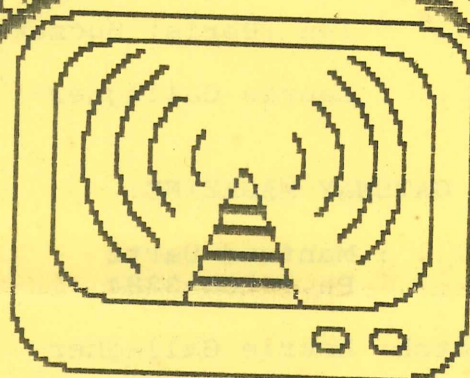
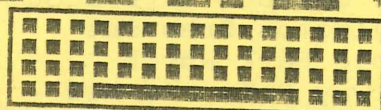


# GATEWAY



## GGREC



THE OFFICIAL JOURNAL OF  
THE GIPPSLAND GATE RADIO  
AND ELECTRONICS CLUB

NOV. 1988

GIPPSLAND GATE RADIO & ELECTRONICS CLUB INC.

COMMITTEE MEMBERS 1988/89

President .....	: Kerry Clayton	VK3KFC
Secretary .....	: Andy Beales	VK3KCS
Treasurer .....	: Dave Campbell	VK3XMF
Member .....	: Ian (Boris) Buczak	VK3KGB
Member .....	: Laurie Gallagher	VK3KLG

GATEWAY MAGAZINE:

Editor .....	: Manfred Bartz	VK3JMB
	Ph.: 700-3384	
Print & Despatch:	Laurie Gallagher	VK3KLG

Club meetings held at:

1st Oakwood Park Scout Hall  
Heyington Crescent  
Noble Park North  
Melway Ref.: 81-A12

The club meeting is on the 3rd Friday of the month commencing at 20:00 EST.

Club Station: VK3BJA located at Scout Hall

Postal Address: P.O.Box 98  
Dandenong 3175

Membership see inside back cover.

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ALL VISITORS WELCOME

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## Presidents Report

Last month I spoke about winding things down for the year but please don't stall completely. We have a social night on December 2nd. It will probably be at somebodys house. Also don't forget about the Xmas party on Saturday December 10th at John Hemmings Park, Dandenong starting at 12:00 noon. There are electric BBQs under cover with toilet facilities nearby and plenty of area for the kids to play.

Last meeting Tony VK3ZMP was finally presented with his 1987/88 Home Brew Award. Well done Tony!

This month magazine is being edited by Manfred VK3JMB and assisted by Laurie VK3KLG. Many thanks to Ian VK3BUF for such a great job over the years with the magazine.

Once again - any magazine articles about? Any ideas for social outings? If so let a committee member know about it.

73,

Kerry VK3KFC

## Editorial

This months GATEWAY is the first produced by Manfred VK3JMB and Laurie VK3KLG. The previous editor/producer was Ian VK3BUF. Ian has done this job extremely well over many years and keeping up the high standard in the future will not be an easy task; this is illustrated by the fact that it now takes two people to edit and produce GATEWAY.

There have been a few small changes to this issue, but in the future we will have to re-think all aspects of the magazine. This is mostly necessary because the new team will rely on different facilities (e.g. photocopier, stapler, ...) to produce GATEWAY. Some of the changes considered are:

- Change of format from A5 to A4.
- No separate mailing cover, back of magazine will carry address label and stamp.

If you have any suggestions or objections, please let us know.

We have some CURRENTLY UNFINANCIAL (ex-)members. To avoid embarrassment this fact is not openly advertised on the mailing label but given as an expiry date in the top right corner. If your label reads "0488" then your chances of receiving the next issue of GATEWAY are not very good. You can of course ensure your place in this exclusive organization by forwarding your subscription to our treasurer Dave VK3XMF.

GATEWAY is a forum for all club members - so don't just read it, write something interesting, use it for advertising or just supply some photocopies of articles you found somewhere else. We are also interested in up-coming events for inclusion in the "Event Queue".

## VK3RDD 6m Repeater

The repeater has been demonstrated at the last club meeting and works very well. It is currently at Albert's (VK3BQO) place where a more sophisticated controller is being fitted.

