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#### **EDITORIAL**

BY HI80

Ham Radio Clubs: Beyond four walls

In the last edition I referred to the need of attracting a new generation of radio amateurs, not only in the DR but worldwide, and we also mentioned that amateur radio clubs must be prepared to receive, motivate and develop this new generation.

At the outset, I would like to put on the table that I recognize the need and the advantages for amateur radio clubs to have a clubhouse, or facilities where members can meet and socialize. But I also recognize that a club, to be successful and make a difference should not just be a clubhouse, 4 walls where nothing happens, if the magic of ham radio is not there.

If we learned anything from the pandemic years it was that virtuality can also be good and that we don't always have to be phisically present to do productive and transcendental things.

A radio club, to be able to attract a new generation of hams must be able to bring Amateur Radio into the lives of that generation. Today's young people are online, interconnected individuals, where multitasking is the norm and where they have to perceive that something adds value to their lives or else they reject it.

The most basic example is that a teenager or preteen is not going to go to a radio club to "see" what it is, to "see" what they are doing there, unless they already have a close relative who is familiar with the hobby.

It is necessary for clubs to take the hobby to the new generation, to teach them how ham radio can be part of their lives and how it can add value to them. We should take introductory talks to schools and educational institutions to expose young people to Amateur Radio. We should not structure our educational activities only on those people who already know Amateur Radio and are in the process of obtaining a license. We must be proactive not reactive.

On the other hand, there is no doubt that this is the generation of social media. If you are not on social media you don't exist, if you don't introduce this generation to useful tools that are native to their lives, they will probably pass you by without knowing that the club exists. Websites, social networks, mobile applications, are tools that young people use 24/7/365 and are perfect tools to capture their attention and develop their interest. But you have to offer them innovation, modernity, immediacy, otherwise they will divert their attention elsewhere.

They say that a picture is worth a thousand words, so another thing that clubs can do outside of their 4 walls is to do live demonstrations, for young people and those interested in knowing how ham radio works. Doing demonstrations in parks (POTA), beaches (BOTA), etc., can be a way to promote and spread the word about Amateur Radio. You can teach the new generation that the hobby can be harmonious with their interests and other hobbies. But that is not going to be achieved within 4 walls.



#### **EDITORIAL**

Another way a radio club can be successful and make a difference is by interacting with the community it serves, not just limited to emergency and disaster relief (which is an important part of the Amateur Radio service) but in community support and social responsibility programs.

There is an activity in your community? offer communications support, volunteer time and volunteers to support social programs (reforestation, food and clothing drives), etc. Don't limit yourself to what can be done within 4 walls.

The international community is also important and is an area where your club can make a difference (or isn't the Lions Club or the Scouts the best example?). In that sense, clubs should seek collaboration with their peers in other regions, in other countries, where an exchange of best practices and knowledge is possible, promoting the growth of their respective memberships and communities.

The global aspect of amateur radio is not limited only to signal transmissions, it also encompasses the relationship between people, between groups, between clubs.

And that is not only achieved by having 4 walls, nor is it impossible if you don't have a place.

These are just a few of the many examples of activities that clubs can take part to make a differece and promote ham radio to the new generation of hams that would inevitable substitute us and still be relevant.

It is important to have a physical space to socialize, but we should not limit ourselves to that alone, nor is it essential to have our own place for a club to develop, as there are many options for renting space. After all, amateur radio is a way of life and you take it wherever you go.

What clubs should do, with or without premises, is to bring Amateur Radio to young people, make it available to them in a language and context that is familiar to them, show by example and not by history what it is and how it works, add value to the hobby and that can only be achieved by modernizing our practices and structures, being hams and looking outside the 4 walls.

SDRA is doing it's part. We do not have our own walls, however, a year after our incorporation we have already managed to position ourselves in the national and international community, we have made agreements with educational institutions and international organizations, we have the recognition of our regulator, leased a space for meetings and presentations, we are taking the hobby radio to schools and outdoors and we are doing what we like the most: being radio amateurs!!

