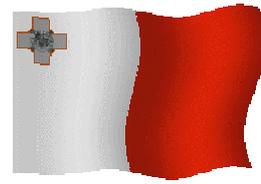


MARL



MALTA



Magazine by MARL

For Maltese and Gozitan  
Radio Amateurs

Number 49

April 2010



## Smoking is prohibited at the Centre

### From the Editor

Friends,

I welcome you to another issue of this magazine for April 2010, which is issue 49 of this series.

When you read this magazine Easter will have already passed because I had problems in my computer and I couldn't finish it, but just the same I wish you and your families a Happy Easter.

The first thing that I want to do is to congratulate **9H1TX David** who succeeded to make contact on **432 MHz** by means of signals reflected from the moon. Congratulations. I also congratulate **9H1GB Mansueto** who also a few minutes later succeeded in making a contact in the same manner. You will find details further down in this magazine.

In this issue you also have a map that shows time zones around the world that you should find suitable to know the time in other countries.

As you know, lately there have been a number of earthquakes around the world that caused destruction where they occurred. As you know, in Malta we have a group of radio amateurs who work hand in hand with the Civil Protection Department and carry our emergency training apart from providing communications also by means of television in national activities as they will be doing during the Pope's visit in the weekend between 17 and 18 April.

The number of these radio amateurs is limited at the request of the Civil Protection Department itself, but this does not mean that all the radio amateurs in Malta should not be prepared and ready so that if God forbid an emergency occurs they will be able to communicate among themselves and also outside Malta.

Remember that an emergency can happen at any time and the first things that are cut off during a big emergency are the electricity supply and telecommunications. Do not forget that lately we had a number of power cuts.

Therefore, do you have the means so that if God forbid an emergency occurs or the electricity supply is down you can continue to communicate? Do you have electric generators, batteries, antennas that can be used in an emergency, water, food, camp or other shelter, wires, coaxial cables and other things such as components and tools so that you can repair your equipment?

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/9H79AV**

### **Congratulations to 9H1TX and 9H1GB**

We congratulate **9H1TX David** and **9H1GB Mansueto** who on 19 March succeeded in making contact by signals reflected from the moon with **KP4AO**. This contact was made at 7.49 in the evening while the frequency was **432.045 MHz** and the report given was **55**.

**David 9H1TX equipment was:-**

**Antenna 4 x 28 element yagis;**

**Gain ~ 23 dBd**

**LNA (low noise amplifier)**

**Transceiver 100 Watts.**

**KP4AO equipment**

**2xTCS2000 one to receive one to transmit.**

**Gasfet preamp**

**Antenna circular polarization**

**3CX800 Amplifier**

**Antenna Arecibo parabolic dish.**

**9H1GB**

**Mansueto 9H1GB contact was carried out from David 9H1TX QTH same equipment.**

The following are photos of the dish and some information about the dish.



This telescope, which is the biggest telescope in the world, was built and operated by William E. Gordon, an electrical engineer. William was born on 8 January 1918 in Paterson, N.J. and died 92 years old on 16 February this year in Itacha, N.Y.



He used to lecture at the Cornell University between 1953 and 1965 as well as a professor, dean and provost of Rice University. The dish is as big as 26 football grounds and is found in a valley in Puerto Rico and is named for a nearby village.

The telescope was instrumental to make new discoveries in atmospheric physics and astronomy, so much so that it was given the Nobel price.

It was instrumental in measuring exactly the rotation of Mercury where it also discovered ice. Through it the first exact maps of the Moon, Venus and Mars were made. It provided the first evidence of the existence of neutron stars, discovered the first stars outside our solar system, and created three-dimensional pictures of the universe and can track near earth asteroids with much greater precision than other instruments.



This was a big and costly project, and although his interest was purely scientific to study the earth's ionosphere and other planets, William who for some time was in the American military, had succeeded in convincing the Defence Department that this could be used to listen to very weak Russian signals that would be reflected from the moon, and thus succeeded in getting the support of the military research branch.

This telescope is 1000 feet in size, was finished within 5 years from when William thought about it, and when it was ready in 1963 it had cost \$9.3 million dollars. It was modified several times and its sensitivity was increased 10 times every 10 years. It should be said that when this telescope was constructed, the biggest telescope at the time was 150 feet.



One of the problems that they used to have whenever they built bigger dishes was that they collapsed due to their own weight and William solved these problems by building the dish on the ground and then focusing the signals on its focal point that is hanging over the dish which can be manouvered to vary the direction.

