

**The Official Newsletter of the
Auckland VHF Group Inc.
Spectrum**



Meet the neighbours. Klondyke has them too

Papakura Hamfest

See page 7



Auckland VHF Group Inc.

Branch 66 NZART

PO Box 10138, Dominion Rd, Auckland 1446
Clubrooms: 30 Hazel Ave, Mt Roskill

| Office | Name | Call sign | Home | Work / Mobile | E-mail |
|---|--------------------|-----------|----------|---|--|
| President | Vacant | | | | |
| Vice President | Dave Dingley | ZL1TIA | 828 9394 | | marday@ihug.co.nz |
| Secretary | Marlene Matthews | ZL1MYL | 634 5130 | | perma@xtra.co.nz |
| Treasurer | Doug Cooke | ZL1TTE | 846 6075 | 0274 978 121 | d-jcooke@ihug.co.nz |
| Committee | George Raffles | ZL1TUX | 626 6944 | 021 735 361 | graffles@xtra.co.nz |
| | Brendon Reid | | | | brendon@aa.net.nz |
| | Peter Loveridge | ZL1UKG | 377 3398 | | peterlov@ihug.co.nz |
| | Greg Storz | ZL1GSG | 849 2878 | | |
| | Darryl Grange | ZL1TCI | 817 4553 | | |
| AREC Section Leader | Laurie Mathews | ZL1ICU | 634 5130 | 0274 817 463 | perma@xtra.co.nz |
| Deputy Section | George Raffles | ZL1TUX | 626 6944 | 021 735 361 | graffles@xtra.co.nz |
| ZL1BQ Trustee | Vaughan Henderson | ZL1VH | 418 1071 | 021 844 804 | vaughanh@vodafone.co.nz |
| Repeater Trustee | Vaughan Henderson | ZL1VH | 418 1071 | 021 844 804 | vaughanh@vodafone.co.nz |
| Klondyke Managers | ZL1VH / ZL1BK | | | | |
| 690 Manager | Dennis Seymour | ZL1UET | 532 8666 | | |
| 850/670 Manager | Vaughan Henderson | ZL1VH | 418 1071 | 021 844 804 | vaughanh@vodafone.co.nz |
| ATV/Beacons | | | | | |
| Spectrum Editor | Peter Loveridge | ZL1UKG | 377 3398 | | peterlov@ihug.co.nz |
| Trading Table | Vaughan Henderson | ZL1VH | | tradingtable@aucklandvhfgroup.org.nz | |
| Hon Auditor | Raequel Probine | | 630 8044 | | |
| Webmaster | Terry Corin ZL1BPA | | | z11bq.webmaster@gmail.com | |
| Club Web Page | | | | http://www.gsl.net/zl1bq | |
| ATV Interest Group | | | | http://www.gsl.net/zl1qf/atvug/ATVusers.html | |
| ZL1VHD Dstar gateway administrator; Laurie ZL1ICU | | | 634 5130 | 0274 817463 | perma@xtra.co.nz |
| ZL1VHD Dstar gateway registration URL : | | | | http://zl1vhd.dstar.org.nz | |

Club News and Net:

The combined Auckland VHF Group and Auckland Regional Branch News and Net are held on 146.625 MHz and 439.875 MHz at 8.15 pm each Sunday or after the ZL6A National Broadcast on the last Sunday of the month.

Club meetings are held at the Clubrooms at Hazel Avenue, on the second Monday of each month at 7.30 pm. For other details, listen to the News and Net each Sunday evening.

SPECTRUM is the official journal of the Auckland VHF Group Inc. Opinions expressed are those of the authors and do not necessarily reflect club points of view.

The closing date for SPECTRUM articles is by the 1st of each month. Articles to be submitted to the editor Peter ZL1UKG peterlov@ihug.co.nz

Auckland VHF Group (Inc) Branch 66

General Meeting notice

13th March 2017 7.30pm, Hazel Avenue Club Rooms

(Located on left at the end of Hazel Avenue)

The Evenings Subject:

Vintage Film Evening

The National Film Unit produced news reels which depicted NZ life.