73, Santiago HI8O

The ideas expressed in this Editorial are the sole responsibility of the author.

**18 APRIL** 

## WORLD AMATEUR RADIO DAY

اليوم العالمي لراديو الهواة

Día Mundial del Radioaficionado

Всемирный День радиолюбителя

Journée mondiale de la radio amateur

世界业余无线电日

Celebrating Amateur Radio's Contribution to Society





"On World Amateur Radio Day, we celebrate the passion for communication through the air and the spirit of collaboration and mutual aid that characterizes this global community.

¡Happy WARD to all amateur radio operators!"











SDRAEDUCATION





#### **MARCH 5TH**

#### **HAM RADIO LIVE**

Spring 2023

As part of the activities to promote amateur radio and attract new hams, especially young people, SDRA held its first Live Demonstration, where prospective and current hams interested in learning and developing new areas within the hobby were received.

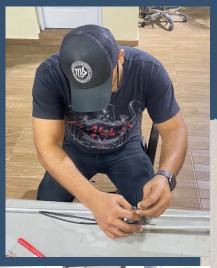
These activities will be held permanently, 4 times a year (March, June, September and December).

Follow our networks or write us for more information.













# FIRST ANTENNA BULDING WORKSHOP

Committed to developing the new generation of radio amateurs, we had the opportunity to conduct an antenna building workshop, for prospects and new hams, where participants learned the general principles of antennas and had the opportunity to make their own JPole antennas.

Undoubtedly a phenomenal and enriching experience for all participants.







SDRA attended the Orlando Hamcation last February, where he had the opportunity to share with several participants of the POTA program in the United States, Puerto Rico, as well as with other hams from the DR.

In the picture HI8D David, with Kerri KB3WAV, Ray KC3RW, Annabel, Fausto HI8AM, Kimberly, Dan WD4DAN, Suzie-Lynn and James KE8PZN.

ORLANDO HAMCATION



HI8D David, N4SDB Stacy and N4SI Ringo.



NP4H Nomar, HI8D David and HI3T Teddy.

SPRING SUPPORT YOUR PARK WEEKEND **ABRIL 15 Y 16, 2023** HI8POTA



HI8D David and Frank KG5AHJ.



Ezequiel NK4DX, Jason KC5HWB, HI8D David and Gabriel HI8GSP.



HI8D David, HI3T Teddy and Gabriel HI8GSP.



KO4FHS Dianne, HI8AM Fausto and KN4SWS John.



HI8D David and KO4KHB David.



HI8D David and KG2MM Mike.

## FROM THE SHACK

**BY HI80** 

# BASIC TIPS FOR REMOTE OPERATIONS

Part 2. Model Set up



In <u>Part 1</u> we saw the general principles of remote operations, this time we are going to look at some specific equipment and tools used in remote operations, using my current remote station as a reference.

As we said before, we must remember however, that there is no single solution nor a solution that applies universally to everyone. What works for me may not work for others and vice versa.





#### **Step by Step**

For a better understanding of these recommendations we will try to group them by functionalities:

- Networks
- Energy (On/Off)
- Radios
- Antennas
- Rotor
- Amplifier
- Extras

This way we can group our suggestions and recommendations for each part or area of our radio shacks.

#### Links

On the last page of the article, you will find a list with links to the equipment, accessories and applications that we mention in the article.

As far as possible we will try to include the direct links to the manufacturers of the equipment, since we are not affiliated to any store or online sales platform, therefore none of our recommendations have the interest of obtaining any profit or benefit.

It should be remembered that it is almost certain that for each recommendation, there are more alternatives cheaper or not, simpler or more complex, even some home-made, so we do not claim to have the absolute versad on this subject.

#### Network

As we mentioned in the previous part, the best recommendation is to have a good internet service, preferably wired. Nowadays fiber optic services are in almost all areas and at really comfortable prices.