## Ballarat Ham-fest 30.10.1988

Several GGREC members were at the convention. The number of visiting amateurs must have been in the hundreds. The convention was well organized and those who wanted to stay over lunch, could get a meal there. The only negative point was the lack of alternative activities for the families of attending amateurs.

## Social Night

The Social night on Sat, November 5th was held at Olympic Bowl in Dandenong. Attendance was good with about ten club members and their families attending. The highest score recorded was 143 by Albert VK3BQO - but then he is almost a professional, brought even his own bowling-ball. Next highest scores were 134 by Ian VK3BUF (his personal best) and 132 by Kerry VK3KFC.

After bowling we retired to Roland's house for a cup of coffee and cake. Thanks for having us - Leanne and Roland!

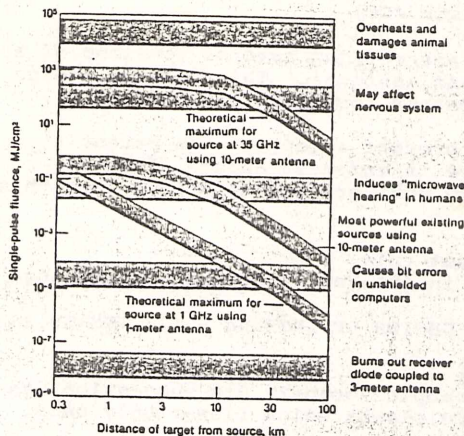
## High Power Microwaves

Microwaves can now be generated with such high powers that both the USA and the Soviet Union are weighing their military potential. High Power Microwaves (HPM) may be used to jam or burn out the electronic hardware upon which military hardware rely. Research also suggests ways in which beams might harm or temporarily disable troops (They don't stop until we all glow in the dark! Ed.).

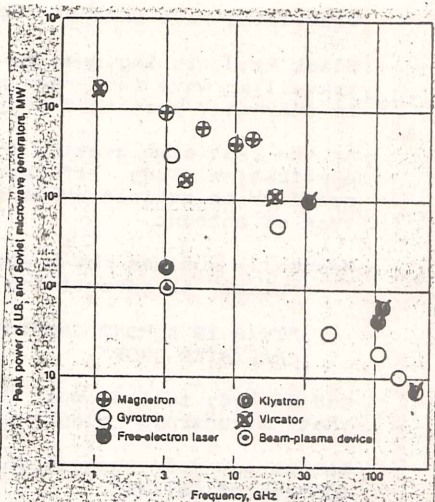
Many varieties of microwave sources exist. HPM generators include the well known magnetron and klystron as well as newer devices such as the vircator, gyrotron, free-electron laser, and beam-plasma generator. The basic components of HPM generators are a power supply, an electron beam generator, a cavity in which microwaves are generated and a means for extracting and directing the energy.

A mayor challenge is the development of power supplies which are small and light enough for mobile or airborne application. For single pulse HPM weapons, such as a microwave missile, an explosive magnetic-flux compressor could be used. In this device, energy from a capacitor charges an inductor, which is then compressed by detonating explosives. To conserve magnetic flux in the collapsing inductor, the inductor current increases as its area and inductance decrease. This results in a pulse of current in the inductor that is larger than the charging current by the ratio of its initial to its final cross-sectional area.





The fluence of a 1-microsecond pulse decreases with increasing distance from the source because of diffraction and attenuation. Two theoretical sources, whose peak powers are limited by the dielectric strength of air, are depicted. The capability of the most powerful existing laboratory sources is also shown, assuming that they were fitted with large antennas. The horizontal bars represent estimated fluence thresholds for effects on electronic systems and humans.



The frontier of high peak-power generation of microwaves in the United States and the Soviet Union shows power decreasing with rising frequencies. Klystrons and beam-plasma devices lag behind the other four laboratory generators. Source: Derived in part from Victor Granatstein, International Journal of Electronics

### Human vulnerability to HPM

The most familiar biological effect of microwaves is that they heat tissue. Microwave induced changes in brain temperature of only a few degrees have been shown to cause convulsions, unconsciousness and amnesia in rats. The power density required to produce similar results in people is 10 to 50 mW per cm<sup>2</sup> at frequencies below 10 GHz.

