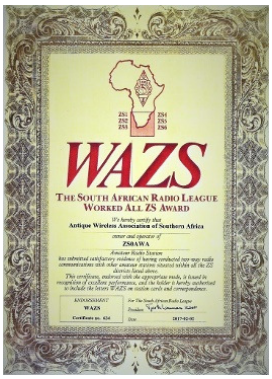
Antique Wireless Association of Southern Africa Newsletter

 # 197 **December 2022**



Inside this issue:

AWA Committee:

* President—Renato ZS6REN
* Vice President—Jacques ZS6JPS
* Technical Advisor—Rad ZS6RAD
* Secretary/PRO—Andy ZS6ADY
* KZN—Don ZS5DR
* WC—John ZS1WJ
* Historian—Oliver ZS6OG
* Member—Wally ZS6WLY

Visit our website:

www.awasa.org.za

Reflections:

And so another year has come to an end and it certainly has gone by at almost the speed of light this year.

So many changes so many new things so many new radio's so much change in technology. I don't think that we can complain about the influx of new technology that has taken the market by storm over the last twelve months. To me it has been breath-taking.

Sadly we have seen a good number of our friends and colleagues go silent key and we think of the families that will be spending this time of year without them.

The AWA has grown so in numbers over the past twelve months and I still find it hard to believe the number of people who find an interest in valve radio. No one could imagine we would reach these proportions when the AWA was first started, but today we have a large membership including people from around the world who associate with us in our goals reflected in the mission statement.

Our association with the SARL is of prime importance as well as the association with the SA Institute of Electrical Engineers (SAIEE) with their museum and Radio Shack.

We also have a shared interest with the CVRS (Canadian Vintage Radio Society) with whom we often exchange articles for our Newsletters. Although I think we have used many more from them than they have used of ours.

These associations are vital to the running of our Club and extend our activity right around the world.

I would not be alone in singing the praises of our President and committee who has manged the running of the AWA for the past year and were unanimously voted back in the various categories at the latest AGM. Unfortunately weather and I suppose other excuses kept people away from attending in person, but we had quite a large contingent dialling in on the Zoom system to join in with the meeting.

Another bit of technology that has made it possible to extend our reach.

So let it not be said that we are a bunch of fogies stuck in an area of valves with no way out. We maximise the use of tech to extend our range and so involve more and more who have an interest in preserving and using heritage radio.

And so over this festive season, even if you are a Scrooge or a Grinch, do not forget to ponder on the successes you may have had yourself in restoring and using radio's from the past . Whether you celebrate Christmas, Hannukah or nothing at all, we wish you all the best for the festive season and look forward to seeing and hearing you all in the New Year.

Best 73

DE Andy ZS6ADY

Wikipedia

Solar Flares:

Magnetic crochet
The increased ionization of the D and E layers of the ionosphere caused by large solar flares increases the electrical conductivity of these layers allowing for the flow of electric currents. These ionospheric currents induce a magnetic field which can be measured by ground-based magnetometers. This phenomenon is known as a **magnetic crochet** or **solar flare effect** (**SFE**). The former name derives from its appearance on magnetometers resembling a crochet hook. These disturbances are relatively minor compared to those induced by geomagnetic storms.

For astronauts in space, an expected radiation dose from the electromagnetic radiation emitted during a solar flare is about 0.05 gray, which is not immediately lethal on its own. Of much more concern for astronauts is the particle radiation associated with solar particle events.
Observations

Flares produce radiation across the electromagnetic spectrum, although with different intensity. They are not very intense in visible light, but they can be very bright at particular spectral lines. They normally produce bremsstrahlung in X-rays and synchrotron radiation in radio.