For the distribution of my network what I have is a TP-Link 16 Port Gigabit Ethernet Network Switch which needs no configuration and is plug and play. I use it connected to a SmartPlug so I can reboot it remotely if necessary.

#### Power (On/Off)

For remote power on and off of the equipment I am using two different tools. Some accessory and complementary equipment I have them connected to Wyze brand Smartplugs (Wyze Plug). These plugs are managed through a cell phone application.

While the main equipment (Radios, Genius Antenna, Genius Rotator, PC, etc) I have them connected to a DIGITAL LOGGERS Web Power Switch Pro, which is managed via an application or manual (either by LAN or Wifi). This power switch is highly configurable and can be automated according to the needs of each station.

An important note, the remote shack PC is configured, via BIOS, to reboot after a power failure, which assures me that the PC will never be off without the possibility of turning it on remotely.

#### Radios

My main radio, as you know, is a Flex 6400, so its remote operation is extremely simple and efficient. The power supply to the Flex is connected to the DLI Power Switch, which allows me to turn it on and off at any time. While the radio itself uses a remote on functionality by connecting an RCA cable to the back of the radio and using a relay to turn the power on/off.

In my particular case, I use a Digital Logger Enclosed AC/DC Power Relay, which has done a flawless job for over 5 years.

My other radio is an Icom 7100, and the power supply is connected to the DLI Power Switch, which allows me to turn it on and off quickly and safely.

At the system level, the Flex operates remotely with SmartSDR for Windows, for MacOS or for iOs; while the Icom 7100 is managed using Win4Icom.

Our friend Teddy (HI3T), also highly recommended us to try FTDXRC Remote control software for Yaesu Radios (FT DX 5000, FT-2000 and FT-950).

#### **Antennas**



In my case, one of the most important accessories is a locally manufactured antenna disconnector, which works with a hydraulic • arm (actuator) that will allow • connecting and disconnecting the antennas remotely, using Sonof relays, models SONOFF 4CH Pro R3 Wi-Fi Smart Switch 4-Channel.

In turn, the sources that will feed the relays will be connected to Wyze plugs, mentioned above.

On the other hand, the Antenna selector I use, is the Genius 8x2 Antenna, which is automatic, so once initially configured, no further attention is needed as the AG follows the movements of the radio, but also comes prepared for remote operation via IP address, or via computer through an application.

Like the other main equipment, the power supply is connected to the DLI Power Switch.

Prior to the AG, my station used the Green Heron Select 8, which is also automatic and whose power supply was connected to a Wyze plug.



#### Rotator

My rotor (a HAM IV), I used to use it with a HyGain DCU-2 controller, which was connected to the DLI Power Switch and managed it through the PSTRotator program, without any difficulty.

However, I am replacing the DCU-2 with a Rotator Genius (from Ranko 4OA3), which will also have the power supply connected to the DLI Poweer Switch and is operated through a Windows application from the same manufacturer.

#### **Amplifier**

In the next stage of my remote station, I will be incorporating an Acom 600S Amplifier, whose power supply (110v) will be connected to a separate Wyze plug, so that it can be turned on and off without problems and the amplifier will be controlled by the ACOM Director Plus software, in a safe and efficient way.

#### **Extras**

Some extra components that I have incorporated in my remote station, to complement the operations a bit are:

- A Wyze Cam 1080p Pan/Tilt/Zoom Camera, which allows me to observe the inside of the remote shack, via cell phone.
- Two outdoor cameras Wyze Cam Outdoor, wireless that allow me to monitor from the cell phone, the outside of the shack and the tower with antennas.
- These outdoor cameras work with a WYZE Solar Panel, to give more life to the batteries.
- Wyze Bulb Color bulbs, 1100 Lumen WiFi, that allow me to turn on and off the lights of the shack via the cell phone, to "simulate" activity in the shack.

#### Automation

Closely related to remote operations, we find the station automation modalities, and I am not referring to the use of robots in digital modes, but to the automation of operational processes of the stations.

