see whether it will be the case to make representations with the authorities.

These Legal Notices may be downloaded from the Government website.

[Lawrence 9H1AV / 9H9MHR](#)

Books

Further down you have internet links from where you can download a number of free interesting books. Download them because they are very interesting and have useful information.

You will find them on the website of Harry Kholer, N0PU and are US Navy Books.

His main webpage is on <http://www.earth2.net/parts/?page/0/>

Module 1 - Introduction to Matter, Energy, and Direct Current

<http://www.earth2.net/parts/basics/14173.pdf>

Module 2 - Introduction to Alternating Current and Transformers

<http://www.earth2.net/parts/basics/14174.pdf>

Module 3 - Introduction to Circuit Protection, Control, and Measurement

<http://www.earth2.net/parts/basics/14175.pdf>

Module 4 - Introduction to Electrical Conductors, Wiring Techniques, and Schematic Reading

<http://www.earth2.net/parts/basics/14176.pdf>

Module 5 - Introduction to Generators and Motors

<http://www.earth2.net/parts/basics/14177.pdf>

Module 6 - Introduction to Electronic Emission, Tubes, and Power Supplies

<http://www.earth2.net/parts/basics/14178.pdf>

Module 7 - Introduction to Solid-State Devices and Power Supplies

<http://www.earth2.net/parts/basics/14179.pdf>

Module 8 - Introduction to Amplifiers

<http://www.earth2.net/parts/basics/14180.pdf>

Module 9 - Introduction to Wave-Generation and Wave-Shaping

<http://www.earth2.net/parts/basics/14181.pdf>

Module 10 - Introduction to Wave Propagation, Transmission Lines, and Antennas

<http://www.earth2.net/parts/basics/14182.pdf>

Module 11 - Microwave Principles

<http://www.earth2.net/parts/basics/14183.pdf>

Module 12 - Modulation Principles

<http://www.earth2.net/parts/basics/14184.pdf>

Module 13 - Introduction to Number Systems and Logic Circuits

<http://www.earth2.net/parts/basics/14185.pdf>

Module 14 - Introduction to Microelectronics

<http://www.earth2.net/parts/basics/14186.pdf>

Module 15 - Principles of Synchros, Servos, and Gyros

<http://www.earth2.net/parts/basics/14187.pdf>

Module 16 - Introduction to Test Equipment

<http://www.earth2.net/parts/basics/14188.pdf>

Module 17 - Radio-Frequency Communications Principles

<http://www.earth2.net/parts/basics/14189.pdf>

Module 18 - Radar Principles

<http://www.earth2.net/parts/basics/14190.pdf>

Module 19 - The Technician's Handbook

<http://www.earth2.net/parts/basics/14191.pdf>

Module 20 - Master Glossary of Terms

<http://www.earth2.net/parts/basics/14192.pdf>

Module 21 - Test Methods and Practices

<http://www.earth2.net/parts/basics/14193.pdf>

Module 22 - Introduction to Digital Computers

<http://www.earth2.net/parts/basics/14194.pdf>

Module 23 - Magnetic Recording

<http://www.earth2.net/parts/basics/14195.pdf>

Module 24 - Introduction to Fiber Optics

<http://www.earth2.net/parts/basics/14196.pdf>

I am certain that you will find these books useful. Download them and save them on your computer and study them when you have a chance.

Apart from these books there are other links on the main webpage on a number of subjects that I suggest that you also download them and put everything on a CD or

DVD so that they will be safe if something happens to the computer. Don't miss them because they are a most useful source of information.

Lawrence 9H1AV / 9H9MHR

Operation from Bahrija

These are photos of an outside operation that was held at Baħrija on 19 March 2005. The antennas that were used were used by the services and are still there, including the feeders to connect them to your equipment.