From the 50s the topics selected are the development of the first traffic speed radar and a flight to Sydney on the Solent Flying Boat which is now on display at the Museum of Technology. It includes servicing the aircraft and communications from Musick Point.

Another reel shows the development of Auckland in the 50s including motorways and some well known buildings.

This meeting will bring back memories for some of you.

EVERYBODY WELCOME

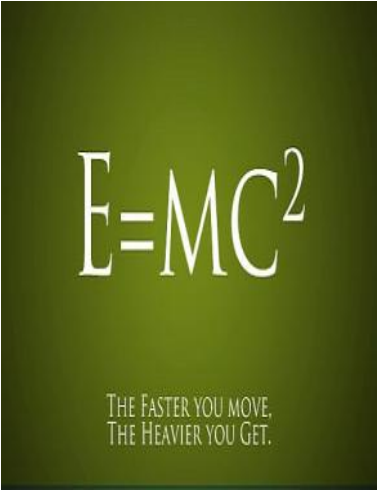
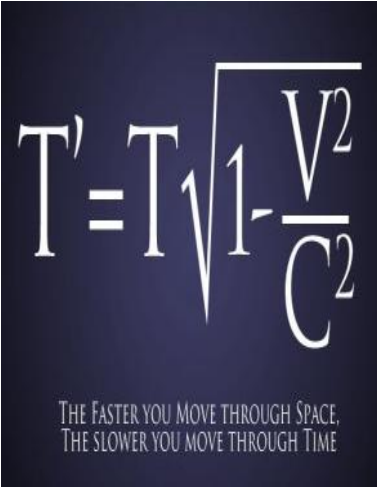
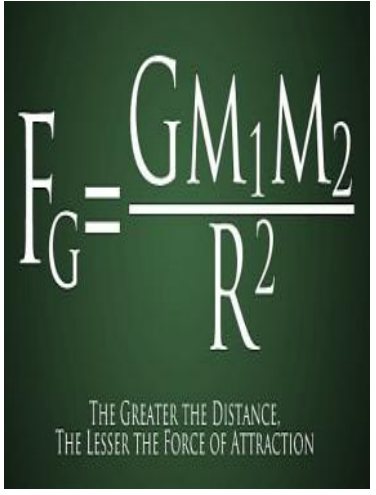
The February General Meeting

General Business

No general business was recorded for this evening. The business proceeded directly to the introduction of the well known guest speaker Dr Gary Bold, ZL1AN.

Gary Bold on the Speed of Light and the consequences of Einstein's famous equation

General Meeting February 2017

| | | |
|--|--|--|
|  |  |  |
| Converting matter into energy | Relativity and clocks | The force of gravity |

Gary's interest arose from the recently de-classified material in the USA documenting the development of atomic weapons. It showed how little the scientists of the day knew about the properties of radiation and how an enormous burst of energy could be created if the mass of the nuclear fission products weighed less than the fuel which started the reaction. WWII was ended by kilo-tons equivalent of chemical explosive by conversion of grams matter to energy. By the time the cold war was over technology had advanced to mega-tons using a fission reaction to generate a short term fusion reaction. Such huge amounts of radiation affected radio communication around the world for hours and resulted in shortened lives of the forces who were there to witness the tests.

The talk highlighted other fields of study that make use of these equations such as astronomy and the age of the universe determined by red-shift and gravity and on a smaller scale the forces which hold the nucleus of atoms together. This was all delivered in a manner that kept everyone alert and interested despite coming from such an esoteric background.

There were questions from the floor and a round of applause for the presentation, delivered in Gary's usual entertaining style. The answer to the question "what happens when a particle approaching the speed of light in vacuum enters a medium where the refractive index is greater than 1" was deferred to a presentation in some future year.

Peter Loveridge

07 March 2017

Coming Events – Maintenance

The pre-winter service for the Klondyke site will be held in early April. The program will be printed in the next Spectrum or circulated earlier by email if a favourable period of weather occurs in late March.

