

# The Repeater

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**WX4BCA 147.285 + (131.8)**

*Amateur Radio Club of Butts County*



Jackson, GA



USA

# Merry Christmas



*Nancy Phillips*

Editor

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**DECEMBER  
2018**

**Vol 5, No 12**



## Whit's Wisdom

### Whit Smith - WA4VBX



#### VOLTMETER & AMMETER

Most homes have a service voltage of 120/240 volts, single phase, 60 hertz. This voltage is usually plus or minus 5%. This variance depends on many things, like load, and distance from the source. The nominal reading of 120 volts is the R.M.S. value of source.

Let's look at how DC (Direct current) and AC (Alternating current) relate. 12 volts DC and 12 volts AC produce the same heating affect in a resistor. This is true for our house current which is a sine wave (60 hertz or cycles per second). The peak, effective, and average for DC and AC are different. For a sine wave, the relationship between Vpk (voltage peak) and Vrms (voltage root mean square) is  $V_{rms} = V_{pk} \times .707$ . Other waveforms have a different relationship.

Volts	Volts peak	Volts ave	Volts R.M.S.
12 DC	12.0	12.0	12.0

12 AC sine wave 16.266

$V_{peak} \times .637 = 10.361$

$V_{peak} \times .707 = 11.5$

There are many voltmeters on the market. Which one should I get? An inexpensive volt meter will do for most applications. No specific tolerance ranges are given because these general purpose meters will be suitable for most applications. If you want to make some special or very accurate measurements, you will need to get an appropriate meter.

Here are three meters of the that I use.

#### **CEN-TECH Model # 92020 Digital meter frequency range of 45 - 450 HZ**

DC amps range: 200micro A/2000micro A/20mA/200mA/10A

DC voltage range:

200mv/2000mv/20v/200v/1000v

AC voltage range: 200/750 V

Resistance range: 200/2000/20k/200k/2000k ohms  
Harbor Freight about 5 dollars on sale.

#### **Commercial Electric Model #MAS830B Digital meter**

DC amps range: 20 micro A/200 micro A/2ma/20ma/200ma/10A

DC voltage range: 200mv/2v/20v/200v/600v

AC voltage ange: 200/600 V

Resistance range: 200/2k/20k/200k/2000k ohms

HD or Lowe's about 30 dollars

#### **Commercial Electric Model #M1015B Analog meter**

DC amps range: 10ma/250ma

DC voltage range: 2.5/10/50/250/300v

AC voltage range: 10/50/250/300

Resistance range: 20k/2000k ohms

HD or Lowe's about 30 dollars

There are other functions that come on some of these meters such as a battery checker for 1.5 & 9 volt batteries, transistor gain, diode measurements and others. Before you select the meter you want, decide which additional functions you desire.

You will notice that AC current measurements are not listed above. In the December 2017 issue of the Repeater is an article showing how to measure AC current. There are commercially made meters that will measure AC amperes. They are generally of the clamp-on type.

Safety is important. Measurements with this type of meter can be done safely. The meter should come with a brochure describing the meter and with operating instructions. Be sure to read the entire brochure before using the meter. Some meters have some built-in safety features. Don't try to measure a voltage with anything but a volt meter. If you didn't get a brochure with your meter, try to get a copy or ask someone for help.

--WS



## NOTES FROM THE BACK ACRE

— Saint Buzz, K3GWK



Those of you who did not attend this year's Family Christmas and 8<sup>th</sup> Anniversary Dinner missed out on a great evening. The date had to be changed, last minute, due to Buckner's new schedule, but we still had a pretty good turnout. There were seventeen club members and sixteen family or friends. Several new faces this year; it was great to see Chris (KJ4PLJ) and Robert (KJ4AKA). I also saw some old Henry County ham buddies, Nathan (KJ4JOL) and Max (KJ4FPX) Hill sitting with the Burnham's but I didn't get a chance to say hello.

Our *first* anniversary party was held at Station #7 in December 2011. Freida made a special cake and various other forms of refreshment just showed up. Karla (KJ4TVP) made cookies. After that first party at the firehouse we got organized and in 2012 and 2013 we had our Anniversary Dinner and Family Christmas Party at Ryan's truck stop restaurant at exit 201. We changed to our current venue in 2014. Thanks again to Darlene (KK4BKF) who made sure we were expected at Buckner's and Melvin (KK4QJR) and 'The Prez' AKA: Elaine (KW4AQ) for handling the door prizes. I thought the food selections were better this year – loved the ribs and potatoes.