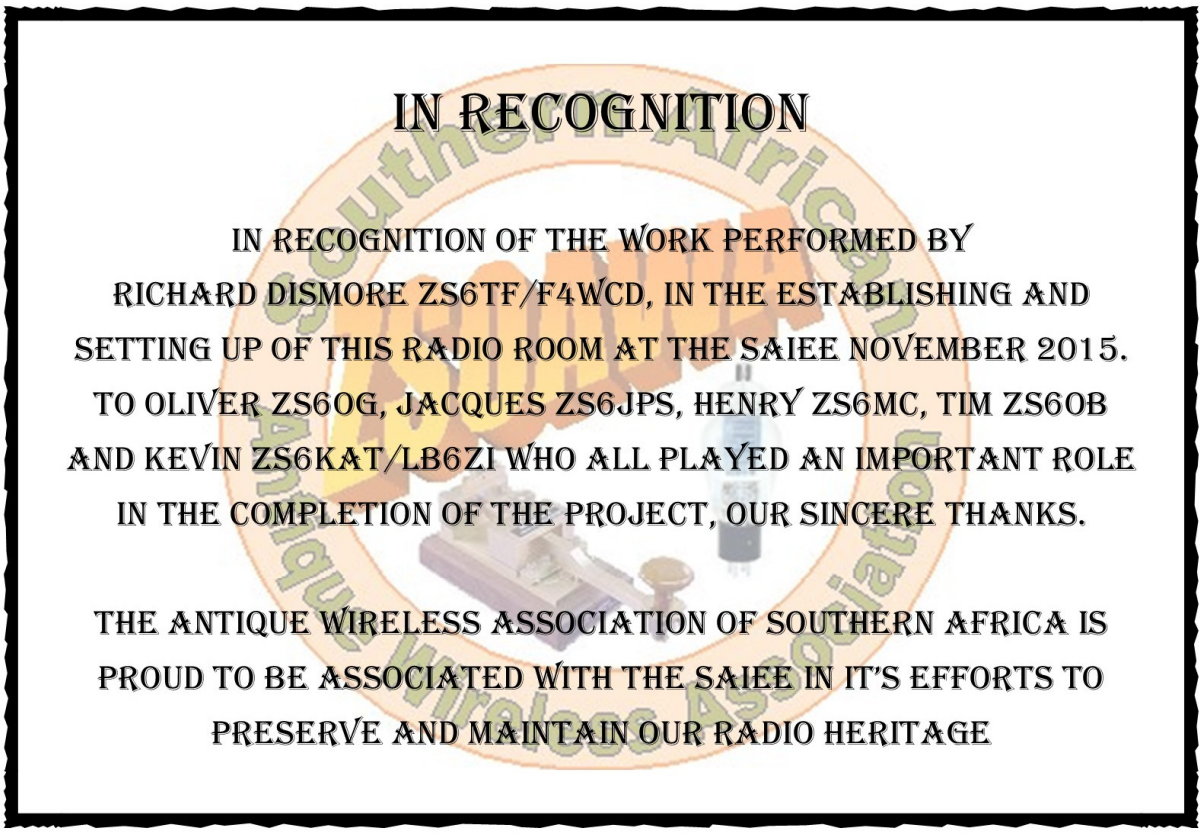
AWA AGM 2022

This year the AGM only drew a small contingency of members to the halls of the SAIEE, but never the less, there was still the same atmosphere and comradery present in those who did attend.

With the assistance of the internet and Zoom meetings,(Not an advertisement), we did manage to get through the proceedings without too much fuss or bother.

In his opening statement, Renato ZS6REN, thanked the committee and the members for all the work that has been put in to maintaining the AWA through another year. He particularly made mention of Jacques ZS6JPS and the work and maintenance that goes in to keeping our website active and up to date.
Renato encouraged all to go in to the website on a more regular basis and especially to the forum where visitors leave comments about the website and of course the AWA. Each and every one of which has been noted by Jacques and a reply left. This is the kind of activity that is needed to keep our website as a live entity and not just something existing in the ether.

The below certification was printed and will be framed and placed in the shack of ZS6IEE at the SAIEE. It gives recognition to those who were involved in the establishing of the radio room at the SAIEE and the association that the AWA has with the SAIEE.



The Jeffrey Wright trophy for having contributed the most to CW over the past year was awarded to Kobie van Zyl ZS6KVZ, for his contribution to CW. Congratulations Kobie.

After the meeting came the traditional bring and Braai and the not even the bad weather could prevent that from happening as we moved in under the covered parking at the SAIEE There was a sudden flurry and movement of a few jewels from the boots of one or two cars to others while the fire was burning and then the smoke was sent up into the skies for all in the surrounding area to smell.

We are sure it must have created some interest in the Observatory area.

Kobie ZS6KVZ receiving his certificate and trophy for his contribution to CW.

The members present at the AGM Renato ZS6REN; Mario ZS6MAR; Wally ZS6WLY; Kobie ZS6KVZ; Rod ZS6RHZ; Oliver ZS6OG; Nico ZS6QL and absent from the photo Cliff ZS6BOX, who disappeared without us noticing.

Digital Filtering - Switched Capacitor Filters

December 1974 Popular Electronics

When this Digital Filtering article appeared in a 1974 issue of *Popular Electronics* magazine, the concept of switched capacitor filters (SCFs) was just entering the realm of digital circuitry. One author, Carmen Parisi, credits none other than James Clerk Maxwell for initially contriving the idea. Today, variations of the switched capacitor filter are ubiquitously incorporated into integrated circuits of all sorts, but at the time of this piece they were assembled from discrete components including banks of capacitors, digital switches (counters), and transistors. Figure 2 shows an experimental circuit that uses six capacitor values for use at audio frequencies. The earliest IC switched capacitor filters worked in the hundreds of Hertz realm, and gradually increased in frequency until today they reach to around 100 kHz (see Digi-Key SCF offerings).

