

HAMS

Keywite

March 2011 NEWS

www.marc.org.za

PO Box 1076, Hilton, 3245

M I D L A N D S A M A T E U R R A D I O C L U B



AFFILIATED TO
THE SARL & IN
ASSOCIATION
WITH THE NATAL
CARBINEERS

The Chairman's Report

CLUB COMMITTEE 2010-2011

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DISASTER MANAGEMENT

Des Mullen ZU5DM
082 496 9573

Club House Manager

Gavin Claasen ZR5GAV
076 305 9644

We had a great monthly meeting in March, despite that it was held on a long weekend. Current issues such as repeater maintenance were discussed, and a work party was decided on for World's View on Saturday, 2 April. The work party went well. The grass was cut, the fence was repaired and the building was pressure cleaned in preparation for painting at the next work party. Our repeater network is being attended to - Estcourt is working well again. Thanks to Evert for repairing and returning the repeater. Gilboa went off air for a few days. The high site suffered a direct hit and Eskom had to effect some repairs. We also lost power supplies on the repeater, but managed to replace these. Luckily no radios were damaged. We are sourcing a 1:1 isolation transformer for this site - hopefully it will offer more protection.

The Greytown link radio will be attended to soon - I removed the repeater after we were finished at Gilboa, replacing the blown power supplies. We are expecting the Hamnet Windy Hill repeater back shortly, which went in for a checkup to determine what caused it to open up with approaching storms. Not much was found wrong and I'm led to believe that they have tone guarded it to prevent this from happening again - will wait and see how it functions when it is back in service.

Last month's storms kept me busy at work. Hopefully none of you suffered any lightning damage. I attended to two houses which had close lightning strikes, and both had the normal lightning protection offered for telephones and surge arresters on their plug points and they use UPSes on their computers. In spite of these, they lost their computers, printers, tvs, sound systems, 2-way radios and alarms, to mention but a few. There is not much which can be done with close lightning strikes like these.

Refurbishment at our shack at the Carbineers is slow and we cannot be given time scales either, as all the repairs are being done as funds become available. The shack has been readied for this work, and is unusable until the work is completed. I must say though that the base is looking a lot better, as they are tending to their gardens and lawns again, and everything is neat and tidy.

Unfortunately items have been stolen from the officer's mess, including some valuable medals. As such they are clamping down on who has access to their facilities. They initially did not want us to use the facilities on Sundays anymore unless one of their staff members can be at hand, but this has been sorted for the time being. Des has organised that we could be accommodated at Rural Metro in their lecture room should the need arise in future. Thanks Des for organising this.

There has been a lot of dissatisfaction voiced concerning the new radio regulations which were released by ICASA on 1 April. Unfortunately they are full of mistakes and are incomplete - I will discuss this later on in this newsletter.

Happy reading, and hope to see you all on 16 April at our next club meeting

73, Mike ZS5ML

Diary of Events

7 April SARL 80 m QSO Party, 17:0 to 20:0 UTC.
15-16 April SARL National Convention at Vaal University for Technology.
16 April MARC monthly club meeting at 11h00
7 May RTA in Cape Town.
18 June Programming in Windows course in Gauteng. Book at www.sarl.org.za.

Ham Bulletin Readers

10 April - ZS5V
17 April - ZS5ML
24 April - ZS5AZ
1 May - ZS5SF
8 May - ZS5V
15 May - ZS5ML
22 May - ZS5AZ
29 May - ZS5SF

The M.A.R.C. Infrastructure

Voice Repeaters (FM)

Visit www.marc.org.za/pages/freq.htm for updates of this list

VHF	Tx	Rx	Equipment
Hilton	145.6625MHz CTSS 88.5	145.0625 MHz	SCR200 20W, Diamond X-200 rx and tx
Estcourt	145.700 MHz	145.100 MHz	Emcom SA256 25W, Diamond X-200 rx
Franklin	145.725 MHz	145.125 MHz	GE MVP 10W
Worlds View	145.750 MHz CTSS 88.5	145.150 MHz	Emcom SA256 25W, Diamond X-200 rx and tx
Greytown	145.775 MHz	145.175 MHz	Home Brew @ 20w, Diamond X-200 rx and tx
Underberg	145.7875MHz CTSS 88.5	145.1875MHz	Q8000 30W
Windy Hill	145.700MHz	145.100MHz	Hamnet repeater.
UHF			
Mt Gilboa	439.225 MHz	431.625 MHz	Vertex Standard VXR-9000, Diamond X-200 rx and tx
Zwartberg	438.775 MHz CTSS 110.9	431.175 MHz	GE MVP 15W