It good to remind you that this telescope was used several times by radio amateurs to experiment with it and it was on such an occasion that our colleagues **David** and **Mansueto** succeeding in making their contact on **432.045 MHz SSB** by reflecting their signals from the moon. It is calculated that it has more than **50dBs** gain on **432 MHz**, although it can vary somewhat from this figure

Whoever wants to try to make a similar contact has a chance to do so between next **Friday 16 April and Sunday 18 April**. The following are the details that **9H1PI Ivan** has already informed the yahoo group about them.

<b>Friday 16 April:</b>	<b>1645 - 1930 UTC</b>
<b>Saturday 17 April:</b>	<b>1740 - 2020 UTC</b>
<b>Sunday 18 April:</b>	<b>1840 - 2125 UTC</b>

**Call sign:** KP4AO  
**Tx frequency:** 432.045 MHz  
**Rx frequency:** 432.050 to 432.060+  
**Tx power:** 400 W  
**Antenna gain:** 60 dBi  
**System Temperature:** 120 K (cold sky)  
**System Temperature:** 330 K (pointed at the moon)

**KP4AO** can be heard with a small **Yagi** antenna pointed at the moon and a receiver while a **15dBi** gain antenna and a power of **100 watt** are enough to work on **CW**.

First they are going to use **SSB** and then **CW**. The **KP4AO** operators are asking those who contact them not to contact them again on another transmission mode to give everyone a chance. They will be listening between **5 and 15-il kHz** up from their frequency and ask stations to spread out and not stay on one frequency.

When they call **CW QRP** they only want to work stations not using more than **100 watt** or less and a single Yagi. After working **SSB and CW** they may change over to **JT65B** if they feel that they will work more stations.

These details about frequencies and times were sent by **Joe, K1JT** on behalf of all his colleagues. We hope that a number of Maltese talk to them.

One can also go to their Club internet webpage which is <http://www.naic.edu/~angel/kp4ao/index.html>

One also has the opportunity to send and receive e-mails by registering on <http://www.moonbounce.info/mailman/listinfo/moon>

One can also go on <http://www.vhf-dx.net/top.html> where s/he can see who is leading on the list on frequencies of **50 MHz, 70 MHz, 144 MHz, 222 MHz, 432 MHz, 902 MHz, 1296 MHz, 2320 MHz, 3400 MHz, 5760 MHz, 10368 MHz, 24048 MHz, 47 GHz, 76 GHz, 120 GHz, 145 GHz, 241 GHz and Laser**.

Anyone who works on one of the frequencies can also sent the details on the links on the same page. **9H1PA** and **9H1TX** are already on the lists. Who else is going to be on the lists from Malta?

If you talk to them send a **QSL** card and self-addressed stamped envelope to Joseph Arcure, **W3HNK**, 115 Buck Run Rd, Lincoln University, PA 19352.

**Lawrence**  
**9H1AV/9H9MHR/9H79AV**

### [ARRL](#)

It's good to know that the **ARRL** have a new internet webpage. They have the same link [www.arrl.org](http://www.arrl.org) but have given their webpage a new look. Although it has a new look you should not find any difficulty to follow it.

**Lawrence**  
**9H1AV/9H9MHR/9H79AV**



## The signal strength meter

While nowadays there are receivers that do not have a meter to show the signal strength, although they are again making them in receivers and transceivers that work with computer software, previously nearly every radio amateur receiver except the cheapest ones used to have a meter to show the signal strength that it was receiving.

They used to be marked in signal strength from **1** to **9** and then according to the receiver continue with marks of **+10dB**, **+20dB**, **+30dB** etc. But what did these marks really mean and how strong was the signal being received.

Hereunder you have a table that shows what these marks mean and how strong is the signal when it is measured across **50 ohms** which is the resistance on which they are calculated and which is the nominal engineering impedance of transmitters, receivers or transceivers.

<b>Signal strength</b>	<b>PD across 50 ohm</b>	<b>dBm across 50 ohm</b>
<b>S0</b>	<b>0.1uV</b>	<b>-127dBm</b>
<b>S1</b>	<b>0.2uV</b>	<b>-121dBm</b>
<b>S2</b>	<b>0.4uV</b>	<b>-115dBm</b>
<b>S3</b>	<b>0.8uV</b>	<b>-109dBm</b>
<b>S4</b>	<b>1.58uV</b>	<b>-103dBm</b>
<b>S5</b>	<b>3.16uV</b>	<b>-97dBm</b>
<b>S6</b>	<b>6.3uV</b>	<b>-91dBm</b>
<b>S7</b>	<b>12.6uV</b>	<b>-85dBm</b>
<b>S8</b>	<b>25uV</b>	<b>-79dBm</b>
<b>S9</b>	<b>50uV</b>	<b>-73dBm</b>

These values are for **HF** and for **VHF** would be **20dB** less. To take an example, **S9** would be **5** microvolts or **-93dBm** and not **50** microvolts or **-73dBm** as it would be on **HF**.