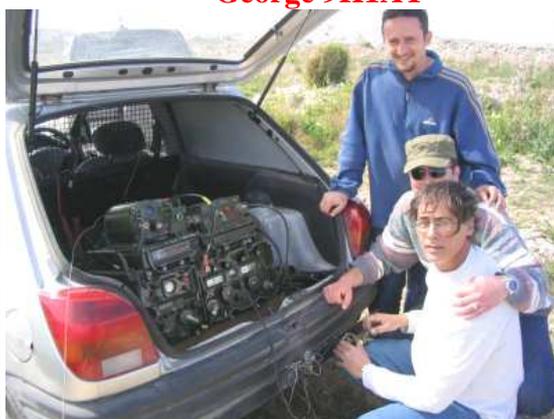
Mario 9H1TM



George 9H1AT



Stanley 9H1LO



Fortunato 9H1ES Ivan 9H1PI



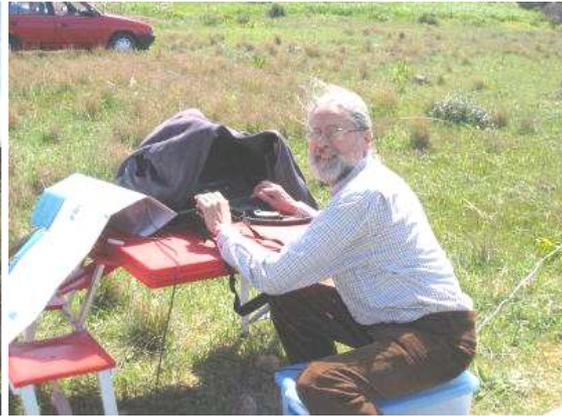
Jason 9H1LE James 9H1VC



Stephen 9H1SV Edwin 9H1XE



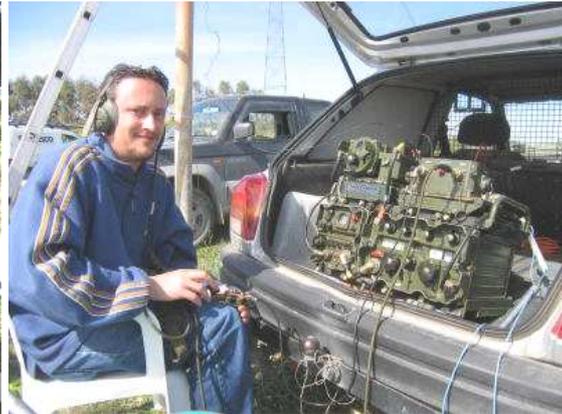
Edwin 9H1XE



Robin 9H1ZZ



Fortunato 9H1ES



Ivan 9H1PI



Tower



Tower



Equipment used



Equipment used



PHOTO TAKEN ON OCCASION OF VK2NOG VISIT TO CLUB DURING 1990 / 1991

Last time we had this photo in the magazine where we did not know some of the persons. Now we have information from **Michael, 9H5DX**, where he marked **Mario, 9H1GK**, himself **9H5DX**, as well as **John Camilleri, VK2NOG**, who is now **VK2GK**. The photo was taken in 1990 or 1991 when **John** was on a visit in Malta.

Thanks to **Michael** and if there is still someone whom we do not know and there is someone who knows we thank you beforehand if you inform us.

MARL Activities

Membership

The Committee wishes to bring to the notice of the members that membership payment can be made at the MARL Club every Tuesday between 6.00 and 8.00 in the evening and on Sunday between 10.00 in the morning and Noon.

Annual General Meeting

The Committee also reminds the members that the Annual General Meeting is going to be held as usual during the last Sunday in February, that is 24 February 2008 from 10.00 in the morning onwards. If there is no quorum the meeting will start at 10.30 with the members present.

Seconded amendments and motions will have to be given to the Secretary not later than 10 days before the meeting. Do not forget that you have to have paid your membership before the meeting starts.

The Agenda

Reading and discussion of the minutes
Reading and discussion of the administrative report
Reading and discussion of the financial report
Other matters