

Indian River Amateur Radio Club's Spurious Emissions

Oct 2014

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IRARC at Brevard Country Commission Meeting

Indian River Amateur Radio Club's Emergency Coordinator, Stan Harrell, KJ4NUV and other concerned local amateur radio operators attended a meeting of the Brevard Country Commission in Viera on Tuesday September 16th. The meeting purpose was to solicit comments from the community to a proposed ordinance for antenna installations which would have a significant effect on amateur radio operations. From the ARRL e-mail, "The proposed ordinance deletes the exemption for amateur towers, requires amateurs certify that the tower has no commercial services and requires a copy of a valid FCC amateur license be provided." Deletion of the exemption would subject new amateur radio antenna installations to permitting, fees and inspections prior to being placed into service just like a commercial radio service.

Stan reminded the commis-

sioners FCC Rule 97.15 states, "State and Local regulation of a station antenna structure must not preclude Amateur Service Communications, rather, it must reasonably accommodate such and must constitute the minimum practicable regulation to accomplish the State or Local authority's legitimate purpose".

Stan detailed the chilling effect the county regulations would have on new amateurs and changes to existing operator stations, "The changes that you are suggesting would mean, if a "Ham" moved to new residence, or a new "Ham" just got his license, or a "Ham" moved into the area then they must comply with the new rules. This would mean a huge drop in Amateur Stations." The impacts would be a decrease in new volunteers to operate in a disaster with local impacts from loss of Red Cross Shelter radio operators to a decrease

in available Hams to operate radio stations in the disaster area.

Stan gave an accounting of the amateur radio service in support of local governments during various disasters over the last decade. On a more local theme, Stan reminded commissioners of the vital community support amateur radio service provided in times of hurricane events.

The County Commissioners agreed to reinstate the amateur radio exemptions; however, the final language of the antenna regulations was not yet available at press time. A final reading of the ordinance will be given on October 2nd and Stan will attend the meeting to verify the amateur radio exemptions are written into the ordinance.



Stan Harrell (far rt), KJ4NUV representing IRARC and Ray Kassis, N4LEM at the County Commissioner Meeting

Meet Us On the Following...

On Wednesday at 7:15 PM local, the Central Brevard County ARES net meets on IRARC's 145.370 MHz repeater (tone 156.7 Hz). After the net, informal ops/rag chew happens on 147.42 MHz simplex. Sunday Half Time Net meets at 3 PM on the 37 repeater - you don't have to be a football fan to join. On the web point your browser to: <http://irarc.ham-radio-op.net>.

IRARC's Spurious Emissions is published monthly. Comments and articles are welcomed, contact Dave Lerret, KU0R, payloadone@earthlink.net

IRARC Repeater Troubleshooting Mystery Continues

A troubleshooting team from IRARC on September 27th continued investigation of the low receiver sensitivity noted on the IRARC's 147.88 MHz repeater. Bob Kisko, N4VO led the effort with grateful assistance provided by Jan Ferguson, W4REN and troubleshooting direction by Chris Durso, AA4CD. Dave Lerret, KU0R documented the test team's troubleshooting progress - From the log:

- Used service monitor with IRARC 146.88 MHz repeater input frequency. Noted repeater desense when repeater xmtr came on.
- Terminated repeater xmtr into dummy load. Used service monitor to key xmtr. Normal ascending/descending squelch behavior. (suspect filter/duplexer) Also noted MFJ antenna tuner hooked up to antenna
- MFJ antenna tuner replaced with Bird Wattmeter. Measured 12 watts forward with 2 watts reflected at the transmitter output.
- Now hooking up service monitor to measure receiver sensitivity. (Make sure repeater receiver is good) 0.3 microvolts measured to

- 20 db of quieting. Receiver is good.
- Hooked receiver and transmitter back to normal with no power meter and antenna tuner removed. Test with K4UZM. He decreased his xmit power down to milliwatts and had good signal into repeater. Dave noted low volume. Measured deviation was good 4 to 4.5 KHz. Observers noted good signal with K4UZM.
- Chris Durso believes we found one issue. (MFJ in line antenna tuner).
- Checking to see if audio can be adjusted... On unit PL board, Adjusted PL talkback tone was too hot. Was 1.5 KHz s/b 500 Hz, adjusted now measured 500 Hz.
- Adjusting total system deviation. Now getting 4.5 KHz with 5 KHz on peaks. (all is good)
- Hooking up the repeater power amp. Signals went down on receiver. Dave did descending test but Norm W1TLZ was much weaker w/noise.
- Bypassed power amp and received signals were normal again. Noise on Norm's signal went away. (Chris recommends adding an isolator and low pass filter to the