As you can notice, every signal strength mark on the meter is **6dB**, that is, as if whoever is transmitting had increased his power by **4** times. Therefore, if you are transmitting with **100 watts** and you are given a signal strength report of **S9**, and you reduce transmission power to **25 (-6dB)** watts your report would be **S8**. If you again reduce it to **6.25 watts (-6dB)**, the report that they will give you will be **S7**.

If then you again reduce your transmission power to **1.5625 watts (-6dB)**, all that your signal will be reduced will be to **S6**. One can see that although when propagation conditions are not good he will need to use a higher transmission power, when conditions are good there is no need to use so much transmission power and one will be saving electricity.

This also shown why many contacts are made when using little transmission power as well as one can notice it when listening to radio beacons especially on a frequency of **28 MHz** where when these radio beacons reduce transmission power they are heard just the same.

I also remind you that it also required by the licence as well as practice that one does not use more transmission power than required to have good communications.

**Lawrence**

**9H1AV/9H9MHR/9H79AV**

## Easter

I and on behalf of the Committee we wish a Happy Easter to everyone.



Photo [Lawrence 9H1AV/9H9MHR/9H79AV](#)

Although I had a good part of this magazine ready before Easter I could not finish it before due to problems in my computer.

This is the Isla Statue of the Risen Christ in the square near St Philip Church.

[Lawrence](#)  
[9H1AV/9H9MHR/9H79AV](#)

## 5MHz

After a number of countries gave permission to their radio amateurs to work on the **5 MHz** frequency band, the next one was Trinidad and Tobago to allow their radio amateurs to use this frequency.

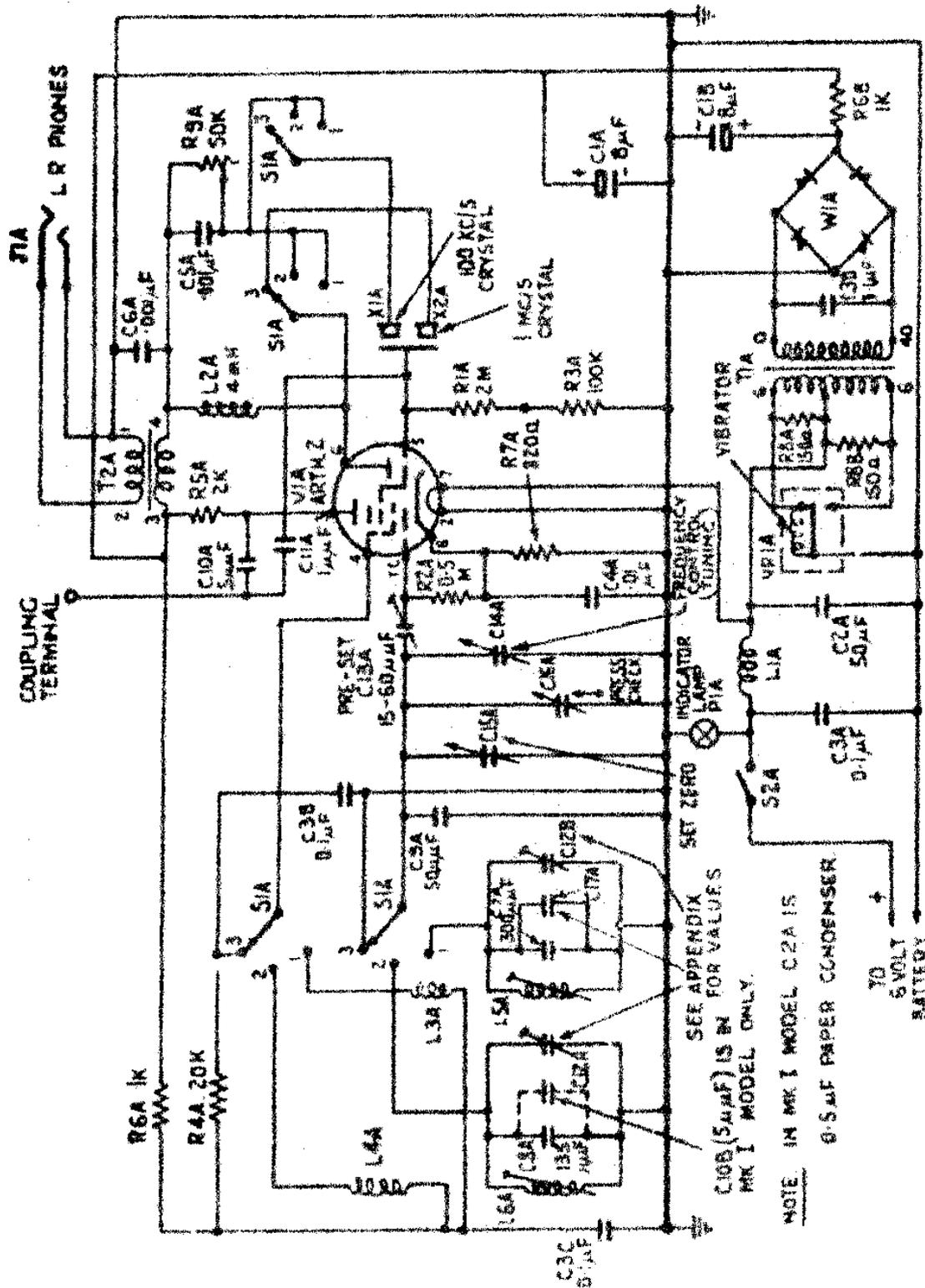
On the Digital Radio Yahoo Group, [9Z4FZ](#) stated that his licence allows him to work between **5.250 MHz to 5.240 MHz** with a transmission output power of **1,500 watts**.