Here are some pictures from 2011:



2011 Group Photo - Front Row: Buzz K3GWK, Jess W4DNS (seated), Randy NV4RB, Franklin KK4CFA. Standing: Dan W4DED, Mike AJ4GU, Harvey KK4DJM (hidden), Karla KJ4TVP, Glen KJ4TVO, Nora Burnham, David AK4EM, and Elaine KW4AQ.

Photos by Buzz Kutcher

The WX4BCA UHF D-Star capable repeater is now on the air using a temporary (testing) connection to the Internet. It can be linked to D-Star Reflector 30B (and others) on command. Make sure you have 'Encode and Decode' CTCSS activated on your radio so you don't hear the D-STAR noise. The CTCSS tone is 131.8 Hertz. The repeater is currently connected to the Internet compliments of ARRL Section Manager David Benoist (AG4ZR). David is loaning us a Hot Spot and Wireless Raspberry Pi. That equipment is providing the Internet link until we get the permanent, hard wired connection and IP addresses from Wellstar's IT group.

There will be a Technician License HAMCRAM on January 26, 2019. The eight hour session will begin at 08:30 AM. A VE Testing Session will immediately follow the HAMCRAM. Contact Dan Darsey (w4ded@arrl.net) to register. A follow-up Newbie Night will be held in early February. This is how we grow our super-duper hobby and our even more super-duper club.

All of our ARES Team members have been invited to join *ARES Connect*. So far, twenty of our thirty-one members have registered. Make sure you check the ARES Connect Events Calendar regularly and be sure to sign up for Butts County activities.

BACK ACRE, continued on page 4



**AMATEUR RADIO  
CLUB OF BUTTS  
COUNTY**

**8th Annual Family  
Christmas Dinner**

**December 7, 2018  
Buckner's Restaurant**



Photo by Buzz Kutcher

**ARES REPORT – NOVEMBER 2018**

**Membership**

Deployable – 13 (K3GWK\*, KJ4PLJ, AJ4GU\*, W4DED\*, AK4EM\*, KK4BKF, KA3SME\*, KK4SUO\*, KM4HOS\*, KM4NRP\*, NI2Y\*, KS4KY\*, W8XC)

\*Georgia State ARES Badge Holder

Active – 12 (K9GAC, KJ4TVO, WA4BWJ, KW4AQ, KK4GNO, KK4KUF, KK4QJR, WA4VBX, KM4DHS, KM4HOY, KM4VPS, KN4FRG)

Pending – 7 (KA8LAD, KM4PKD, KM4VPY, K4NEP, KN4EGS, KN4AUD, NT4U)

**Activity - November**

Nets – 8 (32 Hours)

Drills, Tests and Training – 9 (149.5 Hours)

Public Service – 1 (10 Hours)

County Tasking – 1 (8 Hours)

Miscellaneous – 1 (20 Hours)

Total – 20 (219.5 Hours)

Value - \$5,520.00

**Activity – Year to Date**

Nets – 98 (423 Hours)

Drills, Tests and Training – 86 (1887 Hours)

Public Service – 9 (234 Hours)

County Tasking – 2 (112 Hours)

Miscellaneous – 12 (270 Hours)

Total – 207 (2926 Hours)

Value - \$73,588.00

*Active members in "Poor Standing" due to a lack of recent activity.*

**BACK ACRE, continued from page 3**

In most cases, team members can (should) enter their own hours immediately after an event is completed. (<https://arrl.volunteerhub.com/lp/ga/>) All of our events are still being entered and tracked in the Georgia ARES database, too.

Two more of our ARES Team members have applied for Georgia Section ARES Badges. Winford Barnes (W8XC) and Chris Southerland (KJ4PLJ) have completed all of the requirements for the badge, their applications are pending. Thanks guys...

That's about it from Jenkinsburg Station. (Weather Underground ID: KGAJENKI2)

Merry Christmas, Happy New Year and thanks again for all you do for Amateur Radio.