Microwave pulses too weak to heat animal tissue can still affect it. HPM pulses can temporarily disrupt the potential difference maintained across all cell membranes. The effect of such pulses on humans is unknown.

Another effect of pulses too weak to heat tissue is "microwave hearing". When tissue in the head absorbs a microwave pulse, it expands slightly but rapidly, generating an acoustic wave that is picked up by the inner ear. The threshold for microwave hearing is a single pulse fluence of 0.04 mJ/cm<sup>2</sup>. Conceivably, much stronger pulses could impair hearing or perhaps damage tissue.

Troops might be shielded from microwaves by the reflecting suits already used by technicians for work in high fluence environments. Those suits can attenuate microwaves by as much as 49 dB.

(Extracted by VK3JMB from IEEE Spectrum, March 1988, "The future battlefield: a blast of gigawatts?")

## Travelling wave antenna (Black 4CC)

Black Products Engineering are selling several versions of a travelling wave (non-resonant) antenna. This antenna design is currently protected by patent abridgment AU-B-33603/84.

At the last club meeting I brought a copy of the patent application along. If there is interest enough, I shall consider an article about my further investigations into this type of antenna.

Meanwhile you can think about this:

"Black" is advertising in ARA Vol 11 No 4 the following:

"THIS IS A MONO CARPIC DESIGN OF ANTENNA - THE ENERGY IS RADIATED ONCE".

Can anybody tell me what "carpic" means? One suggestion was that "monocarpic" plants are plants which flower only once.

Let us now your suggestions and ensure your place in the next edition of GATEWAY !

Manfred VK3JMB

## Event Queue:

### 1988:

Thu, Nov 17.	20:00	Clubnet, controlled by VK3BZA
Fri, Nov 18.	20:00	Club Meeting
Thu, Nov 24.	20:00	Clubnet, controlled by VK3KMN
Thu, Dec 1.	20:00	Clubnet, controlled by VK3KFC
Fri, Dec 2.	20:00	Social night, location t.b.a.
Thu, Dec 8.	20:00	Clubnet, controlled by VK3CJJ
Sat, Dec 10.	12:00	XMAS BBQ, John Hemmings Park, Dandenong, Melway 90-C6.
Thu, Dec 15.	20:00	Clubnet, controlled by VK3XRO
Thu, Dec 22.	20:00	Clubnet, controlled by VK3KLG
Thu, Dec 29.	20:00	Clubnet, controlled by VK3BQO

### 1989:

Thu, Jan 5.	20:00	Clubnet, controlled by VK3JMB
Thu, Jan 12.	20:00	Clubnet, controlled by VK3YB
Thu, Jan 19.	20:00	Clubnet, controlled by VK3BZA
Fri, Jan 20.	20:00	Club Meeting
Thu, Jan 26.	20:00	Clubnet, controlled by VK3KMN
Thu, Feb 2.	20:00	Clubnet, controlled by VK3KFC
Thu, Feb 9.	20:00	Clubnet, controlled by VK3CJJ
Thu, Feb 16.	20:00	Clubnet, controlled by VK3XRO
Fri, Feb 17.	20:00	Club Meeting

Note: The clubnet controllers have been assigned as a continuation of the initial roster of Feb. 1988. This may have to be revised.





GIPPSLAND GATE RADIO AND ELECTRONICS CLUB - MEMBERSHIP FORM

NAME: \_\_\_\_\_ CALLSIGN: (IF ANY) \_\_\_\_\_

ADDRESS: \_\_\_\_\_ POSTCODE: \_\_\_\_\_

PHONE NO.: \_\_\_\_\_ TODAYS DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_

MEMBER TYPE:

REGULAR MEMBERSHIP: ☐ (\$15.00)

PENSIONER MEMBERSHIP: ☐ (\$6.00)

STUDENT MEMBERSHIP: ☐ (\$6.00)

PICK A BOX....

To become a member of this exclusive institution simply fill out this form, track down Dave VK3XMF (our Treasurer) and give him this form along with your subscription fee. Alternatively you can post it to the Club address of P.O.BOX 98 Dandenong 3175.

