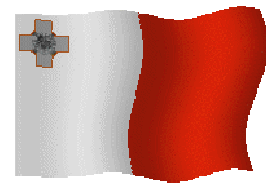


MARL



MALTA



Magazine by MARL

For Maltese and Gozitan  
Radio Amateurs

Number 17

August 2007



**Smoking is prohibited**

**Tpejjipx**  
No Smoking

**at the Centre**

### **Mill-Editor**

Friends,

I welcome you to another edition of this magazine for August 2007, which is the 17 th edition in this series and in which the magazine is being given a new look.

The first thing that we want to do is to congratulate those who were successful in the examination to acquire the radio amateur licence in the examination held on Saturday 7 July.

These are :

**Agius Joseph**  
**Aquilina Joseph**  
**Azzopardi Maria**  
**Chetcuti Matthew**  
**Debono Joseph**  
**Xerri Kenneth**  
**Zammit Mathew**

They are now doing a number of hours of practice at the MARL Centre before they are given the certificate with which they can apply for a 9H5 licence.

Five of them are also practicing the Morse code so as to be able to sit for the examination as well and if they pass, as we expect them to do because of one wants to learn s/he will succeed, they can apply for a 9H1 licence. It appears that the others will sit for the examination later.

We congratulate these new radio amateurs and hope that it won't be long before we hear them on the air.

You should know that the age of those who passed the examination is from youth to pensioners, and therefore no one should lose heart. The only criteria for success are that one becomes a MARL member, attend for lectures, and have the will to acquire the licence.

I assure you that our lecturers, that I want to thank publicly for their useful work, are capable of teaching successfully as can be witnessed by all those who passed through their hands.

Another thing that has been brought to my attention by one of our members is that there are people who do not know who are the MARL committee members. Although they are listed on our internet webpage, you will also find them on this magazine.

Here I would like to remind you that our magazine is on the internet. Therefore, if someone knows that another person does not have internet and wishes to have a copy, either print him/her one or ask the committee to print him a copy.

We publish our magazine on the internet because if we print it, even a black and white photocopy it would cost too much, especially if we send it by post to our members when everyone knows how postage costs have exploded

Apart from this, when we publish it on the internet it may be seen by everyone from everywhere, even if s/he is not a member. This may entice other people to our hobby and those from the Maltese Islands may be enticed to become MARL members.

This may also serve as a link between MARL and Maltese and Gozitrans radio amateurs who have emigrated around the world by being informed with the latest developments in our licensing condition apart from other things.

Here I would like to again bring to your attention to send me details about anything which had been done for the first time and which you did, whether it has been done for the first time in the world as well as if it has been done for the first time in the Maltese Islands so that it will remain written and known by everyone.

<b>President</b>	<b>9H1AV</b>	<b>Lawrence Galea</b>
<b>Vice-President</b>	<b>9H1ES</b>	<b>Fortunato Bonnici</b>
<b>Secretary</b>	<b>9H1PI</b>	<b>Ivan Privitera</b>
<b>Vice-Secretary</b>	<b>9H1LO</b>	<b>Stanley Gixti</b>
<b>Treasurer</b>	<b>9H1JT</b>	<b>Paul Pace</b>
<b>Vice-Treasurer</b>	<b>9H1XE</b>	<b>Edwin Pavia</b>
<b>Club Manager</b>	<b>9H1SP</b>	<b>Paul Spiteri</b>
<b>Member</b>	<b>9H1AT</b>	<b>George Debono</b>
<b>Member</b>	<b>9H1M</b>	<b>Dominic Azzopardi</b>

Here I don't want to forget to thank all those who have given me an article or information to be published on this magazine and I hope that there will be more contributions to make this magazine more interesting.

I hope that you find the information in this useful to you and if you an article please leave it in my QSL card box.

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

### **Sovereign Military Order of Malta**

Today I am going to give you a few internet webpages of the Sovereign Military Order of Malta, or as we know them the knights of Malta. This order was established in Gerusalem and recognized by Pope Pasquale II in 1113.

Official Webpage of the Order of Malta	<a href="http://www.orderofmalta.org">www.orderofmalta.org</a>
Maltese International World-Wide Relief	<a href="http://www.malteser.de">www.malteser.de</a>
Order of Malta Italian Association	<a href="http://www.acismom.it">www.acismom.it</a>
Order of Malta American Association	<a href="http://www.maltausa.org">www.maltausa.org</a>

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## **Nadur Tower**

In the last edition we brought you the correspondence that our secretary sent to MEPA on the proposed development near the Nadur Tower.