73, Buzz (K3GWK)





## IC-7100 REVIEW

\_ Jeff Phillips KN4FRG



ICOM had a few mobile portable radios in the past, the IC-706 series and the IC-7000. But, in 2012, ICOM introduced the IC-7100 and it became available in the U.S. in 2013. Recently, Nancy and I purchased a used IC-7100 as the primary base station radio at our Ham Shack in Jackson, GA. The next series of paragraphs will provide a little background for the transceiver and provide a few likes and dislikes along with some recommendations after about a year of use.

The IC-7100 is the first touchscreen transceiver and comes with performance features on par with bigger rigs with its RF detachable "Brick / Clock" slant-like head unit and base/controller unit. The ICOM thoughts were to build a rig for hams used in portable/mobile and space-challenged situations. The ease of operation with fingertip control utilizing the intuitive touch screen interface with the power of 32-bit IF DSP featuring output power of 100W HF/50MHz, 50W 144MHz, and 35W 430/440MHz. The IC-7100 is an all band and all mode transceiver that is D-STAR ready. ICOM also added a USB interface for audio and control (soundcard/Signalink) making digital setup and operations a one-cable operation for ease of integration with FLDIGI and/or HRD software suites. The angled control head comes with a large screen allowing the operator to easily navigate through the series of functions and controls within the radio. Additional features include built-in SD card slot for voice storage and data cloning, RTTY demodulator and decoder, CW full break-in, CW receive reverse, and CW auto tuning. The transceiver also includes a band scope and SWR graphic display, RF speech

compressor controlled by the DSP, DSP controlled AGC function loop, and many others.



Figure 1. The screen is larger than its predecessors allowing the user to access its functions.



Figure 2. The Base unit is familiar to ICOM users allowing the normal connections and interfaces.

After use, what are a few of the likes as a base station and for portable use?

The IC-7100 is a general replacement for the IC-706 series and IC-7000 destined for use as portable/mobile use, but this radio has the makings to be a very good base station system. It has good performance for both phone and digital operations and integrates well into the small space allocated for our amateur use with its separate control head - great for the space challenged Ham. The transceiver has many of the same features as its bigger brother like the IC-7300 offering great audio, full power, and one cable digital operations, but just in a compact system. After reading the manual, I mean *reading the manual*, the menu system was generally easy to understand and interpret making entering local frequencies and repeaters for 2m/440



## 181207 Net Manager Report

— Ken Wallis

Darlene, KK4BKF, and Buzz, K3GWK, pinch-hit and held 4 ARCoBC Trng Nets in November. Great job while alot of us were absent, stumblin' thru Win's, W8XC, CW class on Tues & Thurs nights, but learnin' alot and havin' fun dit'n & dah'g. The Net averaged < 4 voicechk-in's per wk, <2 on MT-63, w/ WinLinks at 9 weekly. Slow month w/ the CW class goin', but hopefully we'll get back to better participation after the CW classes.

The ARCoBC still needs Net Controllers, Buzz & Darlene filled in for me during these classes in Nov & Dec, but we still need NCS's each month. We're gonna do a Level 2 CW class in Jan & Feb, so we'll need more net controllers to spell Buzz & Darlene. We could move the Net if y'all wanted to, but not sure which day to move it to. I'm busy Sunday's, but if y'all wanted to do 'em then w/o the Net Mgr feel free, or we could do a Yahoo grp survey and pick another day. Maybe we could see if Win could move the class off of Tues nights, we'll see.

Lemme know if any of you would like to try yer hand at the NCS slot on the net, voice & digi, and also Winlink Net Logger and I'll be glad show you how they're done. (Reports too, if you'd like) The Net 'Preamble' (NCS script) is in the Yahoo grp files and my FLDigi 'Trng Net' macros are avail on request. I'll be glad to show you how to use 'em.

... as for ARES ... we STILL need more folks who are willin' to volunteer. Although Mark, KM4NRP, has sign'd up fer the BC Health Dept team (givin' us 6), and we can 'field' teams for all the monthly/weekly testing of our 3 Response Team sites, most of us are double-scheduled on the teams and we can't be at 2 places at once.