APRS

The national APRS frequency is 144.800 MHz (Tx & Rx). The I-Gate is at Hilton (ZR5S). Fixed stations should beacon at approximately 30min intervals with a path of WIDE5-5. Mobile stations should beacon at approximately 1min intervals with a path of "WIDE1-1, WIDE5-5". We have aprs digi's throughout KZN. A PBBS (mailbox) is on ZS0PMB-1 for emergency use. A KA-NODE is on ZS0PMB-7

Packet Radio

No packet radio frequency. However, limited packet radio facilities are available on 144.800MHz

ECHO-LINK "voip"

Our node number is 244279 Call Sign ZS5PMB. This Echo-link facility is available on the Midlands linked Repeater network.

E-QSO "voip"

We are in the "101ENGLISH" virtual room, on the "repeater.dns2go.com" server. This is linked to RF at Hilton on 433.000 MHz simplex. Temporarily on 145.450MHz

BEACON

Greytown 50.321 MHz (Tx) ZS5SIX FSK (Not active at the moment)

Banking Details

Account Name: Midlands Amateur Radio Club
Account type : Cheque
Bank: First National Bank
Acc #: 62057756507
Branch: Bank St
Branch Code: 220825

WEB SITES

MARC'S very own website www.marc.org.za
SARL's website www.sarl.org.za
HAMNET website www.hamnetkzn.org.za

Regular Events

The KwaZulu Natal Net (Early Birds):

Starts at 06h00 on 7.055 MHz. in winter and 3.650MHz in summer and continues until 07h40. Colin ZS5CF hosts the net from 06h00 & Gary Potgieter (ZS5NK)-takes over later on.

MARC Sunday Morning Net:

Times: 07h45. Club bulletin is presented at 08h0.

Frequencies: VHF: 145.750MHz, 145.6625MHz, 145.775MHz, 145.700MHz
UHF: 439.225MHz
HF : 7.090MHz

Hamnet Bulletins: Sundays at 07h00 on 145.625MHz and 3.760MHz
Wednesdays at 19h30 on 145.625MHz

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A ONE ELEMENT V BEAM FOR 15 METERS, by KB4XJ



"I refer to this as my ONE ELEMENT BEAM, It's a horizontal Vee!"

IT OUTPERFORMED 2 ELEMENT BEAMS WE HAD ON 10 METERS AND 20 METERS IN LAST YEAR'S FIELD DAY! IT HAS GAIN IN A SINGLE ELEMENT DESIGN! THE db GAIN, IF FIGURED BY THE BOOK, IS 3db OVER A DIPOLE!.....DARRELL REF 1

In log-periodic dipoles, it was found that forward tilt increased gain by 3 to 4 db over a regular log dipole. REF2 Horizontal V Antenna for 15 Meters "The HORIZONTAL V ANTENNA FOR 15 METERS"

This often leads to the question of what is a Beam Antenna. In it smallest of states, the Horizontal Vee, must be one of the least researched or understood antennas. After stumbling on misleading data one would think the antenna to be a dud, that efforts to make such a antenna would be a waste of time.....This is far from the case.....read on.....DARRELL.

A ONE ELEMENT "BEAM" FOR 15 METERS

CONSTRUCTION DETAILS

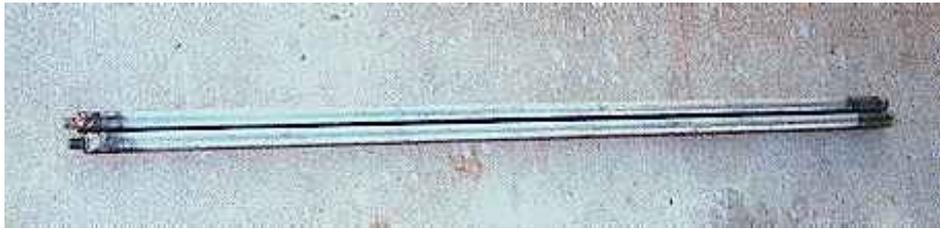
In log-periodic dipoles it was found that forward tilt increased gain by a 3 to 4 db over a regular log dipole. Ref 2. A little history, 3 years ago, I was using a rotatable dipole for 15 Meters and had good results but wanted something better. This dipole was built with a DAK dipole mount and used 36 inch extenders with 6 foot 10 7/8 inch fiberglass CB whip antennas. This worked well, but I wanted something a little better. I spent more time reading about antennas and got interested in the Horizontal V antenna and found that the basic V starts at 1/4 wave with a 90 degree angle. Ref 1