The secretary has now received a formal reply by post from MEPA.

The fact that we have made our objection means that when the objection is heard we can make our representations during the meeting.

MALTA ENVIRONMENT & PLANNING AUTHORITY  
L-AWTORITA TA' MALTA DWAR I-AMBJENT U L-IPPJANAR  
St. Francis Ravelin Floriana  
P.O. BOX 200, MARSA CPO OI, MALTA  
Tel: 2290 0000 Fax: 2290 2295 VAT No: MT 1281-6708

Website <http://www.mepa.org.mt>

Malta Amateur Radio League,  
P O Box 575  
Valletta

Date: Tuesday, 19 June, 2007  
Our Ref: PA 02r331a 7  
Your Ref:

Dear Sir/Madam,

Application Number PA 02533/07  
Location: Nadur Reservoir l/o Rabat (Malta)  
Proposal: To install antenna for telemetry system

### OBJECTION

I would like to acknowledge receipt of your correspondence dated 7/6/2007 which was received on the 18/6/2007, contents of which have been noted

We would like to inform you of the provisions of the Development Planning Act on representations as follows:

Provided that the representation was received within the statutory time frame as indicated in the local press;

You will be informed of any changes to the submitted plans during the assessment process of this application.

You are entitled to be informed of the date and time at which this case will be decided.

You have a right of appeal before the Planning Appeals Board within thirty days of receiving the notification of the decision.

Should there be a request by the applicant for the Authority or Development Control Commission to reconsider its decision, you will be notified and you may address the Authority or the Commission as the case may be.

Yours faithfully,  
A. Vella  
Mailroom Section  
for Director of Planning

We will keep you informed about any developments on this case.

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

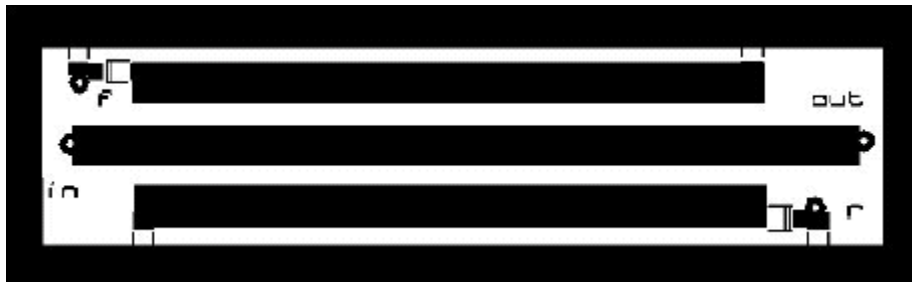
## **SWR Meter**

**By Stanley 9H1LO**

Power / SWR Pickup sensor board by 9H1LO

**NOTE.** This is not a complete SWR meter. It is a directional coupler for such a meter.

It has been tested from VHF to Microwave frequencies but not on HF. Spice Simulation shows 50 ohms impedance on HF, guarantee to its functionality.



I needed a decent SWR/Power sensor for a commercial broadcast transmitter (2Kw VHF-FM).

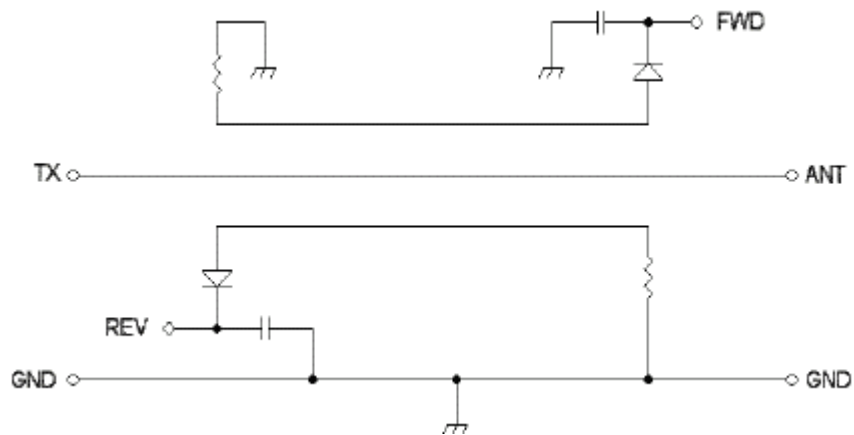
I am a believer of 'open source' and freeware designs for both hardware and software. I couldn't find any quality 'freeware' designs on the internet so I went about designing my own, and I am providing it here for free under a GNU styled licence.