IF we have an 'event', and some of the RT mbrs are 'snow'd in' or diggin' out fm under their wrecked house, I doubt Butts Co ARES has the depth and/or REDUNDANCY to handle the situation, esp if it lasts longer than 7 or 8 hrs and we need to staff 'shifts' at the RT sites ... also Buzz could tag ANYBODY to be the NCS ...

"...we gotta be able to DO what we SAY we can do."

- Mike Crowe, Nov '16 mtg

Thx & 73, Ken, KM4HOS Butts Co Net Mgr



*Congratulations!*

**VANCE ROSEN**

**KN4QWZ**

**New TECHNICIAN**

## V.E.C. Report

\_Dan Darsey W4DED

*The VE Team met on Sat, Nov 17th, at FS7, to hold a Test Session. Congratulations to Henry County Fireman/EMT, Vance Rosen KN4QWZ, for passing his Technician license exam!*

*VEs present were John Reynolds KJ4GAM - acting VEC for Dan Darsey who was attending his stepson's wedding, Greg Davis KI4NWD, Mike Crowe AJ4GU, Win Barnes W8XC, Rudy Williams KA8LAD, Ken Wallis KM4HOS, Neil Martin KS4KY, and Nancy Phillips K4NEP.*



**Don't forget to sign up for attendance and also record your hours in the ARESCONNECT HUB.**  
(Home study time also counts!)

## 1st MORSE CODE Level I 'GRADUATING CLASS'

While there was no wpm requirement to 'graduate', the students have successfully completed the Level I course. **HALLELUJAH !**

*Success* was defined as learning the Morse alphabet and numbers, demonstrating basic timing to properly create Code rhythm, and typing 'The quick brown fox jumped over the lazy dogs back'.



**Standing:** Mike Crowe AJ4GU, Ken Wallis KM4HOS, Elaine Stachowiak KW4AQ, Melvin Mosier KK4QJR, Nancy Phillips K4NEP, Dan Darsey W4DED. **Seated:** Justin Binns (14 yo), instructor Win Barnes W8XC. **Insert:** Corbett Tate KW4SZ. **Not available for photo:** Mark Baker KM4NRP

Eight of the students will be continuing into the Level II course after Christmas. Level II will run on Mondays and Thursdays for 16 classes: Thur, Jan 3rd - Thur, Mar 7th. **NO classes on Jan 7, Feb 4, and Mar 4**, as those are our monthly meeting nights. (Meetings are open to the public.) Classes will again be held at Fire Station #7, 7-8 PM, at 144 Colwell Road.

Level II will be Limited to 10 people. A key (paddle key is suggested) and a keyer are required for the course. Contact Nancy Phillips at 573-528-0697 to register.



**ICOM 7100** - continued from page 4

use a breeze - does not require the use of software to program it. The screen size allows easy viewing of all of the entered features (filters, functions, menus, frequency, etc.) and it displays all of the entered repeater information for 'at a glance' operation and choice. What are additional likes for this radio?

The IC-7100 might be physically small, but it offers ease of transition for one function to another, i.e. Phone/SSB to digital operations like PSK31, FT8, or RTTY. The selection of these features are easily obtainable through the use of the touchscreen or through the buttons physically available on the transceiver. After a good read-through, or two, of the manual, the selection of the functions and features of the rig are readily available and easy to choose, much like a bigger button enhanced rig. This can be a good or bad thing, some operators love the ability to choose a feature/function by the pressing of a button and not searching deep in a menu system to find the needed additional aspect. Even though the rig has some menu selections via a button press, the operator must obtain several of its features via the menu, but most features are just a few touches away using the touchscreen feature not necessarily deep within the menu system. As a note, using the all band all mode rig, it is easy to switch from voice to data during our club's weekly net with a few touches on the screen and without a SignalLink. What about portable operations?

