



HARMONICS

1916 South Jersey Radio Association 2018



*Happy Holidays from the
SJRA Officers and Board of Directors*

President's Message

Ken- K2WB

In a couple of weeks another year 2019 will be here. The SJRA is still vibrant and active after 102 years. There is a lot of activity happening with our meetings, VE sessions, Field Day (Did I mention we got first place in the 7A category again) and more.

This year we will be adding our Amateur Radio Conference on Sunday March 24th, 2019. Mark your calendars There will be a lot of subjects on general amateur radio and a VE Test session. If there is something you would like to have presented on or would like to help contact me anytime.

Our Christmas / Holiday Party will be held on Wednesday December 19th and I look forward to seeing everyone that attends. The Holiday Party is also when SJRA members are recognized for their contributions to the club.

I want to thank all of the Board Members, Club Officers, Committee Chairpersons and their staffs for doing a great job throughout the year. The SJRA does not run itself and it

(Continued on page 4)

Save the Date

Sunday, March 24, 2019
SJRA'S 2019 Radio Conference

Location: Hotel ML
915 Route 73
Mt. Laurel, NJ 08054

- ◆ VE Session.
- ◆ Seminars
- ◆ Vendor displays.
- ◆ Lunch included.

SJRA Membership Drive *Last Chance!*

Attention SJRA Members: Sign up two new members by December 31, 2018 and get your 2019 Membership free.

For additional information please contact Art, N2CPR or email:

Membership at [sjra dot org](http://sjra.org)

SOUTH JERSEY RADIO ASSOCIATION

HARMONICS is published monthly and is the official news letter of the South Jersey Radio Association. The SJRA was established on June 16, 1916 and has been meeting continuously since its inception. The club has been affiliated with the American Radio Relay League since 1920.

The SJRA meets each month on the fourth Wednesday, January through September; and usually the third Wednesday, October, November and December; in one of the Meeting Rooms of the Gibson House at 525 East Main Street, Marlton, NJ 08053. Visitors are always welcome at our general meetings. **“Our Meetings are Smoke Free”**

SJRA operates the K2AA Repeater (145.290 - PL 91.5) located in Medford, NJ and the K2UK Repeaters (146.865 and 442.350 - PL 131.8) located in Pine Hill, NJ. The repeaters are open for use without restriction to all licensed amateur operators.

There are currently over 100 SJRA members active in most all aspects of amateur radio. Membership is by application and is subject to the approval of the Board of Directors. Club dues are currently \$30/yr. for memberships, \$22.50/yr. for retired-person membership (62 plus 1 yr. membership), and \$15/yr. for additional family members and student membership. Membership information is available on the SJRA website: www.sjra.org or from Alan Handley, K3WWT, 610-532-5407 Email: sjra@sjra.org SJRA's web page: www.sjra.org

SJRA VE Team: ve@sjra.org is the SJRA/ARRL VUCC card checker

Joe Fisher, KC2TN, is the SJRA/ARRL WAS card checker

Officers

President: Ken Botterbrodt, K2WB
Vice Pres.: Jon MacMillan, W2MC
Treasurer: Roy Herman, WB2EOD
Rec. Sec: Lou Priestley, N2HQL
Cor. Sec: Dennis Cioffi, AC2FO

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Art Arnold, N2CPR
 Matt Grohgans, N2IDW
 Rick Lawn, W2JAZ
 John Doran, W2FDJ
 Tony Canuso, N2ATB
 Burton Sampley, NJ2IT
 Al Witner, N3AVT

Committees:

Historian: Mark Walters, KD2JPW
Membership: Art Arnold, N2CPR and Alan Handley, K3WWT
Field Day: Ken Botterbrodt, K2WB
Contests: John Doran, W2FDJ
Repeater: Joe Fisher, KC2TN
Programs: Rick Lawn, W2JAZ
H&W: Roy Herman, WB2EOD; and Dara Herman, KC2THQ
Awards: Rick Lawn, W2JAZ
Hospitality: Jean Priestley, KA2YKN
Nets: Matt Grohgans, N2IDW
Publicity: Vacant (Please Volunteer)
Picnic: Vacant (Please Volunteer)
Ways & Means: Roy Herman, WB2EOD
Property: Jon MacMillan, W2MC
Web Site: Ira Weinstein, W2IRA

Harmonics Staff:

Publisher/Editor: Al Ziegler, KD2ST
Alternate Editors: Ted Groke, W2TAG and Jon MacMillan, W2MC
Circulation: Jim Vecchiola, KR2T

 ★ Harmonics is now available for SJRA members on the WEB in pdf ★
 ★ format at: <http://www.sjra.org> ★
 ★ South Jersey ARRL Section News is available on the WEB at: ★
 ★ <http://www.arrl.org/Groups/view/southern-new-jersey> ★
 ★ *****

LOCAL WEEKLY NETS

Mondays FM Net; Swap Net every 4th Monday	K2AA Repeater, PL: 91.5	145.290 @ 8PM
Fusion on 2 ND & 4 TH Thurs.	K2AA Repeater, DN mode	145.290 @ 8PM, Fusion
6M SSB on 1 st Thurs.		50.150 MHz USB @ 8PM
2M SSB on 3 RD Thurs.		144.260 MHz USB @ 8PM

Harmonics Deadline

Articles submitted for the next Harmonics will be accepted until Monday, January 7, 2019. Email: harmonics@sjra.org

SWAP SHOP - For Sale/Wanted ads are free of charge and are accepted for Amateur Radio related items only. While ads are not restricted to SJRA members, there is only limited space available and members have priority for listings. No items will be accepted for inclusion in the Swap Shop from commercial vendors or traders. All ads must be submitted at least three weeks prior to the scheduled SJRA general meeting date.

GENERAL ADVERTISING - Limited commercial advertising is accepted on a space available basis. Annual advertising rates range from \$25/yr (Min 1/8 page) to \$200/yr (Full Page). Information is available from Ken Botterbrodt, K2WB.

Meeting Minutes

Membership Meeting of November 21, 2018

The meeting, held at the Gibson House in Marlton, NJ, was opened at 1930 by Ken, K2WB with a salute to our flag. The question of the evening was, "Did you work the Sweepstakes?"

Minutes of the October meeting were approved as printed in Harmonics, motion by N2HQL/W2JAZ.

Roy, WB2EOD gave the Treasurer's report - 122 paid up members. He stated that for renewals, only a check need be submitted, unless some change to your status is being made (i.e. change e-mail address). His report was approved, motion by N2CPR/KD2ST.

Art, N2CPR reported no new members tonight. He did state that if a new member hasn't received a badge, to please contact him.

Programs: W2JAZ; Tonight we have "breakout sessions" to discuss finer points of radio; December is the Holiday party; January- Estate sale; February- White elephant sale; March - SDR.

VE Team- Al, N3AVT; No sessions for Nov & Dec, changes to the CORES system coming in January.

Contests- by John, W2FDJ: Jan 5/6 ARRL RTTY roundup; Jan 12-13 North American QSO party CW; Jan 19-20 North American QSO Party Phone; Jan 19-20 ARRL Jan VHF Contest.

Historian: Mark had a November 1964 QST to display.

Old Business: the date of March 24 (Sunday) was approved by the membership for the SJRA Radio Conference.

New Business- report on the Holiday Party- it will be held on December 19, 2018 with a starting time of 1900. Cost will be \$15.00 per person and will be held at the Gibson House. Awards will be presented at that meeting.

Break @ 2000.

Minutes of November 7, 2018 BOD Meeting

The meeting, held at the Gibson House, was opened at 1929 by Ken, K2WB.

Minutes of the October meeting were approved as submitted, motion by N2HQL/N2CPR.

The treasurer's report was approved as submitted, after much discussion regarding donor anonymity. The discussion ranged from donations from estates, to donations from members. The policy will be, those members making donations will be kept within the board of directors, if they desire, and donations from estates etc. will be made public. The motion to accept this decision was made by N2CPR/N3AVT and was passed by the board. A bequest from the estate of G. William Tunnel, W3DVC a past member of SJRA was received.

Membership; Jason Green, KC3MIL was recommended by N2CPR/NJ2IT, and he was accepted.

Corresponding Secretary, AC2FO; a letter was received regarding an article on the value of Amateur Radio (a link was provided)-the link will be added to the website. Dennis reports some thank you letters still to be sent.

(Continued on page 4)

(Meeting Minutes from page 3)

Harmonics, Al KD2ST: the reduction to 90 copies appears to be correct. He has received some locally submitted articles. These will be used before using information from outside sources.

Repeater: we still need to get old equipment from the present site. We have received invoices against the escrow account.