Most of the devices that are controlled remotely (via apps), are integrated through routines with Alexa, Google Assistant or Apple Home Kit. In my case for example, I use Alexa with commands like:

- "Alexa turn on HI8O" and Alexa turns on (in the order I set) the Radios, Genius Rotor, Genius Antenna, etc.
- "Alexa turn off HI8O" and Alexa turns off the station.
- "Alexa go QRO" and Alexa turns on the amplifier. The opposite direction would be the command "Alexa go QRP".
- The lights for example, I have schedules where they turn on and off automatically, without me having to keep an eye on it.

More recently, it has become very popular to use programming using Node Red to autoremote processes and operate the main equipment used in radio-affected shacks.

One important example is a Node Red Flow that when the weather report indicates "storm", "lightning" or similar, it triggers a schedule that shuts down the entire station, disconnects the antennas and sends me an email notifying me of this activity.

And that's just one example of what can be done!

#### **Final Note**

If you have any questions, concerns or additional information please do not hesitate to contact us at santiago.mejia@sdra.do.

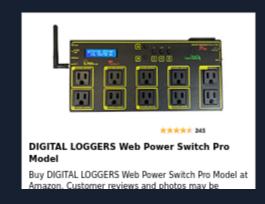


#### **Links of interest**

First of all, I want to clarify that I do not have any participation in Amazon, nor do I benefit in any way from your purchases nor their sales, I simply place the Amazon references for practical reasons and for being the place where I almost always make my purchases. I recommend you to look for other suppliers or alternative products according to your interest or need.



















#### Other links:

- Antenna Genius by 403A: https://403a.com/antenna-genius-8x2
- Rotor Genius by 403A: https://403a.com/rotator-genius
- Node Red: <a href="https://nodered.org/">https://nodered.org/</a>
- Node Red & Ham Radio Group: https://groups.io/g/nodered-hamradio
- Yaesu Radio & Cat Control: <a href="https://df3cb.com/ftdxrc/">https://df3cb.com/ftdxrc/</a>



#### IT'S GOOD TO KNOW

BY HIST

#### THE IMPENDANCE IN ANTENNA SYSTEMS

The impedance in the antenna systems used in amateur radio communication is 50 ohms, so we use the transmission line, in this case coaxial, also 50 ohms and the antenna system must have 50 ohms as well. In this way there is a perfect coupling between the radio and the antenna, in theory.

This "perfect" coupling does not exist in reality. Because there are always external elements that come into play, such as the resistivity of the ground, the height of the antenna above the ground, among many others. In addition to this, the antennas are calculated in a specific frequency and the amateur radio operators have a range of frequencies per band. For example, if we use an antenna that is calculated and adjusted to 14,200 MHz, when we move to 14,030 the coupling will not be the same.

When we talk about coupling, we mean that all energy sent to the antenna is radiated, because if it is not radiated it will be returned to the signal generator (the radio), this is what is known as reflection.

This reflection is going back and forth between the radio and the antenna, it is commonly known as Standing Wave Ratio or SWR.

Although this does not imply a major complication, the bandwidth of an antenna is considered: at the extremes where the SWR is no more than 2:1, for example, if the antenna is 1.2:1 at 14,200 MHz, 2:1 at 14,100 and 2:1 at 14,300 we say that the bandwidth of the antenna is 200Khz.

When the standing wave ratio is higher than 2:1, the transistorized equipment activates the POWER DOWN function, which reduces the output power:

SWR 1:1 100W SWR 1.5 100W SWR 2:1 95W SWR 2.5:180W SWR 3:140W SWR 3.5:1 30W SWR >4:110W

This is not to be confused with the losses associated with high SWR, it is only due to the reduced power output of the radio.

There is a misunderstanding, having high SWR in an antenna does not mean that it has losses, there are normal losses (called attenuation) in the transmission lines, these losses are described in the technical specifications of these lines, and are higher as the frequency rises.