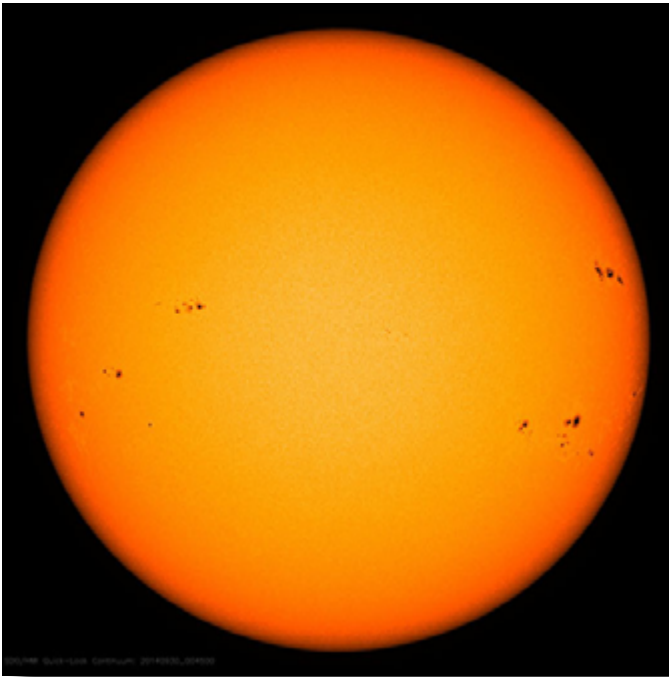
- repeater output.)
- Measured 9.8 watts forward through the duplexer to the antenna. (normal duplexer loss)
- Going to put Jan's repeater in the system to check overall performance.
- Saw desense at 20 watts into system. Placed dummy load on antenna. No desense noted with service monitor xmit into rcvr. Decreased output to 5 watts and hooked xmit out to antenna. Saw desense again with Jan's unit. (Jan's unit most likely more sensitive by about 6 dB).
- Returning repeater back to print but will sweep antenna first with antenna analyzer.
- Saw dip with 1.5:1 @ 50 ohms at 143 MHz, antenna at repeater frequency was over 2:1 VSWR. (More investigation required here)
- Will measure receiver sensitivity through the duplexer. Now measuring 0.45 microvolts. Seems pass in duplexer is good. Can't tell about notch part. Need to check duplexer!
- Put system back on the air.



IRARC 146.88 MHz Repeater cabinet at Wuesthoff Hospital. Top unit is the power amplifier, middle unit is the repeater (receiver, transmitter exciter and control board), bottom unit is the repeater duplexer can assembly



(It to rt) Bob Kisko , N4VO; Jan Ferguson, W4REN and Chris Durso, AA4CD at the Wuesthoff Hospital IRARC 146.88 MHz repeater site. Good progress was made troubleshooting the low repeater sensitivity issues that have plagued the repeater over the last two years



Sun activity from the Solar Dynamics Observatory as of 0045 UTC, 30 Sep 2014. This channel display is from the SDO Helioseismic and Magnetic Imager. - photo courtesy of <http://sdo.gsfc.nasa.gov>.

Explanation - Radio Flux 10.7 cm: Predicted 10.7 cm (2800 MHz) full-Sun background flux. Values are in solar flux units of 10-22 Wm-2Hz-1 and are not corrected for the variable Sun-Earth distance resulting from the eccentric orbit of the Earth around the Sun.

Planetary A Index: Predicted daily planetary A index. The A index is an index of geomagnetic activity derived from 3-hourly K-indices. A indices range from 0 (very quiet) to 400 (extremely disturbed). A forecast A index of 30 indicates global geomagnetic storm conditions are expected.

Largest Kp Index: Largest daily planetary K index (Kp) expected for the day indicated. The Kp index is an estimated 3-hourly planetary geomagnetic index of activity derived in real time from a network of western hemisphere ground-based magnetometers. Kp indices range from 0 (very quiet) to 9 (extremely disturbed).