A spring date has been proposed for club rooms maintenance. A date prior to 21 October is preferred so that by the anniversary of the club it is spick and span.

Coming Events — Masters Games

AREC will be involved providing safety communications for events on the following dates

Saturday 15 April, Wednesday 26 April, Thursday 27 April, Saturday 29 April

Please contact Laurie Matthews if you are available. Details on page 2

STOLEN RADIO EQUIPMENT

Over the December 2016 / January 2017 holiday period there was been a significant theft of commercial radio equipment in the Waikato area. The Meridian shed at the Te Uku wind farm was broken into and a lot of TP8110 handhelds (UHF) were stolen.

Probably the same people broke into the Chorus owned Te Uku radio site nearby and took almost everything they could move. The Police lost a special portable repeater in a Pelican case with two very large batteries and power supply.

Teamtalk lost all their Fleetlink extender equipment.

The Waikato VHF Group lost their 5675 repeater, part of the WaiPlenty network, an Icom FR5000 shelf with VHF and UHF modules. More details on this equipment here : <http://zl1is.info/>

If you hear of or see any of this gear please report it to your local police.

The VHF Group Executive by numbers (1)

Many different organisations (including NZART) have published short “bios” of the members who run the club. This was discussed at the last Committee meeting and to get the ball rolling the editor has volunteered to describe himself. This will entitle him to cajole the others to provide their own “bio” in coming months. The members will be able to see what skills the club possesses and how they might be used to understand problems and find solutions.

Peter Loveridge, ZL1UKG Editor

As a teenager I built audio amplifiers but any radio projects were usually flops except for a one valve AM transmitter using an ECL80 which had a rather short range. My high school had 48 sets. As a trumper I attended a Search & Rescue training weekend in the Waitakeres in 1988. An AREC member gave me a 2m handheld and said that I was the radio operator for my team. He was a member of the Auckland VHF Group. I found out where this club was and showed up to a meeting. My initial interests were in operating and I took part in a number of community events. Once I had taken part in a VHF contest I was hooked and became a portable antenna builder and progressively bought second hand equipment for contest use.

Since I worked for a bank at the time the then president thought I would be a natural for Treasurer. This carried on after being made redundant and starting work in electronics manufacturing as a hardware test engineer, based on my amateur background. As time progressed my electronics became more professional and design and experimentation became a larger part of my amateur activities but still with a focus on antennas.

I have also been on the committee and president and am now the editor of Spectrum. My policy is to try and lift the technical interest in the magazine. As I don't have time at the moment to write a regular column I will have to source material from the internet as well. For social interest I must rely on the members to contribute items about what the club is up to and report on how it went.

07 March 2017



Papakura 65 Hamfest 2017

Papakura Radio Club is holding a Hamfest on Saturday 11 March 2017. The venue is the Papakura Clubrooms, Wellington Park, 1 Great South Road, Papakura.

Programme:

0830 – Registration

0945 – Official Opening by Richard Gamble ZL1BNQ, Br 65 President

1000 – HF ‘Digital’ Radio ... Dave Wilkins ZL1MR

1100 – Direction Finding ... Murray Greenman ZL1BPU

1200 – Break for Lunch

1300 – Allstar Link ... Simon Keys ZL1OE

1400 – Digital Mobile Radio ... Simon Watt-Wyness ZL1SWW

1500 – Break for Afternoon Tea

1530 – Mesh Network ... Robert Moody ZL1FLY

1630 – End of 65 HAMFEST

These topics are all current technology and will provide an overview of their implementation with links to further your search.

The ‘65 HAMFEST’ is open to all interested in Amateur Radio and is free admittance to all . . . so come along and enjoy the show.

A lite lunch will be supplied in exchange for a gold coin.



Amateur Radio Emergency Communication.
Volunteers in radio communications.
Using our resources to help the community.