Let's see the attenuation of a commonly used cables:

	Attenuation (dB per 100 feet)							
С	Coax Cable Signal Loss (Attenuation) in dB per 100ft*							
Loss*	RG-174	RG-58	RG-8X	RG-213	<u>RG-6</u>	RG-11	RF-9914	RF-9913
1MHz	1.9dB	0.4dB	0.5dB	0.2dB	0.2dB	0.2dB	0.3dB	0.2dB
10MHz	3.3dB	1.4dB	1.0dB	0.6dB	0.6dB	0.4dB	0.5dB	0.4dB
50MHz	6.6dB	3.3dB	2.5dB	1.6dB	1.4dB	1.0dB	1.1dB	0.9dB
100MHz	8.9dB	4.9dB	3.6dB	2.2dB	2.0dB	1.6dB	1.5dB	1.4dB
200MHz	11.9dB	7.3dB	5.4dB	3.3dB	2.8dB	2.3dB	2.0dB	1.8dB
400MHz	17.3 B	11.2dB	7.9dB	4.8dB	4.3dB	3.5dB	2.9dB	2.6dB
700MHz	26.0dB	16.9dB	11.0dB	6.6dB	5.6dB	4.7dB	3.8dB	3.6dB
900MHz	27.9 B	20.1dB	12.6dB	7.7dB	6.0dB	5.4dB	4.9dB	4.2dB
1GHz	32.0dB	21.5dB	13.5dB	8.3dB	6.1dB	5.6dB	5.3dB	4.5dB
Imped	50ohm	50ohm	50ohm	50ohm	75ohm	75ohm	50ohm	50ohm
* Note: Coax losses shown above are for 100 feet lengths. Loss is a length multiplier.								

so a 200 ft length would have twice the loss shown above and a 50 ft length would have half the loss. This multiplier factor is why you should keep cable installation ngths between radios and antennas as short as practical!



#### IT'S GOOD TO KNOW

BY HIST

THE IMPENDANCE IN ANTENNA SYSTEMS

Analyzing the table above, we see that the attenuation of RG-213 (at 100 feet) is 2.2 dB at 100 Mhz and 3.3 dB at 200 Mhz, so we assume that at 146 Mhz it is approx. 2.6 dB.

Putting this into practice and using the KV5R coax loss calculator, if a radio transmits with a power of 50W in 146 Mhz using 100 feet of RG-213 cable, and the antenna has a SWR equal or less than 1.5:1, the cable losses will be 2.6 dB and the SWR losses will be only .125 dB.

	Results:				
Line Type:	Belden 8	82678 RG-213/U 🕶	Matched Loss:	2.61	dB
Line Length:	100	● Feet ○ Meters	SWR Loss:	0.125	dB
Frequency:	146	MHz	Total Loss:	2.735	dB
Load SWR:	1.5	:1	Power Out:	26.636	Watts
Power In:	50	Watts	Power Loss:	47	%
	Calcula	te before using ERP Calc.			

When you add both losses together 2.61 + .125 =2.735 dB, which results in 47% power loss. The power delivered to the antenna will be 26.636 Watts.

Now if the SWR were 5:1, we have that: the losses of the cable will be 2.6 dB and those produced by the SWR will be 1.93 dB that when adding them becomes 4.54 dB, which results in a 65% of lost energy. The power delivered to the antenna will be 17.577 Watts.

	Paramete	ers:	Results:			
Line Type:	Belden 826	78 RG-213/U 🔻	Matched Loss:	2.61	dB	
Line Length:	100	● Feet ○ Meters	SWR Loss:	1.93	dB	
Frequency:	146	MHz	Total Loss:	4.54	dB	
Load SWR:	5	:1	Power Out:	17.577	Watts	
Power In:	50	Watts	Power Loss:	65	%	
	Calculate	before using ERP Calc.				

As we can see, in both cases the cable maintains its attenuation but as the SWR increases the losses increase. This is because the cable used is only 100 feet, imagine using a 175 feet cable. For this reason it is recommended to use low attenuation cables for higher frequency.