New technique operates from a digital oscillator and uses no critical elements

By Leslie Solomon, Technical Editor

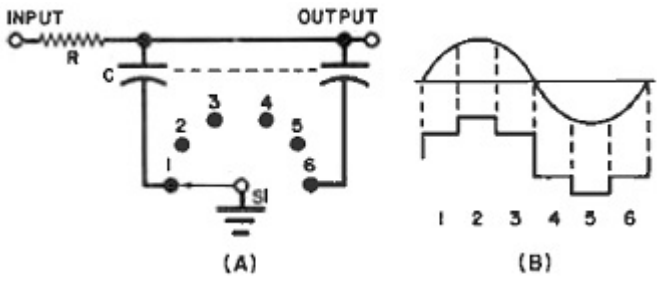


Fig. 1 - At (A) is a simple switch circuit which generates the stepped waveform shown at (B) from a sine wave.

Single frequency filters are important in a number of areas - RTTY, SSTV, radio control, etc. There are two approaches that are usually used to accomplish such filtering: either multi-element passive systems (which use precision components and are somewhat bulky physically) or active filters (which use a few passive components and an op amp). Even with the active filter, to obtain careful control of the selected frequency, it is necessary to select precision passive elements.

Though either of the two approaches works well, there is a new filtering method that is unique and should be of interest to the serious electronics experimenter. Called digital filtering, the new method uses no critical elements and is "tuned" with a digital oscillator. High-Q filters (even at low audio frequencies) can be realized and the circuit is very stable since no regeneration is used. These filters use low-cost TTL logic and some conventional switching transistors.

In the simple circuit shown in Fig. 1A, with the six-position switch in position 1, and with an audio sine wave applied to the input, the first capacitor will start to. charge up toward the signal's peak voltage. If S1 is switched to the next capacitor when the voltage across the first capacitor has reached the average value for that portion of the sine wave, the switch makes another step.

Therefore, as S1 rotates around the six capacitors, each capacitor receives a charge whose value depends on the average value of the sine wave at its portion of the waveform. The charges on the capacitors can be represented by the step curve in Fig. 1B. Of course, the switch must be synchronized with the input sine wave. If the input and switching frequencies are not synchronized, the average voltages stored in each capacitor will differ and will drop very rapidly on each side of the switching frequency. This is the basis of digital filtering; and because of the synchronization system, tuning the filter to any desired frequency is primarily a matter of "tuning" the switching oscillator. Component values for the resistance and capacitance are not very critical.

The circuit of an experimental digital filter for the audio range is shown. in Fig. 2. This circuit consists of a conventional mod-6 counter (7490) driving a BCD-to-decimal counter (7442). The audio input to be filtered is passed through a simple clipper and then coupled to the digital filter consisting of R1 and the six transistor-switched capacitors (C1 through C6). The digital logic and transistors form the switch in Fig. 1A. The digital clock that actually tunes the filter can be any variable-frequency triggering source at six times the required filter frequency.

To tune the filter, connect the audio input to the clipper and a scope to the output. For a dual-channel scope, use the second channel to observe the sinewave input. Care must be taken in tuning the variable

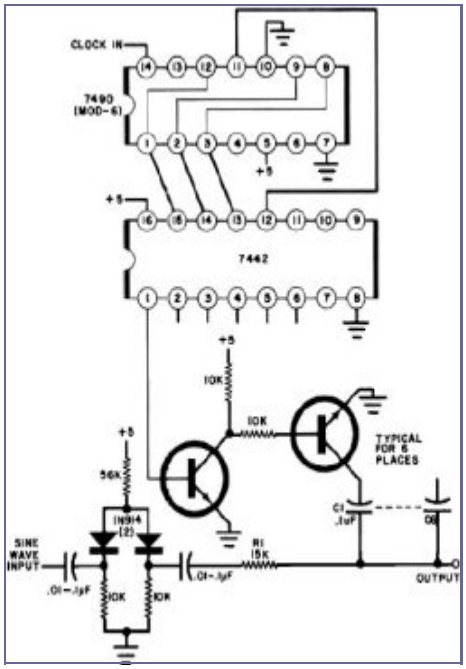


Fig. 2 - Circuit of an experimental digital filter for the audio range.

clock since the Q of the circuit is high and the filtering action might be missed. As the input is tuned up further in frequency, a peaking in the digitized waveform will be reached at the harmonics of the original setup, with the steps getting coarser each time. This will happen until the harmonic number corresponding to the number of switching positions is reached (six, in this case). There will then be no output, but there will be at the next harmonic. As each harmonic is viewed, it will be lower in amplitude and coarser.

The filtered output signal is a distorted version of the original input so the output can not be used as a sine wave. However, it is useful for triggering other circuits. The bandwidth of the filter remains substantially the same even when the filter frequency is changed. Once built, to change the filter's center frequency, it is only necessary to change the clock frequency to the TTL counter (7490), with the frequency six times the input. The number of switched capacitors is not limited to six but can be any number from a minimum of three to as many as required. The larger the number of capacitors, the smoother the displayed waveform.