Contests- John, W2FDJ: 11/23-25 CQWDX CW; 11/30-2/1 ARRL 160 meter CW; 12/7-9 ARRL 10 meter; 12/16 ARRL Rookie roundup, CW.

Trustee- Ken, K2WB; no OO reports.

Health & Welfare; Roy, WB2EOD- Birthday list sent to Harmonics, Nov. Cards sent out.

Club Stuff; Joe, KC2TN the order for sweatshirts should be ready for the November meeting.

Nets- Matt, N2IDW; 11/26 will be our first swap net. 11/8 fusion net to add Philmont group.

Awards- Rick, W2JAZ- only 1 nomination so far.

Programs- Rick, W2JAZ; Nov- Breakout groups; Dec- Holiday party; Jan- estate sale; Feb – White Elephant sale; March- Flex radio by N2RJ.

VE- Al, N3AVT- October- no one showed to take test, no sessions for Nov & Dec. Cores system changes are being made.

Field Day- No results yet.

Old Business- conference- no responses yet as to date.

New; Dennis, AC2FO- Holiday party will be Dec 19th, will cost \$15.00 per person. Start time will be 1900.

We discussed use of "Ham Club on Line" to manage our member lists etc. No decision made at this time.

Adjourn at 2125. Submitted by Lou Priestley, N2HQL.

(President's Message from page 1)

takes people to run the club. Make it a point to thank someone or better yet offer to help.

Last year we started an Elmer program. A number of members volunteered to help with this program and I hope members will use it to help themselves. It is simple all you have to do is send an email to **elmers at sjra dot org**. Someone will respond to help you. So far, our Elmer list is as follows: Rick, W2JAZ; Tony, N2ATB; Art, N2CPR; Bob, K2UT; Ray, N3RG; John, W2HIV; Ken, K2WB and John, W2FDJ. This group covers the gamut of all subjects as they relate to amateur radio.

Please check your email and Harmonics for your membership renewal. It is important that all information is updated so that we can make corrections to our database. This will insure that Harmonics and other important club information will continue to get to you. We are running a membership drive in 2019. Have 4 friends join the SJRA and you will receive your 2020 membership for free.

Congratulations to all that participated in Field Day 2018. The SJRA took 1st place in the 7A category. It took a lot of hard work, but the result was well worth the effort. Field Day 2019 will be here before we know it, let me know if you want to help.

The SJRA email list has been running for a couple of years. This is a great way to reach out to all of the members of the club if you have a question or an item for sale. This service is only available to members of the SJRA and will be the only way to receive Harmonics by email. If we have your email address you will be receiving an email from sjra-members-resquest@mailman.qth.net inviting you to join the list or you can join by going to <http://mailman.qth.net/mailman/>

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SJRA Monthly Breakfast

Join us on the second Saturday every month at 9:15 am at the Bob Evans Restaurant; 601 Fellowship Rd, Mount Laurel, NJ 08054 for an informal get together.

Items for Sale

Kenwood TS-870 with Kantronics KAM-II TNC for RTTY.

Original Kenwood Box, Cables, Power Cord etc. Clean Non-Smoking environment. Contact: **ken at k2wb dot com**

Icom 746 (working condition) with Cushcraft Model A-3WS, 12 & 17 meter, 3-element beam antenna; \$300 (firm). Contact: Riz, KH7JO - **remalo1230 at gmail dot com**

Upcoming Regional Hamfests January 2019

January 12th: **Harrisburg Radio Amateurs' Club- Winterfest**. 8am to 11am at 8000 Derry Street, Harrisburg, PA 17101. Website: <http://www.w3uu.org> Snow Date: January 19th.

(President's Message from page 4)

[listinfo/sjra-members](#). Remember to include your Callsign with your name.

To send an email to the list, just send it to sjra-members@mailman.qth.net and it will go to all of the SJRA members automatically. Remember sending an email will require using the email address in which you receive emails from the list. Also, the <Callsign>@ARRL.net does not work well. Please use your regular email address.

I want to wish everyone and their families a very happy and healthy holiday season.

Until next year!

73's

de Ken K2WB

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The Inner Limits

Copyright Scott Holland, NK2N 2018

Overview

Today's topic is "Building a digital oscilloscope." I will start today with a high-level approach. I will follow this up with additional detail on the actual implementation. I do not intend to do a complete implementation at this time. I am trying to show how easy some projects might be to the Ham who has some ability to build hardware or to write software. In this case, I intend the hardware to be most if not all off the shelf stuff you may purchase. The software is something either you or I must write ourselves. I intend to provide insight into what the software has to do without providing a complete project.