We must not confuse the loss due to cable attenuation with the loss produced (additional) by the high SWR.

It is important that the SWR seen by the radio is less than 1.6:1, if it rises above that, it is advisable to analyze what is happening and correct it.

Therefore, as you know, when we talk about losses, we are not only referring to SWR.

#### **CQ POTA**

#### BY HI8D

Parks on the Air® (POTA) is an amateur radio program that promotes the development of amateur radio skills, fosters community, and demonstrates the hobby to the public from protected areas and national monuments.



The best way to get there is through the towns of Manabao and La Ciénaga, in the province of La Vega. Another alternative is through San Iosé de Ias Matas in Santiago.



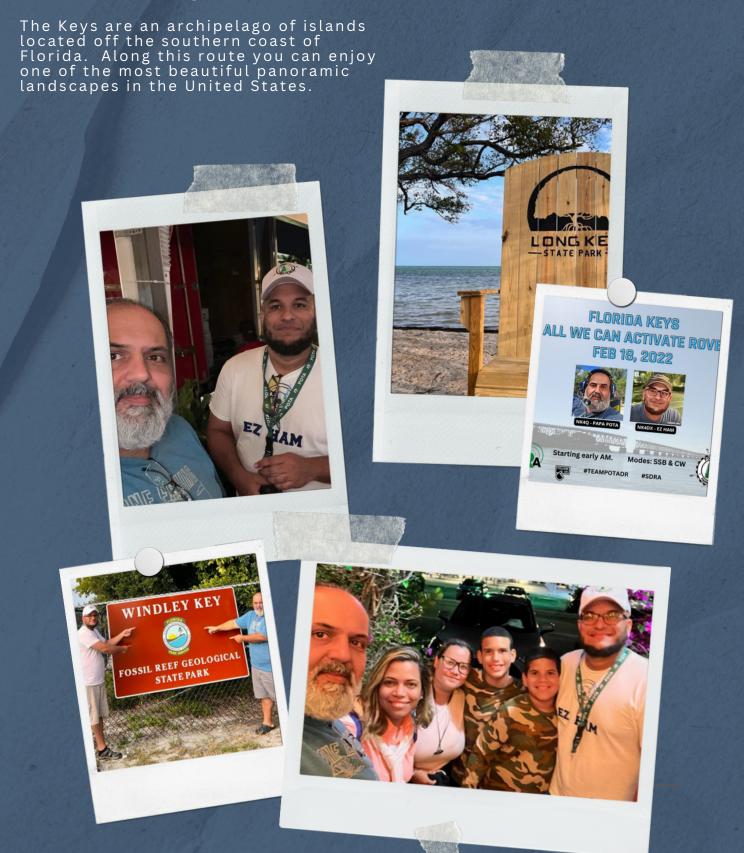
#### ARMANDO BERMÚDEZ NATIONAL PARK

On March 19, SDRA visited Armando Bermudez National Park in La Ciénaga de Manabao, where we were received by the park administrator, Alex Corona and his wife, Marisol Lama. We appreciate their hospitality and the information provided about this and other protected areas.

with the José del Carmen Ramírez National Park the highest altitude in the Caribbean, the Pico Duarte (3,175 meters).

#### FLORIDA KEYS ROVE

David Lama NK4Q/HI8D and Ezequiel Prado, NK4DX/HI3AA conducted an activation tour of the Florida Keys. In this February route, 12 ground parks were activated, achieving 613 QSOs in SSB and 305 in CW.



### ISLA CABRA EXPEDITION MONTECRISTI SUBMARINE PARK HI-0042

Last March, Loma del Toro Dx Club (HI3LT), conducted an expedition to Cabra Island (HI0LT), located within the Montecristi Submarine Park, HI-0042, where they managed to make some 13,551 Qso's in CW, SSB, RTTY, FT8 and FT4 modes, as well as 264 contacts in SSB with the SUGAR DELTA group (11m).