The number of capacitors also determines the clock frequency. With six capacitors, the clock must be six times higher in frequency than the input. With five switched capacitors, the clock must be five times higher than the input signal, etc.

Liquid Crystals for Electronics
January 1973 Popular Electronics

Liquid crystals have been with us for so long now that it is hard to imagine a time when they were considered a scientific laboratory entity. Before being controlled by electric fields for use in alpha-numeric displays, the thermal properties of liquid crystals of the cholesteric type found applications in temperature and power measurements. Since the colors scattered by cholesteric liquid crystals under incandescent light are unique to a given temperature, measurement of temperature is possible to an accuracy of better than 0.1 °C. Bendix (patent US3693084) manufactured a liquid crystal microwave power density meter. Nematic liquid crystals are the type found in displays (twisted nematic LCD's) and are controlled by an electric field which causes light to be transmitted or blocked at varying levels. In 1973 when this article appeared in *Popular Electronics* magazine, Seiko had just introduced one of the first LCD wristwatches - the Seiko O6LC.

Liquid Crystals for Electronics

Inexpensive readout devices that get brighter with more ambient light

Imagine a 7-segment readout device that requires only 280 µW of power to operate and becomes more visible as the ambient light increases. Also imagine a cathode ray tube which appears normal in every respect, even to the image on the screen, except that the image has been stored there for more than a year with no electrical connection of any type and can be erased in milliseconds. Let your imagination run wild and conjure up fantasies of a panel light that costs only a penny, a flat-screen TV receiver, or a microwave fluoroscope. These devices either already exist or are anticipated to arrive on the scene in the near future. They are all possible as a result of liquid crystals.

As their name implies, liquid crystal substances exhibit properties of both a solid and a liquid. Depending on their viscosities, liquid crystals can be poured like water, easily assuming the shape of their containers. However, due to selective reflection, white light striking a film of these crystals causes a different wavelength to be reflected at different angles of incidence, resulting in the iridescent colours typical of liquid crystals. Furthermore, since the crystalline structure which produces selective reflection is inherently weak, any force that causes this structure to shift or realign itself causes a different structure to be produced. This force can be thermal, acoustic, electrical, magnetic, or even mechanical.

Here, we will consider only thermotropic liquid crystals. These are compounds that exhibit a liquid/crystal phase, or "mesophase," at a temperature usually greater than the ambient. Thermotropic crystals can further be divided into three categories, two of which are of interest to us - cholesteric and nematic.

Cholesteric Liquid Crystals

Cholesteric liquid crystals, all derivatives of cholesterol, are the best known thermotropic compound. Currently, they are the most widely applied. The major property of these compounds is their ability to change colour under the influence of different stimuli, notably temperature.

Fig. 1 - Liquid crystal microwave power density meter made by Bendix.

Fig. 2 - Prototype liquid crystal digital readout for watches and calculators. (Photo: RCA Labs.)

When a layer of cholesteric crystals has been properly applied to a surface and illuminated by an incandescent light, the crystals change from colourless to red, yellow, green, then blue, and, finally, violet, as the temperature of the surface to which the crystals are applied passes through the mesophase range. Raising the temperature even more turns the crystals colourless. The process is reversible, with the same spectrum of colours appearing in reverse order as the crystals are cooled through the mesophase range.

Since the colours scattered by cholesteric liquid crystals under incandescent light are unique to a given temperature, measurement of temperature possible to an accuracy of better than 0.1 °C.

Liquid crystals either mixed with a solvent or contained within 20-micron spheres (encapsulated liquid crystals), which are suspended in a water slurry, are available if you wish to apply them to surfaces like transistor heatsinks. To work with the solvent-suspended or encapsulated liquid crystals, black background is a must. Some of the encapsulated types are sold in a blackened solution which leaves a black surface when dry. To use unblackened crystals, the surface to which they are to be applied must first be coated with a water-base black paint such as No. VL-447A available from Van-Light (9770 Conklin Rd., Cincinnati, OH 45452) at $1.00 for 50 cc. Edmund Scientific (300 Edscorp Bldg., Barrington, NJ 08007) stocks both the blackened and plain liquid crystals.

The liquid crystal solution, a clear or slightly cloudy yellow solution, is designed to be airbrushed or aerosol-sprayed onto the painted surface, using a steady back-and-forth motion. An even coating about 1-mil thick will provide optimum results. Too thick a coating must be avoided. An excellent kit is offered by Liquid Crystal Industries (460 Brown Ave., Turtle Creek, PA 15145); it contains 12 bottles of pre-blackened liquid crystal solutions, a special aerosol applicator, and a Mylar hoop for indirect testing. Available in low and high temperature versions, the kits are each priced at $75.00.