ICOM generally created this configured rig for portable/mobile operations and it does offer a feature rich 100-watt radio for use in these situations. I set out to use this rig at a local park while working in Missouri to test out its ability for portable use using my configured battery system with portable mast and antenna. I was trying to determine if the IC-7100 could be a good system for Parks on the Air (POTA) operations or for use away from home. The base unit and control head fit into my pre-configured battery system container and was easy to transport to the local park. After arrival to the park, it took about 10 minutes to set up the mast and antenna with the rig/tuner - a very easy setup operation. The radio performed very well making phone and digital FT8 and PSK 31 contacts. I received very good audio and signal reports from phone operations and good clarity and

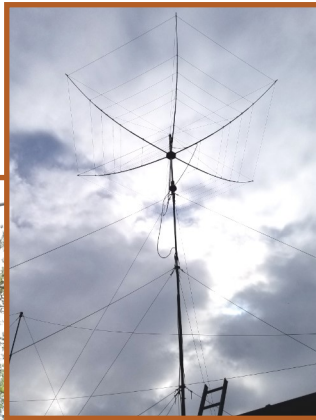
**ICOM 7100** - continued on page 8



## Antenna Party at Mike's



Dan Darsey W4DED, Jeff Phillips KN4FRG, Nancy Phillips K4NEP, and Ken Wallis KM4HOS helped Mike Crowe AJ4GU lower 2 hefty antennas - a Yagi, and that enormous Hex. Bravo to the 4 men in the party for muscling the masts and bringing both down safely.



Photos by Jeff Phillips KN4FRG  
20 Nov 2018

ICOM 7100 - continued from page 8

signal reports for digital operations. All-in-all, the radio performed well, was easy to setup, and easily transportable to and from the site. It did have its quirks, we will talk about that later. Now for some of the dislikes.

The primary operating controls for the IC-7100 such as the volume control, filter settings, and squelch/RF are the same usual knobs. Some of the button-controlled functions work with the knobs, as well, or are OFF/ON toggles. The touchscreen can offer easy access to menu selections, but will certainly present a significant learning curve for first learning the touchscreen/button functions and second using them to search and find the menu features and functions. For an operator first using a touchscreen and a menu-driven feature selection rig, it can present a challenge. The IC-7100 is not a menu driven system like a handheld, but it will require reading the manual and acquiring the knowledge for where the menu has the functions and features for the band and mode needed for your application. It will take time to be relatively proficient in choosing the right button and select touches on the screen to select your needed function for what mode of operation you are doing. For mobile operation it is a must to pre-define your operating band and mode before driving, it does require a few touches to different screens and will definitely present a hazard while driving. What is my dislike for portable operation?

The IC-7100 does offer the operator a good portable system, but can be cumbersome and a battery hog to operate. When comparing the IC-7100 and the IC-706 or IC-7000, the rig contains two main components and the others are your typical mobile single system. A little harder to configure in a go-kit, but the operator can separate the two components for operation. Definitely not a backpack radio for Summits-on-the-Air (SOTA) operations, but a usable radio for POTA ops. Due to the rig's touchscreen and features, it will consume power from a battery rather quickly even with lower power selection. For portable use, it's a must for the operator to plan for and will inevitably reduce the amount of time the operator will operate during POTA operations. The rig requires a higher voltage for initial startup and continued operations when compared to



# NETS

## SUNDAY:

(rev. 181001)

**Metro ARES FM Net** - 1st Sunday ONLY at 1600L,  
WA4ASI repeater, Covington, 146.925-, 88.5 PL  
KK4GQ repeater, Fayetteville, 145.210 -, 131.8 PL  
KC4AQS repeater, Paulding Co, 145.805 +, 100.0 PL

**GA ARES/BCECA WL Express Net** - Send an ICS-213 (or regular typed msg, if unable 213) to WX4GMA and WX4BCA by 2200Z. [1700L EST, winter/1800L, EDT, summer.] Please use a Winlink RF gateway; Winmore packet, etc, if capable; otherwise, use Telnet.

**GA ARES Digital Net** - 2100Z [1600 EST, winter/1700 EDT, summer.] 3.583 MHz USB.

**GA ARES PSK 'Traffic' Net** - send an ICS-213 to WX4GMA NCS, centered on 1500 MHz.

**GA ARES PSK 'check-in' Net** - Even numbered months, center on 1000Hz, 'text' check-ins only and will run concurrently with the PSK 'Traffic' Net.