A normal SWR meter wouldn't have been fit for the job as the transmitter is remotely controlled by a microprocessor. Forward and Reflected Power is displayed on an LCD and if the SWR goes high the microprocessor reduced the drive to the PA as protection. The PA status can also be viewed remotely by staff via a network connection. I will include the full details for this someday as another project

### **Here is a definition of what an SWR meter is**

The **SWR meter** or **VSWR meter** measures the standing wave ratio in a transmission line. This is an item of radio equipment used to check the quality of the match between the antenna and the transmission line.

The VSWR meter should be connected in the line as close as possible to the antenna. This is because all practical transmission lines have a certain amount of loss, causing the reflected power to be attenuated as it travels back along the cable, and producing an artificially low VSWR reading on the meter. If the meter is installed close to the antenna, then this problem is minimised.



Typical SWR meter

$$\Gamma = \frac{V_{rev}}{V_{fwd}} = \sqrt{\frac{P_{rev}}{P_{fwd}}}$$

Referring to the above diagram, the transmitter (TX) and the antenna (ANT) are connected via an internal transmission line. This main line is electromagnetically coupled to two smaller sense lines which are connected to resistors at one end, and diode rectifiers at the other.

The resistors are chosen to match the characteristic impedance of the sense lines. One sense line senses the forward wave (connected to FWD), and the other the reflected wave (connected to REV). The diodes convert these to FWD and REV DC voltages respectively, the ratio of which is used to determine the VSWR. In a passive meter, this is indicated on a non-linear meter scale.

To calculate the VSWR, first calculate the reflection coefficient.

Then calculate the VSWR:

$$VSWR = \frac{1 + \Gamma}{1 - \Gamma}$$

Note that an SWR meter does not measure the actual impedance of a load (i.e. the resistance and reactance), but only the mismatch ratio. To measure the actual impedance, an antenna analyser or other similar RF measuring device is required.

Note also that for accurate readings, the SWR meter must be matched to the line impedance, i.e. 50 or 75 ohms as applicable. To accommodate both impedances, some SWR meters have switches on the rear, to select the appropriate load resistance for the sense lines.

If a mismatch exists between the transmission line and the load, the line will act as an impedance transformer. In this case, the impedance seen at the input to the line will depend on its electrical length, although (for a lossless line) the VSWR will be the same at any point along the line.

Mismatched transmission lines are often used for impedance transformation, especially at UHF and microwave frequencies where their dimensions can be very short. For more information on this handy technique, see Smith Chart.

When not actually measuring VSWR, it is best to remove the ordinary type of passive SWR meter from the line. This is because the internal diodes of such meters can generate harmonics when transmitting, and intermodulation products when receiving. Because active VSWR meters do not usually suffer from this effect, they can normally be left in without causing such problems.

All components are 1206 SMD type. The terminating resistors are obviously 50 ohms, capacitors are 0.1µF, Diodes huma 1N5711 but any Schottky barrier type with low internal capacitance should do. The diodes may need a 1Mohm bias to ground.

Use feedthrough capacitors for the FWD u REV voltage outputs

It is optimized for FR-4 double-sided PCB of 1.6mm thickness with copper layer thickness of 70-µm.

The nominal  $\epsilon_r$  of FR-4 is 4.6

The track width is 2.88mm for 50-ohm impedance

Measured Logarithmic Characteristic Impedance

100kHz	-	2GHz	50 ohms
2GHz	-	6GHz	52 ohms
7GHz	-	10GHz	53 ohms
11GHz	-	20GHz	60 ohms

Contact me or visit my website ([www.9h1lo.net](http://www.9h1lo.net)) to obtain a high resolution PCB layout in Bitmap or Ares format.

The design is simple and can easily be adapted to use µA meters, ADC chips or a microprocessor to obtain a reading.

Should you need any help to complete a full power and swr meter feel free to contact me.

73 Stanley 9H1LO.

**Disclaimer: I Stanley Gixti 9H1LO am not responsible for any damage resulting in any knowledge acquired by this article. If in doubt about anything, ask someone qualified to help. Using or following any content contained within may cause equipment or bodily harm.**

**CONSIDER YOURSELF WARNED.**

Blank space due to translation differences between Maltese and English text

## **9H0PV**

To whom does **9H0PV** belong? This was a special callsign that was used by MARL between 6 May and 12 May 2001 during Pope John Paul II visit to Malta.