INFORMATION

The Auckland VHF Group has an active AREC section that works closely with Auckland City Civil Defence. They provide advice, resources and manpower to assist in times of need. The Auckland VHF Group clubrooms provide a backup system to complement the existing systems maintained by Auckland City Council Civil Defence.

The AREC section is headed by Section Leader Laurie Mathews ZL1ICU.

From time to time the VHF Group has training sessions and exercises. Members also assist with sports events, parades and Rally NZ.

For further information about AREC please see the NZART web site.

JOIN BRANCH 66 AREC

All members of the Auckland VHF Group are encouraged to join the AREC section. Your contribution, large or small is appreciated by all involved.

For further information about joining branch 66 AREC contact the Section Leader or his Deputy.

AREC:

Section Leader; Laurie Mathews ZL1ICU 634 5130 0274 817 463 perma@xtra.co.nz

Deputy Section; George Raffles ZL1TUX 626 6944 021 735 361 zl1tux@xtra.co.nz



AUCKLAND VHF GROUP (INC)

**SUPPORT THE EFFORTS OF THE VHF GROUP THROUGH YOUR
SUBSCRIPTION**

SUBSCRIPTIONS FOR 2017

THE SUBS GO TOWARDS;

- Maintenance and on-going improvements to beacons, repeaters and linking systems for the national system, including the Klondyke repeater site.
- Provides on-time and free access to spectrum magazine as soon as it is available.
- Provides facilities for good speakers and lecturers at our general meetings.
- Discounted access to our trading table goodies.
- Access to test equipment and technical help when needed.

FULL MEMBERSHIP **\$45.00**

ASSOCIATE MEMBERSHIP **\$40.00**

FAMILY MEMBERSHIP ADDITIONAL **\$10:00**



SEE ATTACHED MEMBERSHIP RENEWAL FORM (next page)

REMEMBER TO KEEP US INFORMED OF YOUR INTERNET ADDRESS!

OTHERWISE WE CANNOT SEND YOU SPECTRUM!

| | | | |
|-----------------------------|--|---------------------------|------------------|
| NAME | Mr/Mrs/Miss/Ms | Christian or given | Surname |
| | Mr | | |
| Address | | | |
| | | Phone: (home) | |
| | | Phone: (work) | |
| | | Phone (Cell) | |
| | | Email | |
| Occupation: | | Callsign | |
| NZART Member | | Branch assigned | |
| AREC Member | | Branch assigned | |
| Category | | | To pay |
| Membership | Full | \$45:00 | \$ |
| New/Renewal/Change | Associate | \$40:00 | \$ |
| Receipt # | Family Add | \$10:00 | \$ |
| Donations | Auckland ATV | | \$ |
| | Auckland/Klondyke | | \$ |
| | Brynderwyn | | \$ |
| | Data/D-Star | | \$ |
| | IRLP | | \$ |
| | Beacon/Repeater/Links/ATV Licences | | \$ |
| | Other | | \$ |
| | | Total | \$ |
| Payment | | | |
| Circle one --> | Cash | Cheque | Internet deposit |
| Invoice/Statement re-quired | Please Advise Treasurer | | |
| Internet | To account ASB 12-3020-0473626-00. Account name is: Auckland VHF Group Inc. Include your Name/Callsign for us to track. Note: this form needs to be returned to update records. FAX to 028 25544801 or Email d-jcooke@ihug.co.nz | | |
| Post | The Treasurer, Auckland VHF Group Inc., PO Box 10138, Dominion Road, Auckland 1446. | | |
| In Person | Bring this form and payment to the next club meeting, 2 nd Monday of the month or to the Committee meeting last Monday of the month. | | |

