

The PROPAGATOR

April, 2001

The Monthly Newsletter of South Orange Amateur Radio Association

Video Info. Enjoyed

SOARA member Kevin Moon, who designs state of the art video equipment for a local company, gave the presentation at the March meeting. His introductory covered the details of video signals, both analog and digital. His discussion of digital video included explanations of coding techniques for color and compression.

The material was interesting overview of current technology. It was especially appealing to those who experiment with video on their computers. It was, of course, relevant to Amateur TV. Kevin can expect to receive questions from members who have an interest in video. It is nice to have an expert available.



New Members

A hearty welcome to SOARA's newest member:s

William Westfall KD6NJP
Kenneth Crispin WB6RYC
Richard Saunders AD6VT
Louis Frank KG6FCT
Robert Swenson KG6FUW
Jeremy Whaling KG6FUT
W. "Bill" Bisson KF6XX
Marcy Bisson KG6FY

Field Day Planning

It may seem far off now, but Field Day will be upon us before long and there are plans and preparations to be made. If you have not participated in the past, here is a quick sketch of Field Day.

On Friday evening, June 22, SOARA members will gather at Gilleran Park in Mission Viejo to plan the antenna locations and make preliminary preparations. This will, of course, work up an appetite so there will be hotdogs. Early Saturday morning, June 23, the eager crew arrives armed with tools and enthusiasm. Fueled by coffee and donuts they will erect an impressive array of antennas. Radios and computers will be set up and connected. Powered by batteries and generators, the radios will come alive at 1800 UTC (11:00 AM) and the fun starts.

For 24 hours we will make contacts as fast as possible. It can be hectic, but there are plenty of operators willing to search for new contacts. Each phone contact is worth a point while CW and digital contacts are worth 2 points.

There are a variety of bonus points to be pursued. New this year is the opportunity to earn up to 100 points each for up to three demonstration modes of operation. We are looking for members who can set up APRS, ATV, and SSTV. Bonus points are available for a satellite QSO, for five QSOs operating from solar power, for copying the special W1AW Field Day bulletin, etc.

You can see that there are a lot of activities going on and lots of opportunities for YOU to get involved. If you are an old hand, then we need your leadership and expertise. If you are new at it, we need you to be there and enjoy a new experience — even if you only watch and enjoy the good food and fellowship. Field Day skills are emergency operating skills.

Make your plans to be there.

Share the Magic

This month we will have a presentation on the state of Amateur radio. Let's ensure that our hobby continues. We have all found it very exciting over the years, and it is now time to instill that excitement into others. KG6CGT and KO6SY will host a "brain storm" session for ideas and actions. There will also be a video from the ARRL on a related subject so we can see what others are doing.

If there is one meeting you come to this year, make it be this one! Give something back to the hobby you have enjoyed for so long.

See you at the meeting.



See that smile! Here is Greg, N6PM, happy winner of the ADI 220 mobile radio in the March \$5 Raffle.

This could be you, after the next \$5 Raffle!



The Way I See It: Understanding Radio Theory Without Math.

If you attended SOARA's general meeting in March you enjoyed Kevin Moons talk and demonstration on video. His talk inspired this month's column. Of course, Kevin discussed color and the (well known) fact that mixing colors gives rise to a resulting color. You learned this in grade school when you mixed paints to get new colors.

But wait a minute; as Hams we are aware of the electromagnetic spectrum (things like radio waves) and that light is just another form of electromagnetic wave. Radio waves are located at the lower frequency (and thus, longer wavelength) portion of the spectrum. We move into microwaves, far infrared (far from the visible), near infrared, visible, ultra violet, X-ray, Gamma-ray regions, etc.

The visible spectrum lies between about 400 nm and 700 nm. If you look in a Radio Shack catalog under LEDs you will find the typical wavelength given as: Red — 650 to 700 nm, Yellow — 585 nm, Green as 565, and Blue — 430. LEDs and Lasers emit a fairly narrow range of wavelengths.

Of course there is a frequency associated with each wavelength, so we could say they emit a fairly narrow range of frequencies. That range of frequencies is from 430 to 750 THz. (A THz, TeraHertz = 1000 GHz, and a GHz = 1000 MHz. Now you are in familiar territory.) The point of getting the frequencies is two fold. First to give a better feeling that light waves are similar to radio waves, just a different frequency. A second motivation is to allow us to look at "mixing" of signals from a radio point of view. Our receivers "mix" the received signal with the local oscillator to give sum and difference frequencies. Lets try that with, say, a red

light wave (430 THz) and a blue light wave (750 THz). We get 320 THz in the infrared and 1180 THz in the ultraviolet.