And in Malta the authorities still do not want to give us permission to use it. I think that similar to other frequencies permits will arrive when the white flies arrive.

[Lawrence](#)  
[9H1AV/9H9MHR/9H79AV](#)

## Class D Wavemeter Circuit

Radio amateurs were always required to see that they do not stray outside their allocated frequencies. This also applies presently, but since nowadays the equipment is sophisticated and the frequency is shown in digital numbers there is no problem.



WAVEMETER CLASS "D" No 1

However, previously they were required to have means to be certain of the frequency that they were transmitting on, so much so that when the Wireless Telegraphy inspector used to visit he had to see the equipment that they used to measure their frequency.



After the second world war services equipment used to be bought by radio amateurs and one of this equipment was that known as the Class D wave-meter.

This could be found in many radio amateurs shacks and when it was becoming a little scarce it used to be loaned to a new radio amateur so that when the inspector from the Wireless Telegraphy Office used to carry out his first inspection he could

swear that he saw this equipment in the radio amateurs' shack.



The photos are taken from the internet webpage [www.wftw.nl](http://www.wftw.nl)

Therefore, to remind radio amateurs who have now been licensed for a long time about this equipment, I have succeeded in finding this equipment's circuit which is shown on the previous page. I am also giving this circuit so that if someone has one of them he can have a copy if he did not have one and he can keep it in working condition or repair it.

I hope that I have brought back some nostalgia in radio amateurs, both those who have long been licensed and also those who like old equipment.

**Lawrence**  
**9H1AV/9H9MHR/9H79AV**

## Heathkit Equipment

Today you have a copy of the internet link which is that of the Heathkit museum. Heathkit used to make a lot of equipment in different sectors that used to be built up by those who bought them. Among the equipment that they used to make there was equipment for radio amateurs and in Malta there were some who had their equipment.

Therefore today you have the link for this museum from where you can see photos of this equipment which used to be very popular. Later on I will try to give you more links. This link is <http://www.heathkit-museum.com/hvmham.shtml>

To download some circuits as well as handbooks for this equipment you can go to the internet webpage <http://www.vintage-radio.info/heathkit/index.htm> as well as [http://www.tech-systems-labs.com/heath\\_schematic.htm](http://www.tech-systems-labs.com/heath_schematic.htm) From these pages you have other links where you can find much more information also on other equipment.

I suggest to whoever needs some circuits to download them because as you know internet webpages sometimes disappear and you cannot find them again.

Lawrence

9H1AV/9H9MHR/9H79AV

## MARL Activities

### Payment of Membership

We remind you that the financial secretary is always ready to accept membership fees whenever the MARL Centre is open or if you cannot come 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 Midday.

## 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](mailto:ivan.privitera@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