Product: 27-day Space Weather Outlook Table
Issued: 2014 Sep 29 2039 UTC
<http://www.swpc.noaa.gov/wwire.html>

UTC Date	Radio Flux 10.7 cm	Planetary A Index	Largest Kp Index
2014 Sep 29	185	10	3
2014 Sep 30	190	10	3
2014 Oct 01	195	8	3
2014 Oct 02	195	10	3
2014 Oct 03	175	5	2
2014 Oct 04	165	5	2
2014 Oct 05	155	5	2
2014 Oct 06	150	5	2
2014 Oct 07	150	5	2
2014 Oct 08	145	5	2
2014 Oct 09	140	5	2
2014 Oct 10	140	5	2
2014 Oct 11	140	5	2
2014 Oct 12	135	5	2
2014 Oct 13	130	5	2
2014 Oct 14	120	5	2
2014 Oct 15	135	8	3
2014 Oct 16	150	15	4
2014 Oct 17	165	8	3
2014 Oct 18	170	5	2
2014 Oct 19	165	8	3
2014 Oct 20	160	10	3
2014 Oct 21	160	20	4
2014 Oct 22	165	15	4
2014 Oct 23	165	15	4
2014 Oct 24	170	15	4
2014 Oct 25	170	10	3

Strays -n- Stuff



A meeting of the Brevard QRPers or the Laurel ARC VEs? One and the same! (lt to rt) Chris Durso, AA4CD; Ron Eike, KA3PSO; Viron Payne, N4VEP, Del Anderson, AK4EY; Bob Scorah, W0AGE and Dave Slawson K4UZM

- **IRARC Financial Report for Sept 2014**
Checking: \$4518, Equipment Fund: \$1161.
- **Melbourne Hamfest & ARRL State Convention**
Sponsored by PCARS on Oct 10 and 11
- **NTS Training Net Fridays at 7:15 PM on 145.37 MHz repeater - learn how to pass traffic.**
- **Join the Space Coast QRP Group.** They meet at a Brevard local park or other listed location - see website at http://groups.yahoo.com/group/Space_Coast_QRP_Group/
- **Are you RadioActive?** Check the IRARC website calendar at <http://irarc.ham-radio-op.net/> for upcoming events, photos and links to other local clubs.

Club Meeting News

The September 4th IRARC meeting was called to order by President, Steve Luchuk, N4UTQ at 7:30 PM.

Pledge of Allegiance was led by Steve

There were 25 Attendees which includes 3 visitors and 2 new members

Secretary's Report: Kevin Raulins not present. Minutes of last meeting were published in the last newsletter.

Treasurer's Report: John Webb gave his report stating the club had \$4460.91 in checking, \$1160.53 in the equipment fund and \$172 from the radio raffle.

Vice President's Report: Del Anderson discussed the program schedule for the remainder of the year and encouraged Radio Club members to share their desires for programs for 2015.

Tech Committee: Bob Kisko reported that the "88" repeater antenna has been checked and is OK. Further troubleshooting has indicated that one of the Receive Channel filters on the Duplexer had a faulty connection. Repair and retuning is in process. The "37" repeater is operational. The Statewide Amateur Radio Net is operational.

Emergency Coordinator's Report: Stan Harrell reported that Jeff Bealls was elected as the South Florida Rep for ARRL. Secondly, a SET (Simulated Emergency Test) has been scheduled for Oct 18, 2014. This year's test will be

in the simulate a Pandemic Outbreak and test the county's response. He also identified that the county has established that BEARS1 will no longer be deployed for most rocket launches.

Training/Education: Dave Slawson reported that two people had just been tested – one for technician and one for general. Both passed. Awardees were recognized by the group. Dave also identified that he was launching a handheld radio raffle to raise money to pay for supplies needed; he now has 20 VECs identified and available in the area; and that he is using Laurel Amateur Radio Club as the VE.

Red Cross Liaison Report: Greg O'Neill encouraged all interested individuals to attend the monthly Red Cross Volunteer meeting on the third Tuesday of the Month at 6 PM here at the Red Cross facility. Red Cross is again re-organizing. The state of Florida will become 3 regions, North Florida, Central Florida and South Florida. Reorg should be complete by the end of the year.

Old Business: Bill Young (KA4YBH), BEARS President, discussed the goals and mission of the BEARS organization. BEARS meets at 7 PM on the second Tuesday of the month at the County EOC building next door to the Red Cross facility. Bill stated that this was an ideal meeting to become

acquainted with members and officers of all the Brevard County Amateur Radio Clubs. Bill discussed the future role of the BEARS 1 Vehicle and the CAT team's role in its maintenance. The CAT team meets on Monday mornings at 8 AM.

New Business: NONE

Program: Del Anderson introduced Ray Kassis, Brevard County's Amateur Radio Disaster Coordinator and alternate Brevard County EOC manager who discussed his experiences growing up in the Amateur Radio Community and how that experience led him into Broadcast Radio and Emergency Operations. A lively discussion took place regarding the current position of the County EOC and Amateur Radio operations. (Audience gave Mr. Kassis much appreciated applause at the end of his presentation).

Following the program, Jerry Phelps (KJ4IMP) discussed his role in the periodic establishment of the "Launch Net" on the "135" repeater in support of current launch operations.

Meeting Adjourned at 8:45 PM.



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