Well then, the mixing of colors has nothing to do with the "mixing" of signals in our radios. Two light waves of different wavelengths don't interact in some

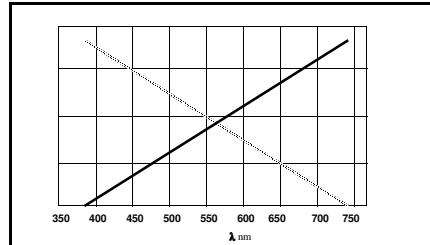
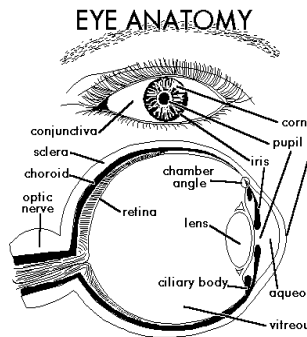


Figure 1 Hypothetical di-stimulus light sensor

mysterious way and become a light beam of another wavelength. (People normally refer to the wavelength of light rather than its frequency.) If I take a yellow LED (585 nm) and use a video camera and monitor to produce a (color) picture of it, the color will match the LED quite closely. But if I then look at the CRT of the monitor with a magnifying glass I will see no yellow, only red and green dots.



EYE ANATOMY

If you ask for a signal report on one of the repeaters, you may be told that there is "white noise" on your signal. This means, as you know, that there is a broad uniform range of frequencies in the background — no frequency stands out. A hum or a tone would be quite a different thing. White light is a uniform mixture of all light wavelengths. But wait. If I look closely at a color CRT showing a white background, I find that there are three colors present! Red, green, and blue are combined to produce white. It is only because the dots are too small and close together for me to resolve them at a normal viewing distance. If I look through a magnifying glass, I see the three separate (spatially) colors. Still the white on a TV screen looks quite identical to the white in the original scene.

Enough description of the mystery. Time to look behind the magicians cloak and see what is going on. If we take an instrument called a spectrometer that measures the amount of light at each wavelength, we would immediately see the difference between the white light in the background of a TV set and the red, green, and blue mixture

from the TV monitor. It is only our perception of color that gives rise to the familiar "mixing" of colors.

If you listen to a piano recital, you will hear each note although several keys are struck at a time. Your ears are able to hear many tones simultaneously and distinguish every one. Audible white noise had better be "white" and not a mix of just a few tones.

Your eye contains light sensitive cells referred to as rods and cones. The rods are sensitive to very low level light and do not differentiate colors. They are responsible for "night vision", and have to be "turned on" as "you become accustomed to the dark." The cones are responsible for color vision. There are three types of rods. THREE types! Do we have a clue here? Yes, indeed, lets look at it.

How could you distinguish a wide range of colors with just three receptors? You could do it with just two types of receptors. Figure 1 shows the response curves for a hypothetical detector. The sum of the two sensor responses indicates the light intensity and the ratio indicates the color of the light. A mixture of several wavelengths would give the same stimulus as some single wavelength light. Notice that you would not have any sensation of white — a uniform distribution of wavelengths would give a response equal to about 560 nm (green).

The response of the human eye is characterized by the curve shown in figure 2. It is certainly more complex than the simple example of figure 1, but it serves the same purpose. The ratio of the three responses

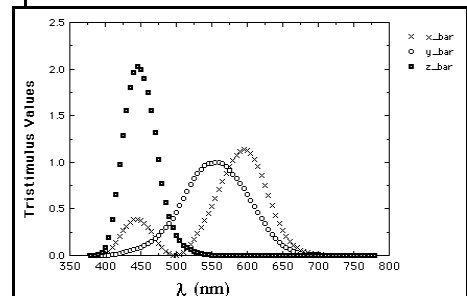


Figure 2 CIE standard tristimulus light sensor

gives the color information. The additional sensor type allows us to perceive a much wider range of color, including white, purple (a mixture of red and blue), and pastel colors. Color, like beauty, is in the eye of the beholder.

Year 2001	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sept.	Oct.	Nov.	Dec.
General Meeting 7:00 PM	22	26	19	16	21 Auction	18	16	20	17	15	19 Auction	No meeting
VEC Testing 5:30 PM	22	—	19	—	21	23	16	—	10	—	19	—
Propagator Deadline	6	10	3	1	5	2	1	4	1	9/29	3	2
Board Meeting	29	3/5	26	23	TBA	25	23	27	24	22	26	
Spring Auction					21							
ARRL Field Day						23 - 24						
SOARA picnic								4				
Fall Auction											19	
SOARA Holiday Party												2

Reminder

Look for a SOARA ballot in the mail. It is election time again, and this is the year that all of the directors stand for election.