Approach

Every project I present will have various inputs, controls and outputs. I will initially attempt to define what all the inputs are, what all the outputs are and what all the controls are. I will also try to clearly specify what the display of the oscilloscope looks like. I will also describe what the hardware (electronics) has to do as well as what the software has to do.

I might partition the project into sub-

functions to make the design process easier.

I do not intend to explain too much about the laptop except in relationship to what software must be written to run on the laptop. I will probably describe this in detail and indicate what programming language I might use assuming I am using a Windows 10 based PC.

I will also describe the additional hardware needed beyond the laptop and what if any software needs to run on it.

Design of a Digital Oscilloscope

In this case, my concept is to have a laptop connected to a DSP board or a multifunction micro-controller board over a USB interface. I am hoping the DSP board or micro-controller board contains all the electronics that I need beyond the laptop. If not, I may have to add some extra electronics.

I intend the laptop to do all the controls for the oscilloscope and also do all the displays. I might also think about providing the ability to print out the display after the project is completed but be aware that is always a possible additional feature.

The smallest time increment on the oscilloscope will be limited by the DSP and if you need something better, I suggest you consider buying a real oscilloscope. Sometimes a circuit can be slowed down so such an oscilloscope

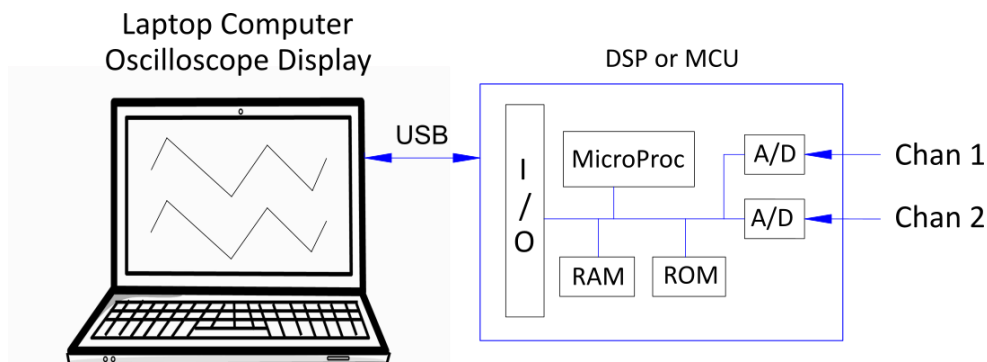


FIGURE 1

(Continued on page 8)

Radio Sport aka Contests

John, W2FDJ, johnd152 at Verizon dot net

Member's Activities:

Please send your thoughts and ideas to me at **johnd152 at Verizon dot net** for publication.

Club QSO Party (was Oct 13-14)

Results are in for our 2nd annual Club QSO Party and will be fully reported in January Harmonics.

CQ WW DX SSB (was Oct 26-28)

Adding to last month's reports

Joe, K2WJL 5,145

ARRL Sweepstakes CW (was Nov 3-4)

John, W2FDJ 52,808

Bob, KE2D 51,004

ARRL Sweepstakes SSB (was Nov 17-18)

Following filed with ARRL

John, W2FDJ 27,208

SJRA, K2AA 21,080

Bill, KB2MMI 13,392

Bob, KE2D 13,230

Joe, K2WJL 12,348

Dom, KD2EPM 10,100

Paul, KF2Y 4,692

Look for additional reporting on SJRA's Multi-operator Sweepstakes experiences.

CQ WW DX CW (was Nov 24-25)

John, W2FDJ 171,938

Rick, W2JAZ 38,325

Please send me your summary sheet so I will be able to list your claimed score next time. John/W2FDJ *contests at sjra dot org*

Upcoming Contests – see arrl.org or contestcalendar.com for rules and more details.