The President of the Club, Constantino Carlo (HI3K), informed that Elecraft K3, Yaesu 991 and 450 radios were used in this activity, as well as directional, vertical and dipole antennas. The expedition was powered by green energy, thanks to 5 solar panels and a 10 kilo lithium battery packet.



In addition to the Dominican team, operators from Mexico, Ecuador and the United States participated.





#### **CUBAN RADIOAMATEURS FEDERATION**

#### T47C C09JAB C0-0004

**APRIL 15th and 16th 2023** 

The Limones-Tuabaquey Ecological Reserve, reference POTA CO-0004, is located in the Sierra de Cubitas, 32 km from the city of Camagüey, Cuba, in the municipality of Sierra de Cubitas. It is accessed first by some stretches of road and then an embankment road called Vial Sur de la Sierra, up to Paso de los Paredones

This reserve, in its almost 20 square kilometers of extension, has incomparable riches such as the Hoyo de Bonet, a meat depression about 90 meters deep and 300 meters in diameter, and the Paso de los Paredones, a pass that separates the two highest elevations of this mountain range, the Cerro Limones and the Cerro de Tuabaquey.

In this beautiful place the FRC Camagüey Cuba Branch will be in special transmission in POTA event, Spring Support Your Park, coinciding with the third weekend. Two special callsigns, our Radio club CO9JAB and T47C, station for activities and contests, will be in the ether for all those radio amateurs interested in establishing contact; they will be operated by the Group for contests and special activities, constituted mostly by members of the DX Group of Cuba in our province.

They will transmit in 40m, 20m, 15m and 10m bands in CW, FT8 and FT4 modes, SSB and SSTV in 40m band.







**SPRING SUPPORT YOUR** PARK **WEEKEND ABRIL 15 Y 16, 2023** 

#### **INTERVIEWS**





We thank the Net de la Tecnología from Spani, for the opportunity to rėceive us in their weekly Net and to be able to talk about different topics, including our group.

You can see the interview here







Papa POTA Promotes Ham Radio in the Dominican Republic: David Lama HI8D

Thanks to Kevin Thomas for taking us into account and interviewing me on his Youtube channel, W1DED in MAINE.

You can see the interview here



# SDRA TURNS'I YR OLD MILESTONES

# About Governance and Compliance and Social Responsibility

- Approval of Manuals and Internal Rules and Regulations
- Participation in Social Awareness Events
- Implementation of Membership Management Platform and SDRA Shop

#### Collaboration Agreements were developed

- Educational Institutions
- International Clubs
- Government Agencies

#### In Education

- Presentations in schools
- Live demonstrations
- On-site labs

#### Social Media

- We launched www.sdra.do
- Go Live of the entity's Social Networks

#### **Communications**

- SDRA RX/TX Newsletter launched
- Interviews in the international amateur radio media

#### **International Activities**

- International Contests
- HI8POTA Activations
- SYP Events Contests
- Hamvention and Hamcation participations

THANK YOU FOR YOUR SUPPORT!







We are pleased to inform that we have entered into a Collaboration Agreement with the Radio Club Eternautas Radioaficionados de Chile.

You can visit their page <u>here</u>



SPRING SUPPORT YOUR PARKS
ABRIL 15 - 16

#### **Board of Directors**



#### **Board 2022-2024**

Santiago Mejia HI8O **President** HI8D David Lama Vicepresident Vitelio Mejia **OMV8IH** Secretary Carlos Fernandez HI8CAF Treasurer **Edgar Pons** HI8T Member Juan Salas HI8J Member Eduardo Sturla HI8ESF Member

#### **Legal Information**

SDRA is a non-profit entity incorporated under Law 122-05 of the Dominican Republic.

RNC 4-30-33829-1 RNI: 31235/2022

#### **More Information**

info@sdra.do www.sdra.do

Subscribe to our mailing list here

#### **Hamvention 2023**

Sponsored by the Dayton Amateur Radio Association
Greene County Fairgrounds & Expo Center
May 19-21