MARL had issued a special certificate as well for this occasion. Whoever had managed to acquire this certificate at the time was fortunate, because it cannot be acquired now, unless MARL does something for some anniversary.

For those who are interested in history, this certificate could be acquired by talking to a number of 9H stations. Every 9H station was worth 1 point while 9H0PV was worth 5 points. Contacts could be made on any frequency used by Maltese radio amateurs and on all modes of transmission.

All that was required to acquire this certificate were 10 points, a letter of application, a copy of the log showing the contacts with 9H stations, a payment of \$5 that had to be sent to MARL at the postal address.

Since we have mentioned the postal address, MARL's postal address is,

MARL  
P.O.Box 575  
Valletta. CMR 01  
Repubblika ta' Malta

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

## **9H100S**

**9H100S** was the callsign used by MARL for operation from the Floriana granaries on the occasion of the 100<sup>th</sup> anniversary of the establishment of the Scouts movement.

This operation was held between 31 July and 1 August and MARL had stations on HF, VHF and UHF, as well as a vintage station brought and operated by Fortunato, 9H1ES.

A number of radio amateurs took part in this operation which was a success.

The Scouts have been in Malta for 99 years from their establishment, and therefore they were established only one year after being set up by Baden Powell. This means that next year they will have been established for 100 years, and it is expected that this occasion will be well celebrated and MARL will also take part.

Therefore, whoever wants to take part next year should notify MARL so that we will have everything well planned in advance.

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

These were the prefixes that were worked by the operators using **9H100S** from the Floriana Granaries on the occasion of the 100 anniversary of the boy scouts movement.

<b>9A</b>	<b>Croatia</b>
<b>9H</b>	<b>Malta</b>
<b>DA-DL</b>	<b>Federal Republic of Germany</b>
<b>EA-EH</b>	<b>Spain</b>
<b>EA6-EH6</b>	<b>Balearic Islands</b>



ES	Estonia
F	France
G, GX	England
HA, HG	Hungary
HB	Switzerland
HB0	Liechtenstein
HJ-HK	Colombia
HQ-HR	Honduras
HZ	Saudi Arabia
I	Italy
IS, IM	Sardegna
K, W, N, AA-AK	USA
KP2	Virgin Islands
OE	Austria
OF-OI	Finland
OK-OL	Czech Republic
ON-OT	Belgium
OZ	Denmark
PA-PI	Netherlanfs
S5	Slovenia
SA-SM	Sweden
SN-SR	Poland
UA-UI1, 3, 4, 6	European Russia
UN-UQ	Kazakstan
UR-UZ, EM-EO	Ukraine
VE, VO, VY	Canada
XA-XI	Mexico
YL	Latvia
YT-YU, YZ	Serbia

These are all the contacts made by **9H100S** on all frequencies

Propagation Type: All Mode: All Modes

From 31/07/2007 to 01/08/2007

Date	Time	Call Sign	Locator	Tx	Rx	Freq.	Mode	Remarks	QRB
31/07/2007	12:19	SM4XFP	JO79UD	599	579	20 m.	PSK3		2581
31/07/2007	12:48	PA1BDW		599		20 m	CW		1974+-
31/07/2007	12:50	OH3GZ	KP2ØLD	59	55	20 m	CW		2794
31/07/2007	12:51	SN1ØØS		59	59	20 m	SSB		2033+-
31/07/2007	12:52	DLØROI/P	JO31KO	59	56	20 m	SSB		1842
31/07/2007	12:55	ON4CFU	JO2Ø	59	59	20 m	SSB		1788+-
31/07/2007	12:56	PA1BDO	JO21FT	59	58	20 m	SSB		1934
31/07/2007	12:57	PA3ATK		59	59	20 m	SSB		1974+-
31/07/2007	12:59	GB4SBS		55	57	20 m	SSB		2083+-
31/07/2007	13:01	DK9CR	JN68EK	55		20 m	SSB		1400
31/07/2007	13:03	OZØLR		59		20 m	SSB		2205+-
31/07/2007	13:04	DHØJAE		59	59	20 m	SSB		1746+-
31/07/2007	13:22	EA6/PE2AAB		59	59	20 m	SSB		1114+-
31/07/2007	13:32	ON4TJO		59	59	20 m	SSB		1843+-
31/07/2007	13:35	GB1ØØBI		59	53	20 m	SSB		2083+-
31/07/2007	13:37	OP4L		59		20 m	SSB		1843+-
31/07/2007	13:40	9H1VC/P		59		20 m	SSB	James	14+-
31/07/2007	14:10	PD2EZ	JO32EA	59		20 m	SSB		1898
31/07/2007	14:52	HAØDD		599	599	30 m	CW		1342+-