Time to build and test my acquired knowledge. The center of the antenna started life as 2 mirror mount CB antenna mounting brackets,

Coax connection and mount shown in the picture, the first piece was flat on both sides of 90 degree angle and a second 5/8 inch hole was added an equal distance on the other side.

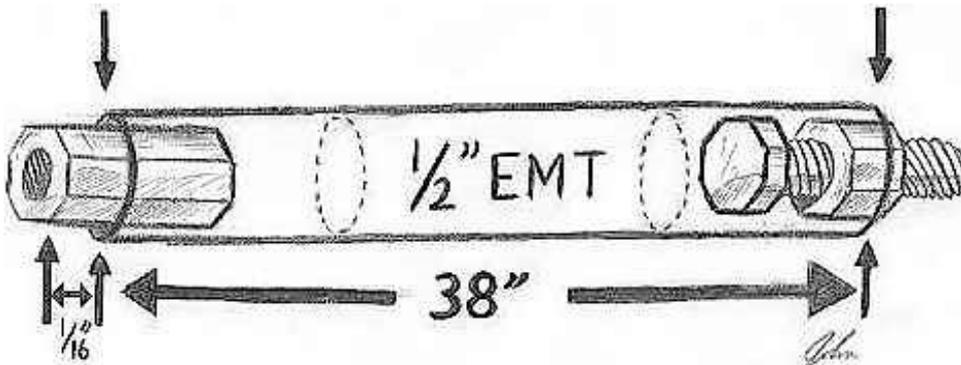
The second mirror mount is heli-arc'd to the first piece, with the top piece horizontal and the bottom piece vertical with the pole mount going down. (See picture above) Welding was done at a local welding shop for a \$5 bill.

Now I use the insulated CB 3/8 by 24 antenna mounting kits. You can pick these up at Radio Shack but get 2 and get the ones with bolts and stay away from the flimsy screws. The kits come with 2 bolts, 2 long nuts, and the plastic insulators. Use one kit per 5/8 hole on top, going from back to front (bolt, insulator, thru antenna bracket, insulator, long nut). Also while at Radio Shack pickup a couple of heavy duty terminal ends for the end of your coax. The coax is done in a pigtail fashion and connected on the bolt side of the antenna insulator hole 3/8 dia with at least a #10 wire connector for your terminal ends.



Extender Elements

My elements consist of two 6 foot 10 7/8 inch fiberglass CB whip antennas with 38 inch extenders.(See picture above) and note that the original dipole used 36 inch but do to the induction between the elements, the resonant frequency raised to 21.350 MHZ. The 38 inch extenders lower the frequency to 21.250 with a 1 to 1 SWR. I operated field day on 21.205 and only got chased off frequency twice and came back and retook the frequency, minutes later.



Extender drawing above by John Butler, Planet Productions Dallas, Texas

The extenders were made from 1/2 inch EMT tubing. On one end a 3/8 by 24 long nut is inserted leaving 1/16 inch exposed for soldering. Soldering was done with a 5% silver solder. On the other end a 3/8 by 24 bolt, 1 1/2 inch long, with a 3/8 by 24 nut attached

to leave 1/2 inch of threads exposed was inserted in the other end leaving 1/16 of the nut exposed and the 1/2 inch of threads.

The nut is soldered on the exposed 1/16 inch of nut, take care not to weld on the exposed 1/2 of treads. Arrows in drawing indicate weld points. Two of these must be made.

Final Assembly and Performance!

The final assembly starts at the center antenna mount. (See Picture to the right)

Connect coax pigtail on bolt side of antenna center insulators, connect treaded side extender to center, connect whip to extender and repeat for the other side.