Every Tuesday only

Phone Frey 9:30PM-10PM. (yes 30 mi (ten weeks -4 times a year)

Every Wednesday only

CWops Mini-CWT test 8 -9AM, 2-3PM, 10-11PM (three one hr sprints)

Every Thursday only

NCCC Sprint 9:30PM-10PM. (yes 30 min)

Every Thursday only

NCCC RTTY Sprint 8:45-9:15PM. (30 min)

ARRL RTTY Roundup

1/5-6 Sat 1PM EST to Sun 7PM. HF – RTTY; Digital

North American QSO Party CW

1/12-13 Sat 1PM EST to Sun 1AM. HF; CW

North American QSO Party Phone

1/19-20 Sat 1PM EST to Sun 1AM. HF; Phone

ARRL January VHF Contest

1/19-20 Sat 2PM EST to Sun 11PM. 50 Mhz & up, Any mode

ARRL Int DX Contest CW

WORLDWIDE DISTRIBUTION



Ken Hartley
Manager
N2OHD

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(The Inner Limits from page 6)

might be helpful.

This will be a two-channel oscilloscope.

The following are inputs to the oscilloscope:

- a. Trigger signal voltage input (signal and ground)
- b. Channel 1 voltage input (signal and ground)
- c. Channel 2 voltage input (signal and ground)

The following are controls for the oscilloscope:

- a. Trigger signal rising or falling edge.
- b. Trigger signal voltage threshold.
- c. A button that requests the capture of channel 1 and 2.
- d. Up/down positioning for channel 1.
- e. Up/down positioning for channel 2.
- f. Volts/cm for channel 1.
- g. Volts/cm for channel 2.

The display on the oscilloscope will be the following:

- a. A graph paper like grid using dotted lines.
- b. The display for each channel of input will overlay on the grid in a.
- c. A time scale will show along the bottom lined up with appropriate grid.
- d. A voltage scale will show along the left of each channel's graph of data.

Figure 1 is a block diagram of this design.

The rest of this design is in two sets of software, one that runs on the laptop and one that runs on the DSP or Micro-controller board.

The actual board selection and an overview of the software will be in next month's article. As a teaser, the board will come from one of the following: Texas Instruments, Analog Devices or Microchip.

(Radio Sport aka Contests from page 7)

2/16-17 Fri 7PM EST to Sun 7PM HF;
CW

CQ 160 Meter Contest SSB

2/21-22 Fri 5PM EST to Sun 5PM 160 mtr.;
SSB

North American QSO Party RTTY

2/23-24 Sat 1PM EST to Sun 1AM
HF; RTTY

ARRL International DX Contest

3/1-3 Fri 7PM EST to Sun 7PM HF; SSB

Other Thoughts:

Here is a You Tube video for the month that I recommend for viewing. Just go to <https://www.youtube.com> and enter the title of the video in the search window.

At the October meeting I discussed getting started with contesting with an important step being getting on the air. This video deals nicely with the whole realm of buying that first station. I hope you find it helpful.

"Buying your first HF ham radio transceiver, a complete guide" by Ham Radio Concepts.

Al, KD2ST provided a link to a podcast that he found to be pretty good with regard to contesting. The podcast can be found at: <https://nononsenseamateurradio.com/episode-8-contesting-with-scott-k0md-editor-national-contest-journal/>

Also from Al, The National Contest Journal <http://ncjweb.com> has some useful information on their website that can be accessed without a subscription to their magazine.

If you have some recommended video's let me know and we will share them with the membership. /John W2FDJ

New Members

The SJRA would like to welcome the following new member to our Club:

- John Price, KD2QYC

SJRA Membership Renewal

Hey everybody, it's dues season again.

- \$30 Regular Member.
- \$22.50 if you are over 65.
- \$15 student.
- \$15 each additional family member.

Please include any updated information in the membership application form which can be accessed at: <https://sjra.org/sites/default/files/2018%20RENEWAL%20AND%20NEW%20MEMBER%20FORM%20updated%203%2014%202018.pdf>

Make check payable to South Jersey Radio Association and mail to:

Roy Herman
19 Bryce Road
Voorhees, NJ 08043

SJRA also accepts PayPal.

Please send money to dues@sjra.org
Send as family and friends so PayPal takes no fee or include an extra \$1.

Any questions email [<treasurer@sjra.org>](mailto:treasurer@sjra.org)

Tnx and 73,
Roy Herman, WB2EOD
Treasurer

A Ham's Holiday Poem

(Originally Published 12/24/15 on the SJRA Website)

'Twas the night before Holiday, when all through the shack

Not a ham was a chewing, not even a hack.

The mics were all hung by their clips with such care,

In the hopes that HAM NICK, soon would be there.

The hams had retired all snug in their beds,

While visions of new base stations danced in their heads.