31/07/2007 14:53 OK1CAM	JN69SP	599	30 m	CW		1526
31/07/2007 14:53 EA2BEF		599	30 m	CW		1693+-
31/07/2007 15:01 YU1NW	KNØ4	599	30 m	CW		1105+-
31/07/2007 15:06 PAØRLF		599	30 m	CW		1974+-
31/07/2007 15:10 9H1VC	JM75GV	599	20 m	SSB	James	9
31/07/2007 15:22 UR7GO	KN66HP	599	30 m	CW		1921
31/07/2007 15:33 S59ZZ		599	30 m	CW		1130+-
31/07/2007 15:40 PA5O	JO21RX	59	20 m	SSB		1920
31/07/2007 15:41 IW6ABO		59	20 m	SSB		641+-
31/07/2007 15:42 W1CU		59	20 m	SSB		7098+-
31/07/2007 15:42 IV3YVU		59	20 m	SSB		1081+-
31/07/2007 15:44 UN7TW		59	20 m	SSB		4863+-
31/07/2007 15:44 EA3OD		59	20 m	SSB		1224+-
31/07/2007 15:44 IV3KVC		59	20 m	SSB		1081+-
31/07/2007 15:45 HZ1GW		59	20 m	SSB	Ken	3335+-
31/07/2007 15:45 UN7MMM		59	20 m	SSB		3371+-
31/07/2007 15:46 I4DVT		59	20 m	SSB		987+-
31/07/2007 15:47 SMNXS		59	20 m	SSB		2620+-
31/07/2007 15:47 S53QD		59	20 m	SSB		1130+-
31/07/2007 15:48 EA5EHY		59	20 m	SSB		1347+-
31/07/2007 15:49 I4CZC		59	20 m	SSB		0
31/07/2007 15:49 N5QK		59	20 m	SSB		9552+-
31/07/2007 15:50 GB6RH		59	20 m	SSB		2083+-
31/07/2007 15:57 I4CZC		59	20 m	SSB		0
31/07/2007 15:57 N5QK		59	20 m	SSB		9552+-
31/07/2007 15:58 S51NT	JN75	59	20 m	SSB		1066+-
31/07/2007 15:58 IW5BT	JN53JX	59	20 m	SSB		947
31/07/2007 15:58 G3ØCA		59	20 m	SSB		2083+-
31/07/2007 15:58 IZØFRN		59	20 m	SSB		641+-
31/07/2007 16:01 IZ2JPN		59	20 m	SSB		641+-
31/07/2007 16:01 UA3IF		59	20 m	SSB		2824+-
31/07/2007 16:03 SP9AI	JN99MT	59	20 m	SSB		1586
31/07/2007 16:05 ES1IP		59	20 m	SSB		2715+-
31/07/2007 16:07 I1UUR		59	20 m	SSB		1163+-
31/07/2007 16:08 IK4ADE	JN54OE	59	20 m	SSB		958
31/07/2007 16:09 I4UWM		59	20 m	SSB		987+-
31/07/2007 16:09 DR4G		59	20 m	SSB		1746+-
31/07/2007 16:10 OK1GW	JO7ØAJ	59	20 m	SSB		1608
31/07/2007 16:13 DJØG5		59	20 m	SSB		1746+-
31/07/2007 16:15 I5CAP		59	20 m	SSB		912+-
31/07/2007 16:15 9H4DX	JM76DA	59	20 m	SSB		18
31/07/2007 16:19 OK2KR	JN89GM	59	20 m	SSB		1519
31/07/2007 16:21 IK3ZGB		59	20 m	SSB		641+-
31/07/2007 16:31 GB1ØØJ/SV1FJ		59	20 m	SSB		2083+-
31/07/2007 17:08 IR4OS		59	20 m	SSB		641+-
31/07/2007 17:15 IZ5HQB		59	20 m	SSB		641+-
31/07/2007 17:18 IK2IWU	JN54BA	59	20 m	SSB		971
31/07/2007 17:20 RZ3DSD		59	20 m	SSB		2786+-
31/07/2007 17:23 DF1IAQ	JN49LF	59	20 m	SSB		1543
31/07/2007 17:25 IK1WGX	JN35TB	59	20 m	SSB		1166
31/07/2007 17:45 9A2AA	JN85AT	59	20 m	SSB		1106
31/07/2007 18:43 9H1GP	JM75FV	59	20 m	SSB	Mark	5
31/07/2007 18:44 9H1LE		59	20 m	SSB		9+-
31/07/2007 18:44 EA3CEC	IN8ØDJ	59	20 m	SSB		1660
31/07/2007 18:46 HB9DPZ	JO31VQ	59	20 m	SSB		1829