**GA ARES D-RATS Net** - 2130Z [1630 EST/1730 EDT].  
Odd months, port: gaares.ratflector.com.

**GA Section HF Net** - 2200Z [1700 EST/1800 EDT], 3.975 MHz LSB, voice, by callsign prefix.

**SE Weather Net** - 2100L, D-Rats/D-Star, on  
sewx.ratflector.com. D-Star Voice on REF004A.

## TUESDAY:

**Butts County Emergency Comm Training Net** - 1930L, WX4BCA repeater, 147.285 MHz, + offset, 131.8 PL, begins with voice check-ins, followed by an NBEMS Digital Net. WL Express msgs accepted if Not sent the previous Sunday, send to WX4BCA with name, callsign, location, and whether you are on mobile or aux power.


## THURSDAY:

**NCRC/ARES/RACES FM Net** - 2000L, WA4ASI repeater, 146.925 - & 444.800 -, 88.5 PL. WL - K4NCR. May have a 'follow on' Digital Net - MT63-2KL, centered 1500 Hz, D-Rats on  
gaares.ratflector.com.

\*\*\* For other training opportunities, see the BCECA Yahoo Group website, and/or the GA ARES website for other Nets w/ days, times, freqs, protocols, etc, for your training convenience.\*\*\*

ICOM 7100 - continued from page 8

the Yaesu FT-817/9 and/or the FT-857D. The operator can overcome these issues with the right setup and battery selection based upon the amount of time and power you plan to operate. The rig's hand mike is not the best ICOM can offer and this household would recommend the SM-30 or better (desk mic) and/or the HM -151 hand mike for better audio and or features.

The IC-7100 is an outstanding transceiver for the smaller space constrained HAM. The rig does present a learning curve for just about any new operator using a touchscreen for the first time. It will take time to learn how to use the buttons in concert with the menu to derive your band and mode of operation and to add-in those filters and other features. The digital setup will take a little time for configuration with software suites, but on par with other HF rigs. The rig can replace both the HF and the 2/440 rigs offering the operator an all band and all mode transceiver for operating it as a base station. The rig can offer a good selection for portable use, but with the understanding it does require more battery power for using its touchscreen and features. The performance and features are comparable to a bigger rig in a smaller frame and has a good price to boot. The rig's used price, at the time of the writing of this article, is around \$600 to \$650 and right now new (sale) around \$750 with discounts. Taking into account no need for a Signalink (\$110), this is a good cost effective rig for those price conscious operators. Nancy and I have found the IC-7100 is a good transceiver for our use here in the Ham Shack in Jackson, GA. For the cost, it's a good, versatile, feature-rich, rig with the ability to operate portable, if needed for emergency use. 

\_JP



**Is your ARRL membership up-to-date?**

**This is important for our club affiliation with ARRL.**

**Please update and inform the membership chairman.**

## CALENDAR

### DECEMBER 2018

**4, 11, 13** - Morse Code, 7-8 PM, FS #7

**7** - (Fri) 8th Anniv Family Christmas Dinner,  
Buckner's Family Restaurant, **6:00 PM**

**15** - Hungry Hams - Lunch Box - 0730

**15** - Tech Saturday - FS #7 - 0900

'Satellites' - John Kludt

### JANUARY 2019

**3, 10, 14, 17, 21, 24, 28, 31** - Morse Code Level II,  
7-8 PM, FS #7, 144 Colwell Rd

**7** - Monthly Meeting, 7 PM, Fairgrounds

'Citizen Response to an Active Shooter'

- Capt. Matt Garrison

**12** - GA ARES Meeting, GPSTC

**19** - Hungry Hams - Lunch Box - 0730

**26** - **HamCram** - 0830 - FS #7. Exam following.

### FEBRUARY 2019

**4** - Monthly Meeting, 7 PM, Fairgrounds

**7, 11, 14, 18, 21, 25, 28** - Morse Code Level II, 7-8  
PM, FS #7, 144 Colwell Rd

**16** - Tech Saturday - 0900, FS #7, 144 Colwell Rd

### MARCH 2019

**4** - Monthly Meeting, 7PM, Fairgrounds

**7** - Morse Code Level II 'Graduation' - 7PM, FS #7

**16** - VE Session - 0830, FS #7, 144 Colwell Rd

### 2019 FIELD DAY

**June 22 -23, Kersey Pavilion**

## CONTACT INFO

**PRESIDENT - Elaine Stachowiak**

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