I thanked my XYL for her patience and care,

And swore I was done, "No more tonight", I did swear.

When out on the roof there arose such a chatter,

I sprang from my bed to see what was the matter.

Away to the window I ran like a ham,

Who just lost his tower, I exclaimed "Oh D*mn"!

I looked down on the lawn, no antenna was found,

Then up to the roof and back down to the ground.

Then what to my dreary eyes did appear,

But a little old man with a bunch of Ham Gear.

(Continued on page 10)

(A Ham's Holiday Poem Continued from page 9)

With a nod and a crew, they shimmied up
my old tower,

And I heard him exclaim, "He requested
MORE POWER!"

New Yagi's went up and more coax
tossed down,

New connectors and tuners and gadgets
abound.

With their work so neat and so very
quick,

I knew in a minute, it must be HAM
NICK!

The cables all tied and brought into the
house,

Oh me, oh my - how do I tell my dear
spouse?

More boxes came out and the plastic un-
wrapped,

Parts laying all over while directions were
scrapped.

Tuners and switches and headphones and
wire,

I hope connected right so to not cause a
fire.

More rapid than lineman the connections
were made,

Like the FCC on a rogue signal raid.

A base station, a mic, so many meters a
glare,

Just set these right here and mount those
over there.

Now power up, power up let it all come
alive,

Strong signals, more distance, is what we
all strive.

On radio, on tuner, on mixer and amp,

Soon I'll be radiating just like an old
champ.

CQ, CQ and DX I did mutter,

Amidst all the tools and my Ham shack
clutter.

And what did I hear amongst all the noise
on the band,

But a chubby net control from a far off
cold land.

"Happy Holidays you Hams" - HAM
NICK chortled and snorted,

"May your power and signal, never be
thwarted.

Spread joy and good will all over the
land,

From repeaters and simplex and every
clear band.

The Extras, the Generals and new Techies
too,

Go help one another in all that you do.

Be patient, be wise and a good Elmer
friend,

CW and phone and Packets now send".

Then just as quick as he came, his signals
did fade,

I knew in a minute, a great contact was
made.

His message was simple and so very clear
to me,

Happy Holidays to all, and to all - 73!

Happy Holidays To all Amateur Radio
Operators Everywhere; particularly my fel-
low South Jersey Radio Association (SJRA)
members as we rapidly approach our 100
year Centennial Celebration in 2016!

May we all continue to spread Amateur
Radio Goodwill now and throughout every
New Year.

Mark Walters, KD2JPW

12/24/15

SJRA Jackets, Shirts, Hats

Order NOW - Next order going in soon!



Spring Jacket is \$51 (S,M,L,XL), Fall Jacket is \$58 (S,M,L,XL),
 Shirts are \$28 (S,M,L,XL), Hats are \$25 (one size fits all)
 Name and Call Sign embroidery included....Larger sizes slightly more!
 Email Joe, KC2TN, with orders or additional info: kc2tn at comcast dot net

Amateur Radio FCC License Testing

The SJRA sponsors *FREE* Amateur Radio FCC License testing on the third Wednesday of each month, except Nov & Dec. The location is: New Brooklyn United Methodist Church; 1336 E. Malaga Rd. Williamstown, NJ 08094. Registration is at 7:00 PM and testing begins at 7:30 PM. Walk-ins are accepted. **The next test session is January 16, 2019.**

VE team members can be reached at *VE at SJRA dot org*. A calendar and more information can be found on the SJRA web site.

December Meeting:**Is the **Third** Wednesday, December 19, 2018**

The meeting commences promptly at 7:00 PM (1/2 hr earlier) in the first floor Meeting Room of the Gibson House on Main Street, Marlton, NJ 08053. Guests are always welcome.

Program For December:

Holiday Party & Awards Ceremony

SJRA Member January Birthdays

January Birthdays are: Ted Dean, KD2ARD; Joe Fisher, KC2TN; Jack Froehlich, W2AF; Robert Kernish, KD2ADL; Jack Mays, WA2HJG; Terry Murphy, N2JSB and Al Witter, N3AVT

Health and Welfare Co-chairpersons: Roy, WB2EOD and Dara, KC2THQ

January Meeting:**Is the **Fourth** Wednesday, January 23, 2019.****First Class Mail**

South Jersey Radio Association
15 Pelham Road
Marlton, NJ 08053