31/07/2007 18:51	YL2GP	O26BW	59	20 m	SSB	2443
31/07/2007 18:53	SA3ANZ		59	20 m	SSB	3025+-
31/07/2007 19:05	RW1CW		59	20 m	SSB	2957+-
31/07/2007 19:06	ISØAFM		59	20 m	SSB	598+-
31/07/2007 19:06	RU6YY	LNØ4BH	59	20 m	SSB	2359
31/07/2007 20:05	HB1ØØJAM		59	70 cm	FM	via echolink 9h1ra repeater 1353+-
31/07/2007 20:12	EA1CYG		59	59	20 m	SSB 1867+-
31/07/2007 20:15	EA1CYG		59		20 m	SSB 1867+-
31/07/2007 20:16	EA5UF		59	59	20 m	SSB 1347+-
31/07/2007 22:57	HR2DMR		59		20 m	SSB 10102+-
31/07/2007 22:59	HBØ/PC5A		59		20 m	SSB 1315+-
31/07/2007 23:04	YT1AA		59		20 m	SSB 1112+-
31/07/2007 23:07	PDØEMR	JO21HM	59		40 m	SSB 1900
31/07/2007 23:09	OH2CP		59		40 m	SSB 2798+-
31/07/2007 23:24	IK6IOK		59		40 m	SSB 641+-
31/07/2007 23:40	VE6WSJ		59	70 cm	FM	Echolink 8944+-
31/07/2007 23:59	HK3W		59		20 m	SSB 9562+-
01/08/2007 00:01	HK3W		59		40 m	SSB 9562+-
01/08/2007 00:28	K4NV		59		20 m	SSB 8573+-
01/08/2007 02:54	KP2/AA1BU	FK78	59		40 m	SSB 7880+-
01/08/2007 03:50	XE2S	DL49	559		20 m	CW 10765+-
01/08/2007 04:14	OZ1CJS		559		40 m	SSB 2205+-
01/08/2007 04:18	OO5G		559		40 m	SSB 1843+-
01/08/2007 04:39	HB9TVF		59		40 m	SSB 1353+-
01/08/2007 04:45	EA5EOR		59		40 m	SSB 1347+-
01/08/2007 04:47	S57ET		59		40 m	SSB 1130+-
01/08/2007 04:51	OE8SPW	JN76LV	59		40 m	SSB 1219
01/08/2007 05:26	I5REA	JN62	59		40 m	SSB 742+-
01/08/2007 05:28	EA4GL	IN8Ø	59		40 m	SSB 1601+-
01/08/2007 05:31	EA1RP		59		40 m	SSB 1867+-
01/08/2007 05:34	F6CFT		59		40 m	SSB 1744+-
01/08/2007 05:35	F6CBT		59		40 m	SSB 1744+-
01/08/2007 05:37	DK7FK		59		40 m	SSB 1626+-
01/08/2007 05:38	DG7DBN	JO31OJ	59		40 m	SSB 1812
01/08/2007 05:40	IW2IWU		59		40 m	SSB 641+-
01/08/2007 05:41	DL6FBH		59		40 m	SSB 1746+-
01/08/2007 05:44	Z1BJ		59		40 m	SSB 0
01/08/2007 05:44	EA3IM		59		40 m	SSB 1224+-
01/08/2007 05:46	DF9VH		59		40 m	SSB 1746+-

Numru ta' QSOs: 113

**9H1PI Ivan**

## **9H1M Article**

We are sorry that Dominic's 9H1M article about Electricity did not arrive because he had to leave Malta a number of times.

He's expected to give us his article in the near future.

**Lawrence**

**9H1AV / 9H9MHR**

**Photos of 9H100S Floriana Granaries 31.07.2007 – 01.08.2007**



**HF + VHF      VHF + UHF**



**HF + VHF**



**9H1EI Raymond standing      9H5AJ**



**Call signs next issue**



**9H1CS      9H1RA Raymond**



**9H1PI Ivan looking back**



**9H1ES vintage equip 9H1VW Joseph**



**Floriana granaries Saint Publius Church**