Below is a list of those who have agreed to run.

Repeater: Howard Brown, KG6GI
 Publications: Dale Griffith, W8RRV
 Membership: Chris Reed, KB6FYG
 Education: Mike Mullard, KF6HVO
 Communications: Ray Hutchinson, AE6H
 Technical: Kevin Moon, KG6ABX

The strength of any club is in the members who are willing to participate and support the club. One way of supporting the club is simply in being a member and paying dues. There are many other ways to contribute and you are urged to pitch in. Field Day is coming up soon and will require a lot of participation in order to achieve the success SOARA has enjoyed in past years.

Reminder

If you have overlooked your dues payment, or if you are not sure, please contact the membership director, Chris Reed, KB6FYG, to check on your status. As you will hear at the April meeting, SOARA has many plans for activities designed to help all members enjoy the hobby and to reach out to non-hams who might enjoy the fun of Amateur Radio. You can help — support your club.



Do you remember how you got started in Amateur Radio? Chances are that some kind ham introduced the hobby to you. Few people enter the hobby without having received encouragement from one or more hams who showed their willingness to share with a newcomer.

Would you like to be a part in some new ham getting their start? This is a great time to be involved in amateur radio. It has never been easier to get involved at the entry level and never easier to advance. Equipment is available at reasonable cost and kits are still available. The range of interests that hams can pursue is still expanding.

SOARA has a class starting this month. If you know someone who might be interested, give them information on the class. Invite them to a club meeting or to visit the Field Day site in June.

Kids day will be held on June 16. This is a

great opportunity to introduce young people to an exciting and technical hobby. It is an avocation that may lead them into a number of technical careers.

If you don't have children of your own, then perhaps there are neighbors who would find radio exciting. Inviting a neighbor child and a parent to spend some time in your shack experiencing the magic of radio may provide good public relations.

Field Day should be especially interesting to visitors this year. We hope to have a satellite station in operation. APRS, amateur TV, and a variety of digital modes should be on display. Of course our logging will be computerized again this year.

If you have some experience with any of the modes that we plan to demonstrate at Field Day, then please get in touch with Steve Perluss, KR6CE, or Dale Griffith, W8RRV, to let them know of your availability.

A casual conversation may turn up an interest in radio. Invite interested friends to attend a club meeting, demonstrate the radios, if that is appropriate. Share the friendliness as well as the magic of ham radio. If you hear an unfamiliar voice on the repeater, give them a call. Lets make sure everyone with an interest is made to feel welcome. You may be crucial in getting someone started on a life time of fun.

The PROPAGATOR

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**Meeting: Monday, 4/16/01 at 7:00 PM.
Program: "Sharing Ham Radio"**

☛ **SOARA** meets at the Mission Viejo Community Center, 26932 Veterans Way, Mission Viejo, the third Monday of every month at 7:00 PM. Changes to the meeting time or place are announced in this newsletter and on the two-meter repeater.

☛ **License Exams:** Amateur License Exams are given prior to most SOARA meetings. Exams are from 5:30 to 7:30 PM. You must make an appointment at least a week in advance. Call Lou Parker, KA6BJO, at 951-0336. (No calls after 9:00 PM please.)

☛ **Contacting SOARA:** Questions about SOARA? Send e-mail to: info@soara.org, or leave a message at 949-249-1373.

☛ **Web Site:** SOARA maintains a web site with current club information. The URL is: <http://www.soara.org>.

☛ **Repeaters:** The SOARA 2-meter and 70 cm repeaters are open to all licensed hams.

SOARA 2m — 147.645 - (110.9)

SOARA 440 — 445.660 - (110.9)

The SOARA 220 and HROC 440 repeaters are shared by members of both clubs. Each machine is subject to the operating rules of its respective club. Call KG6GI for details.

SOARA 220 — 224.100 - (110.9)

SOARA 220 — 224.640 - (123.0)

HROC 440 — 447.180 - (131.8)

☛ **Nets:** SOARA 2 m repeater open net is held on Tuesdays at 8:00 PM following the Laguna and M.V. emergency nets.

40 meter HF net (7.262 MHz +/- for QRM), Sunday 7:30 AM
PSK-31 net: 28.120 USB 1 KHz meets Fridays at 6:00 PM.

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