No colour is visible until the spray coating dries and the surface being tested is at a temperature within the range of the liquid crystal being used. Dim colours mean the liquid crystal coating is too thin. If this is the case, put down another coat.

Instead of applying the liquid crystals directly to a surface, it is much easier to work with them in encapsulated sheet form so that they do not become contaminated and can be used over and over again. Memory liquid crystal sheets have been developed; they turn black wherever the surface has exceeded the critical temperature. When the temperature decreases, the black area remains black, but simple brushing of the blackened area restores the original colour. Experimental kits of all types of sheet material are available from Edmund Scientific in a small kit, Part No. 60,756, for $4.00 postpaid, or in a large kit, Part No. 71,143, for $10.00 postpaid.

The property of cholesteric liquid crystals to exhibit different colours with changes in temperature has many direct applications in electronics. For example, the alignment of infrared laser beams is a difficult task by traditional methods. In comparison, either a sheet of liquid crystal materials or a sheet of metal with a layer of liquid crystal on its rear surface will yield a good image of the beam size and operating mode of the laser.

The visualization of intensities in a microwave beam has also been easily accomplished by the use of cholesteric liquid crystals. A layer of liquid crystals is applied to a thin sheet of Mylar placed in a microwave beam so that energy transferred to the film heats up various segments in proportion to the amount of energy absorbed. Since the crystals indicate specific temperatures, distinct color lines form a two-dimensional plot of the microwave field intensity. An example of a device that uses this principle is shown in Fig. 1. In this instrument. built by Bendix Laboratories, the temperature range represented by the transition from red to blue is equivalent to a power spread of 7 dB.

Nematic Liquid Crystals

Nematic liquid crystals are currently causing a big stir in the electronics industry. Nematics are generally somewhat cloudy when viewed in bulk and tend to be a pale yellow in colouring. In small quantities or thin films, the haziness disappears. When placed under a microscope, the clear solution appears to have long wavy threads. If the liquid is probed or otherwise disturbed, the threads greatly multiply, slowly diminishing in number to the original quantity if no further disturbance takes place. These threads represent minute changes in the index of refraction between adjacent areas of the liquid. Under turbulent conditions, these area boundaries become many

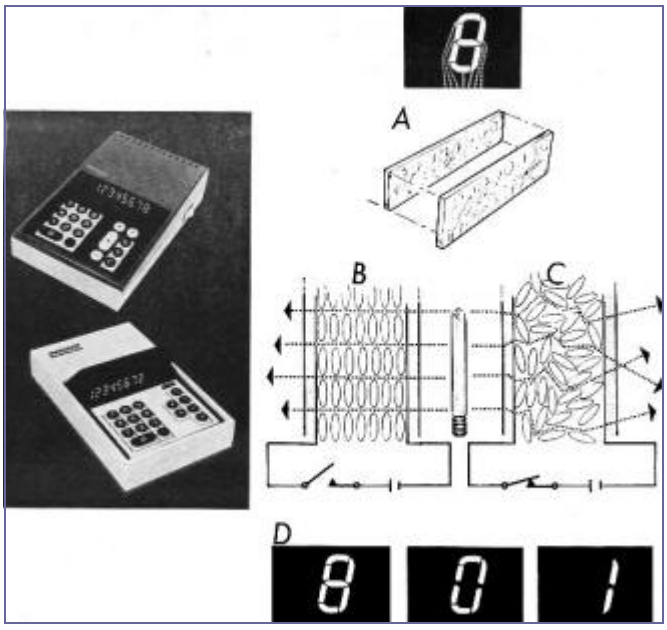
in number and tend to scatter light as the liquid turns an almost opaque white.

To harness this turbulence, a cell can be fabricated to contain a solution of nematic crystals between two electrodes. When a potential is applied to the electrodes, a flow of ions is created which causes turbulence and turns the normally clear liquid crystal solution to a whitish colour. This process is known as "dynamic scattering." The degree of whiteness and, correspondingly, the degree of reflected light, can easily be controlled by the voltage applied to the electrodes. Due to electrolysis depleting the liquid of ions, continued operation of the cell on dc will cause eventual failure of the nematic material. However, if an ac driving voltage is used, ion depletion will be greatly reduced.

Like cholesteric crystals, nematic crystals have a mesophase that must be observed for proper operation. Until recently, nematic action was observed only in a narrow temperature band around 230° F. Continued research, however, particularly by RCA, is yielding nematic solutions usable over wider temperature ranges, including room temperatures.

One of the most obvious uses for a material that reacts as nematics do is the currently popular 7-segment readout. An RCA prototype of a 7-segment readout is shown in Fig. 2. Since there is so little force required to create turbulence in a nematic, minimal power provides a good indication.