The Auckland VHF Group Inc Branch 66 NZART

gratefully acknowledges the sponsorship of Branch 66 Beacons, Repeaters and Fixed Links license fees and the Group's repeater operations by the following radio amateurs and NZART Branches for 2017

| <u>Repeater frequency</u> and name | Repeater location | Sponsorship advised for 2017 | Amount paid |
|---|----------------------|---------------------------------|-----------------|
| 53.725 Repeater | Klondyke Road | | |
| 144.253 Beacon | Nihotupu | | |
| 145.625 Data Rptr | Klondyke Road | NON-operational | |
| 145.650 Dstar repeater | Klondyke Road | ZL1ICU | 50.00 |
| 146.625 Repeater | Klondyke Road | ZL1ICU | 50.00 |
| 146.700 Repeater | Ruaotuwheua | | |
| 146.900 Repeater | Mt Puketutu Radio | | |
| 432.253 Beacon | Nihotupu | Under repair | |
| 438.175 Dstar repeater | Klondyke Road | ZL1ICU | 50.00 |
| 438.500 Repeater | North Head | | |
| 439.850 Link Tx to Kaimai | Klondyke Road | | |
| 439.875 Ak Nat Sys Rptr | Klondyke Road | | |
| 439.900 Link Tx to Egmont | Klondyke Road | | |
| 439.950 Link Tx to Brynderwyn | Klondyke Road | | |
| 1291.9 Repeater | 217 Glenfield Rd | | |
| | | Total Sponsorship | \$150.00 |
| NZART Inc: Branch/Personal donations | | | |
| Franklin Radio Club. Br: 10 | | \$200.00 | |
| Papakura Radio Club. Br: 65 | | \$500.00 | |
| Auckland Radio Club. Br: 02 | | \$ | |
| Manukau Radio Club. Br: 21 | | \$ | |
| Martyn Seay ZL3CK donation | | \$ | |
| | Donations | \$700.00 | |
| Current as at 13/02/2017 | | | |

The Auckland VHF Group, Branch 66, would like to thank all those who came forward to sponsor the licence fee for our Beacons, Repeaters or Fixed Links for the year 2017 or donate towards the Group's repeater Operations.

TRADING TABLE

Currently our Trading Table is only open on meeting nights. Opening on Saturdays may resume later in the year so keep an eye out for announcements in Spectrum.

NEW – NEW - NEW

We have heaps of parts from dismantled commercial analog TV gear – transmitters, filters, circulators, patch panels, power supplies, cabinets. Too much to list individually, so come along to the clubrooms and have a look



And there's

more....



More from the Trading Table: Surplus filters from analogue TV



Motorola Oncore VP GPS Receivers

The VP Oncore is Motorola's original credit card-sized 8-channel GPS receiver. It measures just 2" x 3 1/4" x 1/2", has very low power requirements, and is well suited for embedded applications. The VP Oncore has the capability of acting as a DGPS reference station for greater position accuracy.

The units on offer have been in storage for some time, and the tinplate screen covers show some signs of corrosion – see photo. Most of the units have a sticker attached saying "Prog NMEA" and are likely to output data in NMEA V2.0 serial format.

Interface is via a 10-pin board header – see reference below for pinout details. Power supply is 5.0v +/-0.25V. Module requires an external active GPS antenna (5V power supplied by receiver module). GPS connector is a snap-on type OSX. Output data includes a 1PPS (one pulse per second) output and TTL level Tx and Rx data lines.

More details can be found at : <ftp://ftp.tapr.org/gps/motorola/oncore.eng.notes.pdf>



\$20.00 each – limited quantity.



N-Type connectors for LMR-400

Crimp-on only. \$5.00 each

Other coaxial connectors available from the Trading Table:

Please note we have sold out of TNC connectors – these are no longer available.

| | |
|--|-------------|
| BNC plugs 50 ohm for RG58 coax (solder/clamp type) | \$2.50 each |
| BNC plugs 50 ohm for RG58 coax (crimp on type) | \$2.50 each |
| BNC sockets 75 ohm – single hole mounting | \$1.50 each |
| N Type male solder on suit RG213 coax | \$4.00 each |
| N Type male right angle, suit RG213 coax | \$4.00 each |
| N Type male crimp on suit RG213 coax ** | \$3.00 each |
| N Type socket crimp on suit RG213 coax ** | \$3.00 each |
| N Type male right angle, solder on suit RG213 coax | \$4.00 each |
| N Type male silver plated solder/clamp on suit RG58 coax | \$3.00 each |
| N Type male crimp on suit RG58 coax ** | \$2.50 each |
| N-Type adaptor Male to Male | \$3.00 each |
| Adaptor TNC Male to UHF Female | \$3.00 each |

** Crimping service available for these at club meetings.

Need Crystals for your next project?