The entire 15 Meter antenna weights around 6 pounds and was used on a 20 foot tower with an 18 inch truck wheel for a base, no guy wires were used and it withstood a 30 mile per hour wind when a thunderstorm hit just after setup for field day 2001. It has performed better than I could ever have imagined. I learned what it was like to be in a pileup and have fun, we even worked DX and had 49 of 50 states in the 24 hour period! We had directivity, and rotating from NE to NW we lost the DX, but started working the Western States. I figure the gain over a vertical at around 6 db, and a walk around the Horizontal V with a field strength meter, (see diagram below), was enough to tell me that this antenna will perform. A fellow ham came by, Gordon Blausner, and I let Gordon walk around with the field strength meter and he walked away amazed with how good the antenna performed with 10 watts running to it. He got one of the prototype centers and was vowing to try using 2 hamsticks on his V.

I also have to get Spencer Whitmire, W4ERC's report on how another prototype center is being tested on 6 Meter with just a couple of stainless steel whips cut down to around 52 inches that will work on the Magic Band. The center antenna mount could be made with a 6 or 8 inch long piece of aluminum angle 2 inch by 2 inch and 1/4 inch thick. This should give plenty of space for the mast clamp. Naysayers may say that the aluminum mast affected the radiation pattern but it worked for the good of the antenna.

Using the 36 inch & 38 inch extenders together with the whips puts the antenna on 17 Meters. Previous experiments with a different length whip on the 36 inch extenders enabled operation on 12 Meters.

I lost this bit of research and suppose that with adjustable extenders, (which I haven't designed yet), would do the trick of getting multi-band coverage, but below 20 Meters the antenna would lose the ability of 1 man erection. Remember this antenna is directive and is rotated when used in the field and is done by the arm strong method, and if guyed, use guy wires on a slip ring.

FOOTNOTES ADDED BY DARREL..... KB4XJ



*Antenna shown broken down for field day.
Notice truck wheel used for base*

The dipole formula of $468/\text{freq}$ will work but, an extra 2 inches must be added to the final result. The induction between the elements changes the resonant frequency of the antenna, and with a dipole cut for 21.250 Mhz (SWR 1:!) when folded into the V shape, the induction of the elements moves the frequency UP to 21.350 Mhz (SWR 1:1). The Basic principle of the V antenna, when dealing with the rf radiation lobes are that the lobes in the bisector of the V tend to add and the other lobes tend to cancel.

I'm President of the Local Ham Radio Club, and the chairman of the upcoming Field Day 2002. My 20 Meter operator has vowed revenge for the beating he got in last years Field Day from the One Element Beam and has stated that he's going to give me a run for the money and has bought a NEW antenna which will replace his 2 element butterfly beam.

I accepted his challenge and told him I would be using my V and that I wanted his competition AND that I wasn't going to roll over and give up just because he got a new antenna.

The proto-type 6 Meter Horizontal V will be used by Spencer Whitmire W4ERC, the Vice President of the local radio club, Spencer was on 10 Meters with a 2 element beam and was converted to a believer when he saw the V in operation in last year's field day. Spencer will give 6 Meters a try with the V.

Our callsign for Field Day 2002 was K4W (Kilo Four Whiskey).

I became an EXTRA in 12-4-98. The One Element Beam is the results of several years of work on various antennas, I was really depressed with the results of tests on so called big signal antennas and finally went back to the horizontal dipole with good reports. I remembered from my beginning in ham radio about the inverted V that I used on 75 Meters and how I could get into Hawaii. I also remembered that an inverted V could be made directive by the leg angle. This was the turning point which led to the ONE ELEMENT BEAM. While reviewing the logs of last years field day, I found KH6, VE6, VE3, VE4, VE5, KP4, VE7, NP2, DJ2, NP4, TZ6, GO6, VE1, VE9, XE1, RX3, DL6, EA4, OH4, G4, G0, EA5, EA3, DL1, OH1, RA3, DJ2, F6, PA3, F5, F6, AND VE2. I found these prefixes in the log book of the DX worked during field day, with the Horizontal V.

THIS IS THE BEST PERFORMING ANTENNA I HAVE EVER BUILT! DON'T LET THE SIZE FOOL YOU.