Optel (P.O. Box 2215, Princeton, NJ 08540) was first to market a 7-segment liquid crystal readout device. Their No. 1003 display unit operates at 15-16 volts (ac for greater than 10,000 hours). The numerals form in 15-20 ms and decay in 100-200 ms. More important, only 40 µW of power is required per segment. Although the rise times are noticeable, they are acceptable in digital electronic clock, volt-meter, and airport arrival/departure sign applications.



Microelectronic calculators such as those above with liquid crystal displays, are being manufactured in volume by such companies as North American Rockwell. In the display shown at (A), each digit has seven segments, each with an electrical lead, formed on glass plates with transparent tin oxide. Two glass plates are bonded together with about 1/1000 of an inch between them. This space is filled with liquid crystal material. Magnified drawing at (B) shows how material's molecules are normally uniform; but when subjected to electrical field (C), molecules are upset so that they scatter light rays and the area appears to glow. Different numbers are formed (D) by subjecting selected segments to electrical field, which causes those segments to glow brightly.

RCA has introduced a four-number 7-segment display and plans a matching COS/MOS IC for decoding and driving. Also projected are liquid crystal readout products from Display Tek of Dallas and from Texas Instruments.

The Optel readout employs the reflective mode for imaging, making indication in a dark room impossible without a light source but affording excellent image clarity in areas of high-intensity ambient lighting. Displays employing the transmissive mode have been built in prototype by several companies, but these require a power-consuming lamp behind the panel.

The uses for nematic crystals are not limited to readouts. Since the transmission of light can be controlled at will, it is possible to make automatically darkening windows, light shutters for optical systems, and many other similar devices.

If the front and rear electrodes of a nematic cell are formed into a grid-like configuration in which the front sheet of glass has vertically oriented electrodes and the rear sheet has horizontal electrodes, only the nematic material at the crossover point of the electrodes, when energized, reacts by turning opaque. With addressing electronics, such a device is easily capable of displaying diagrams and images.

Making a Nematic Cell

For experimenters who wish to obtain first-hand knowledge of the nematic cell, materials are available for making their own. These consist of a pair of glass sheets, each coated on one side with a conductive material, a spacer, and the nematic liquid crystal material. These items will permit fabrication of a transmissive cell. If a reflective cell is desired, one of the sheets of glass is omitted and replaced by a sheet of darkened metal (such as black-anodized aluminium).

Transparent conductive glass sheets can be obtained from several suppliers. Vari-Light, for example, has 2 1/8" X 2" X 1/8" sheets for $2.40 (No. CG-80 tin-oxide coated) and $1.50 (No. CG-75 gold coated) each. Larger sizes are available on special order. Although the gold coating has lower unit area resistance, the tin-oxide coating is slightly better since it transmits more light. When working with any type of conductive glass, the side with the conductive film should never be handled or otherwise contaminated. It should never be cleaned; to do so may damage the coating.

Once you have the conductive glass, a spacer of the same length and width must be prepared from some nonreactive material such as 1-5-mil sheet Teflon. Cut a hole of the desired size out of the centre of the spacer material. Next, place a sheet of the glass, conductive side up, on a level, flat surface and place over it the spacer. Now, using a thoroughly cleaned medicine drop-per, deposit some of the nematic solution on the sheet of glass within the confines of the cutout in the spacer. Make sure that the total amount of nematic solution deposited is

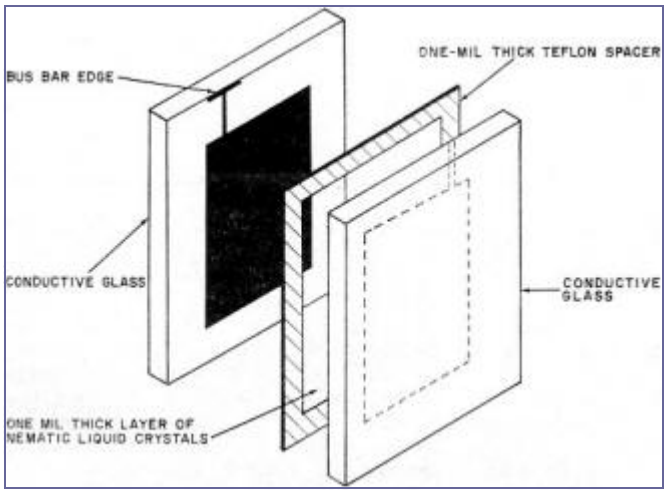


Fig. 3 - The diagram shows the physical arrangement of an experimental transmission-type nematic liquid crystal cell.

no greater than the amount needed just to fill the hole and allow some room for expansion. Cover the assembly with the remaining sheet of glass. To finish assembling the cell, use a frame made from Plexiglas to hold it together. (Note: If you plan to cement together the cell parts, do not use an epoxy compound; it may react with the nematic liquid in the cell and ruin your efforts.) The procedure for assembling the cell is shown in the drawing in Fig. 3.