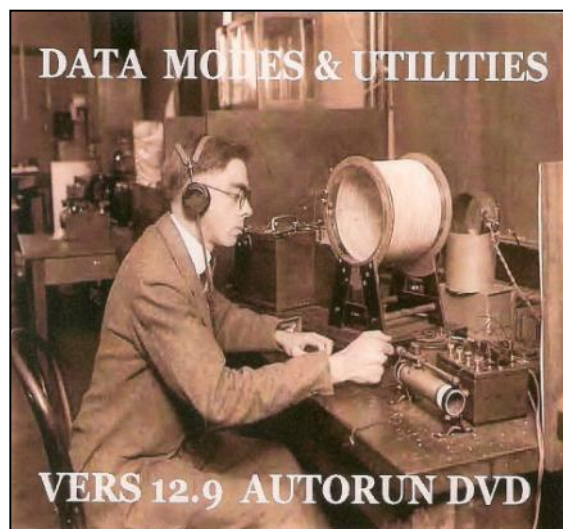
| | |
|---|-------------|
| 3.579545 MHz HC18/U wire ended holder | |
| 4.194304 MHz HC18/U wire ended holder | \$1.00 each |
| 4.1952 MHz HC18/U wire ended holder | \$1.00 each |
| 4.33618 MHz HC18/U wire ended holder | \$1.00 each |
| 6.000 MHz HC49/S SMD package 20pF load capacitance | \$1.00 each |
| 8.000 MHz HC18/U wire ended holder | \$1.00 each |
| 8.192 MHz HC18/U wire ended holder | \$1.00 each |
| 8.867238 MHz HC18/U wire ended holder | \$1.00 each |
| 10.000 MHz HC18/U wire ended holder (KDS Brand) | \$1.00 each |
| 13.875 MHz HC18/U wire ended holder | \$1.00 each |
| 14.31818 MHz HC18/U wire ended holder. Rakon J30G-4H spec | \$2.00 each |
| 14.7456 MHz HC49/S SMD package | \$1.00 each |
| 17.472 MHz HC18/U wire ended holder | \$1.00 each |
| 18.432 MHz HC18/U wire ended holder | \$1.00 each |
| 20.0000 MHz HC49S SMD package P/No.7D20000183BSAF25Q3 | \$1.00 each |
| 24.567 MHz HC18/U wire ended holder | \$1.00 each |
| 45.600 MHz HC18/U wire ended holder | \$0.50 each |