All that is required to use this antenna is a willingness to give it a try and then look at the results. It then comes down to operator skill as to how many contacts you can do per minute. It truly is AMAZING! Darrell Koranda KB4XJ

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New Radio Regulations - Electronic Communications Act (36/2005): Final Radio Frequency Spectrum Regulations

The new radio regulations were published on 31 March 2011, and came into effect on 1 April 2011. Unfortunately ICASA did not release a copy to SARL beforehand. This, together with no obvious proof reading, resulted in an incomplete publication, riddled with mistakes. SARL will be meeting with ICASA to iron these out shortly. If you have access to the internet, you can download them from www.marc.org.za/downloads/radioregs201104part1.pdf and www.marc.org.za/downloads/radioregs201104part2.pdf

What they do however show their intended regulations. And these include:

ZUs: Only those under the age of 20 may write these RAE exams. If these licence holders don't upgrade to an A Class licence by the age of 25, the ZU licence will be lost on the 25th birthday

If there is no typo error, ZU's will be limited on the hf bands to 40m and 80m. But apparently they are still allowed on 10m, as in the past.

There is uncertainty as to what will happen to current ZU licence holders who are older than 25. Speculation is that they will be given 2 years to upgrade to an A Class licence. In other words, if they do not upgrade, they will lose their licence on 1 April 2013.

There is also uncertainty about those currently enrolled for the ZU RAE exams who are older than 20 years, as they will still be examined on the old regulations. Speculation is that they will be allowed to sit the exams, but will not be able to apply for an amateur licence. (This one does not make any sense at all). They might also be given the opportunity to claim their money back (and be probably lost to Amateur Radio), or be offered to study for the Class A exam instead, later on in the year.

There is further confusion re the ZU call signs obtained in the 1990s. These candidates wrote under different regulations, and even had to pass CW at a rate of at least 5wpm

ZRs: Even though ZR is not mentioned in the new regulations, ZRs will automatically obtain all privileges of ZSs, ie become a Class A licence holders. The Classes A1 and A2 (used to describe ZS and ZR respectively in the past) will fall away, and will be referred to as Class A. ZRs will not have to change their call signs to ZS. It is unclear whether one can apply for a new ZR call sign.

This means that ZRs can use the band plan as previously defined for Class A1

Fees: Uncertainty also reigns about when the new fees. Last month ICASA said that the increases will only be effective from 2011, but the new regs already mention the new rates. The advice given was that we must wait for invoices to be sent from ICASA before making any payments, while another source said that you should pay your fees irrespective of whether you receive an invoice

or not, to stay licenced. General consensus is to pay it now, invoice or not. Give your licence number as reference when paying by eft. If paying via the Post Office, add two zeros in front of your licence number and use this as reference and use the allocation code of 0026. General consensus is also that we only need to pay R27 for this financial year, which started on 1 April. Originally the increased fees were R120pa, but the new regs say R140pa....

Radios: The regulations refer to type approved radios, and ICASA has been asked to clarify this as there are no type approved radios for Amateur Radio.

Swop Shops: It looks like radio dealer licences are required for swapping radio equipment. ICASA has also been approached for clarity on this.

Band Plan: As the published band plan was a modified and incomplete copy of the latest regulations, ICASA has been asked to clarify this as well. We have though gained another frequency in the 37kHz area

Licence application: According to the new regulations, we will have to apply for our licence every 5 years, as is applicable to eg the Aeronautical licence holders. SARL is trying to convince ICASA to drop this from the regulations

Log book: You still need to keep a log of all hf contacts, as in the past. A concession was made that a log needs not be kept for hf contacts made while mobile.

I will let you know as soon as the corrected version is released.

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If you have any useful articles for this newsletter, please email them to zs5ml@marc.org.za for publication. Any articles of interest to Amateur Radio, both technical and non technical, will be well received.

If you would like your own email address ending with @marc.org.za, please contact me zs5ml@marc.org.za

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Tailpiece

A lady was walking down the street to work and she saw a parrot on a perch in front of a pet shop. The parrot said to her, "Hey lady, you are really ugly." Well, the lady was furious!

She stormed past the shop to her work.

On the way home she saw the same parrot and it said to her, "Hey lady, you are really ugly." She was incredibly ticked now.

The next day the same parrot again said to her, "Hey lady, you are really ugly."

The lady was so ticked off that she went into the store and warned she would sue the shop and kill the bird. The store manager apologised profusely and promised he would make sure the parrot didn't say it again.

When the lady walked past the shop that day after work the parrot called to her, "Hey lady."

She paused and said, "Yes?"

The bird said, "You know."

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