To make a 7-segment readout assembly, it is necessary to remove only part of the conductive coating on one of the glass sheets, leaving "islands" of conductor to make up the segments and narrow bands to bring out to the bus bar along the edge of the glass sheet. The Van-Light conductive sheets have bus bars which can be cut into seven separate segments, each going to a separate segment of the display's conductive coating. To form the segments, a Dremel "Moto-Tool" with an abrasive rubber cone and a metal erasing shield can be used.

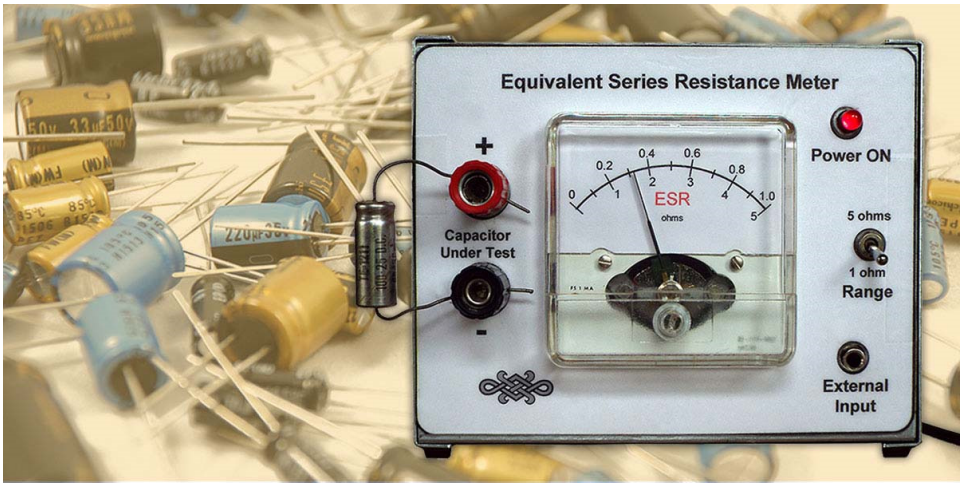
The nematic solution for your cell can be obtained from Van-Light as Part No. VL-1047-N. It consists of a 5-gram bottle of liquid and sells for $12.80. The operating temperature range of the solution is 10°-47°C, which includes normal room temperature.

Power requirements for your homemade nematic cell are minimal but will vary from cell to cell due to the assembly techniques used by different experimenters. If the nematic is from Liquid Crystal Industries ($15/gram, 5-gram minimum order), there will be typically about an 8-volt threshold, with 22 volts optimum. Resistivity is about 10^{10} ohms/sq cm, and the cell will yield a contrast ratio of at least 20:1. Although the cell will certainly operate on dc, the noticeable rise and decay times can be shortened by use of a 1000-Hz ac driving voltage. This experimental cell can be used as a light shutter, but the rise and decay times are still too lengthy to use it for modulating a laser beam with audio information.

Storage-Mode Solutions

By mixing a nematic crystal solution with a cholesteric solution (such as cholesteryl chloride), in a weight ratio of 9:1, a "storage-mode" liquid crystal solution is obtained. The solution is normally clear, but with 30 volts dc applied to it, it turns a milky white. Removing the voltage, the mixture regains its normal transparency only after several weeks. If desired, however, the material can be made transparent at any time simply by applying a 50-volt, 4000-Hz signal to the electrodes. With no power required to retain the image, the applications are virtually limitless.

One application has already appeared in the Model D-10 Reflicon® tube produced by Optel and shown with its demonstrator/driver package in Fig. 4. As can clearly be seen, the image shown on the screen of the disconnected tube is stored without attached wiring. The particular tube shown held its image for more than a year with little degradation.



Silent Keys

Patrick Yeadon,ZS1PDY

From Peter Burgers, ZS1PJB

Some 28 years ago, as the owner of an aged Series 3 Land Rover our family joined the Land Rover Club for an outing to a trout farm nestled in the mountains at the top of the duToits Kloof pass. It was there that we first met Patrick Yeadon and his wife Liz Chatting to Patrick over the mandatory braai fire and a couple of beers, I found that he and I had a number of common interests: Land Rovers obviously, fixing them [also obviously as they need lots of care and attention], and then – electronics. And so began this friendship that lasted for 28 years.

Many were the Land rover outings that we went on, camping trips over the Easter weekends, Christmas functions, New year's outings to Brandvlei dam; points events where we could practice negotiating all manner of obstacles , hopefully without breaking our Land Rovers and spending yet another small fortune repairing them. In those days the Club still used CBs to communicate with each other, but Patrick & I being the "Ham elite" had the benefit of 2m. Many were the times that we sat and pored over dead CB's repairing them, and getting them back to working status for club members. Always a free service to the members. Then of course there was the setting up of the CB and tuning the aerials for best SWR.