Radio Frequency Transistors

| | | |
|----------|--|---------------|
| ATF55143 | Low noise E-PHEMT 0.6dB noise figure. | \$1.00 each |
| | Low noise amp for frequencies between 450MHz and 6GHz. SMD package SOT343 (4 lead). | |
| MGF1302 | Low noise GaAs FET Nf = 1.4dB @ 4GHz, 4dB @ 12GHz. | \$5.00 each |
| BFR91 | NS RF Amp. 5GHz 1.9dBnf @ 500MHz | \$2.00 each |
| BFY90 | NS 30V 50mA 2.5dBnf @ 200MHz TO72 VHF/UHF | \$1.50 each |
| MFE121 | Dual gate N-MOSFET 20V 5mA VHF Amp BF352 equiv. | \$0.50 each |
| MPS5179 | NS TO92 12V 50mA 200mW ft 2000MHz Nf 5.0dB | \$0.50 each |
| | RF Transistor. Use in UHF/VHF amplifiers with collector currents in the 100 μ A to 30 mA range, and in low frequency drift, high output UHF oscillators. | |
| BFG67 | NS 8GHz 50mA rf amp/preamp SOT143B package | \$1.50 each |
| MPS5172 | NS 25V 100mA Ft 120MHz | \$0.10 each |
| MPS6507 | NS, VHF Mixer, 20V, 100mA, Ft 700MHz [data] | \$0.20 each |
| MRF237 | NS RF Pwr. VHF 4.0W 12V TO39 | \$3.00 each |
| MRF559 | NS RF Pwr. 806-960MHz 0.5W 12.5V | \$0.50 each |
| MRF904 | NS RF Small signal amp. Ft 4GHz 15V TO206 | \$3.00 each |
| 2SC908 | NS TO39 RF Amp 1W @ 500MHz 13.6V [data] | \$1.00 each |
| | Designed as driver and RF power amplifier. | |
| | 0.5 to 0.8W output at UHF land mobile band. | |
| | Gain 15dB (Vce=6.0V, Ic=5mA, ft=2000MHz) | |
| 3SK45 | Packaged as ECG221, dual-gate N-channel MOSFET | \$0.75 each |
| | for vhf amp and mixer applications. | |
| 3SK73GR | Dual-Gate MOSFET N-channel 30V 7mA | \$1.50 each |
| 3SK74L | Dual-Gate MOSFET N-Channel 20V 25mA(max) | \$1.00 each |
| 3SK192GR | Dual-Gate MOSFET 15V 30mA(max) | \$1.00 each |
| 2SC5488 | NS 30V 70mA low noise rf pre-amp | \$0.10 each |
| BF199 | NS 25V 25mA, 500mW ft = 550MHz TO92 | \$1.00 for 10 |
| BF494 | NS 20V 30mA Low noise mix-osc/ IF amp TO-92 | \$1.50 for 10 |
| 40673 | Dual-gate N-Mosfet – See MFE121 | \$0.50 each |

DATA MODES & UTILITIES CD

Version 12.09 has even more updates and new programmes on this latest release. This is an excellent selection of software, notes, links to web sites compiled by the late Doug ZL1AVY and this latest edition has over 300 applications, references and notes. These cover all digital modes, useful software applications for your pc, contest logging and e-qso programmes, radio interfaces, software defined radio information, slow scan tv software, test equipment utilities, satellite tracking software, and much, much more. **Still only \$10.00**



SMD Quartz Crystals: In addition to our selection of leaded holders, now have 6MHz and 20MHz crystals in SMD style housings:

6.0000 MHz HC49S SMD package 20pF load capacitance \$1.00 each

20.0000 MHz HC49S SMD package P/No. 7D20000183BSAF25Q3
1.00 each



Capacitors, Surface Mount – most are 1206 size.

Packed in bags of 10 for 50c

NPO 50V working: 0.68pF, 1.2pF, 1.8pF, 2.2pF, 5.6pF, 6.8pF, 8.2pF, 10pF, 15pF,

22pF, 33pF, 68pF, 82pF, 270pF, 470pF, 100nF.

63V working: 10pF, 47pF, 100pF, 270pF, 330pF, 470pF, 1nF, 1.2nF, 2.2nF, 4.7nF, 10nF
10uF 25V electrolytic

Capacitors, Metal Clad Mica (Unelco, Semco)

\$2.20 each

Values (in pF):

Or 10 up for \$2.00 each

3.9, 4.7, 6.8, 10, 12, 15, 20, 22, 24, 27, 30, 33, 34, 47, 51, 62, 82,

100, 120, 130, 150, 220, 240, 300, 360, 680pF

Most are rated 350V working $\pm 5\%$ tolerance.

Similar to illustration, tab does not have hole:



Mixers:

Mini-Circuits Model TFM-2-408-1:
+17dBm LO drive, 40dB isolation
\$25.00 each



5 – 1000MHz 6dB insertion loss,

Note: some of these mixers are labeled TFM-2-408-2. They are identical to the TFM-2-408-1.