Very often at a club outing he would start walking towards me in a very odd fashion, loudly proclaiming "walk this way" Monty Python was one of his favourites, second only to Spike Milligan.

Patrick never ever, ever "fiddled" with a radio or a vehicle. He always "puggled" with it. If it was a particularly difficult problem I would be called to " come and have a 'looking type gaze' " at the offending beast and see if between us we could sort it out.

Somewhere along the road he discovered the joys of little glass tubes glowing comfortingly in the winter's nights and started collecting Hybrid rigs. All of this came at a cost in the form of replacement parts, test equipment and the like. Of course, the next step was to become a member of the AWA.

Soon he had graduated to using Morningstar and when he and Liz went to Canada for a long holiday, he amused himself by logging on to Morningstar using his smartphone and having qso's from all over Canada. Somewhere around the mid 90's Patrick discovered "round tuits." If he had missed doing something or couldn't find the time his standard response was " I just need to get a "round tuit".

And so, we come to the end of his full and busy life- taken so suddenly from us, with no warning.

Nick Curwell, ZS1ZD

Nick Curwell was a very private person, and he never shared any details of his family, but Nick we did know he had a brother and two sisters. Married to Ingrid ('Inge') for many years, Nick was devastated when he lost her several years ago to medical problems. He then decided to sell up and move to Uniondale, a part of the country he had always had a liking for.

Nick became quite reclusive in a way renovating his big old house in Uniondale, only coming into Cape Town maybe once a year to visit the CTARC's flea market in March, and to look in on his tenant who lived in his apartment in Woodstock.

Nick was an officer and a gentleman, always courteous and polite, very erudite, capable of intelligent conversation on just about any subject under the sun, and the world is poorer without him. Nick was a very kind soul and helped anyone who needed, sacrificing his time and often money he didn't have.

His wit was second to none and often his very English upbringing came through in his sense of humour. The articles Nick wrote for this magazine several years ago were of such a high standard and intelligence with his sense of humour had us laughing in the aisles.

We will miss you Nick, and we wish you peace and hope you are now once again with your beloved Inge.

(*Thanks to CTARC for allowing the use of these two articles.)*

Electronics Crossword

CROSSWORD PUZZLE

By Arthur L. Branch

ACROSS

1 Multiple of the fundamental frequency.
9 Types of tubes used as detectors.
11 Rectifier output current: Abbr.
13 To make a curve (graphically).
14 Chemical symbol for cobalt.
15 Resistance unit.
17 Suffix denoting one who does.
18 Unit of time: Abbr.
19 Exclamation.
21 Charge developed in a vacuum tube.
24 A short circuit may be caused by a _____ in the wires.
26 Sick.
27 Middle Eastern country: Abbr.
28 Chapter: Abbr.
30 Snake-like fish.
32 The: Fr.
33 Effective a.c. voltage equals _____ - mean - square voltage.
35 Continent: Abbr.
36 Kind of bird.
38 Devices used to pick up radio signals.

DOWN

2 Public notice.
3 Tear.
4 A burrowing animal.
5 Scents.
6 Total profit.
7 Exists.
8 Fuss.
10 Part of a transformer.
12 Stored electrical energy.
14 Periodic changes in current values.
16 Conductance unit.
20 Like.
22 The correct formula for inductive reactance is: $X_L = 2?FL$.
23 Beverage.
24 Device used to convert chemical energy into electrical energy.
25 Mark with a scribe.
29 Part of a loudspeaker.
31 Relation of the current to the voltage in an inductive circuit.
33 Rodent.
34 2000 pounds.
36 Practical nurse: Abbr.
37 Cathode-ray tube's pin connection: Abbr.

(See page 117 for solution)

Nov puzzle answers:

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Antique Wireless Association of Southern Africa

Mission Statement

Our aim is to facilitate, generate and maintain an interest in the location, acquisition, repair and use of yesterdays radio's and associated equipment. To encourage all like minded amateurs to do the same thus ensuring the maintenance and preservation of our amateur heritage.

Membership of this group is free and by association. Join by logging in to our website.

Notices:

Net Times and Frequencies (SAST):
Saturday 07:00 (05:00 UTC) —Western Cape SSB Net— 3.640; Every afternoon from 17:00—3.640
Saturday 08:30 (06:30 UTC)— National SSB Net— 7.125; Sandton repeater 145.700
Echolink—ZS6STN-R
Relay on 10.125 and 14.135 (Try all and see what suits you)
Saturday 14:00 (12:00 UTC)— CW Net—7025

AWASA Telegram group:

Should you want to get on the AWA Telegram group where a lot of technical discussion takes place, send a message to Andy ZS6ADY asking to be placed on the group. This is a no-Nonsense group, only for AWA business. You must download Telegram App first. …..+27824484368