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On AMfone

- HOME
- ABOUT AMfone
- AMPX
- AM Audio Vault
- AM Northwest
- Class E
- The Collins 30K Site
- East Coast Sound
- GALLERY
- GLAG
- K3L
- Late Notables
- Online Calculators
- Photo Archives
- Technical Info
- The Wouff Hong
- Vintage Radio

On The AM Window

- A/V
- Features
- Stuff
- Tech

Latest Articles

- Rescues of BC Transmitters by K5PRO
- W1DAN's article on W1GAC
- BTA-1M Transmitter Rescue
- Preventing Coax Feedline Radiation
- Log Periodic vs: Yagi Antenna
- K3L 2005
- Farfest 2005

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Pass:

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The AM Forum

June 12, 2024, 12:43:12 PM

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The AM Forum > THE AM BULLETIN BOARD > Technical Forum > Topic: 6D4 noise generator tube

Pages: [1] [Go Down](#)

[« previous](#) [next »](#)
[Print](#)

Author Topic: 6D4 noise generator tube (Read 3398 times)

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Opcom
Patrick J. / KD5OEI
Contributing Member



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Posts: 8280



6D4 noise generator tube
« on: June 12, 2020, 07:41:27 PM »

In the continuing whork to clean out an estate, a 6D4 based assembly was found. It's a noise generator composed of a magnet with the field across the tube, and a little socket, all in one nice piece. The 6D4 is also present.

Has anyone used the 6D4 as a noise generator, and does anyone know how low in frequency it makes noise?

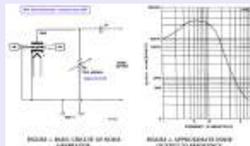
More or less a quote: "The 6D4 is an argon filled, negative control grid thyratron in a 7 pin miniature envelope. Although it has found use as a relay tube and sawtooth generator, its principal application has been as an RF noise generator".

The datasheet also says "The low frequency noise output is reasonably uniform, rising to a peak in the vicinity of one megacycle then dropping off quite rapidly at frequencies above two megacycles.."

It works out to 4MHz or so (600uV) but does beter (>10mV) from 100KHz to 2MHz.

How low does she go? If the low freq. output is uniform -according to the chart - to 100Khz, then do we have a nice audio range part?

The tag on the part says 'as used in TS-345'



* sch-n-chart_syl.png (62.09 KB, 1152x685 - viewed 347 times.)



* IMG_4567.jpg (200.35 KB, 800x830 - viewed 399 times.)



* IMG_1841.JPG (65.78 KB, 800x998 - viewed 318 times.)

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Radio Candelstein

Tom WA3KLR

Contributing Member



Offline Offline

Posts: 2119



Re: 6D4 noise generator tube

< **Reply #1 on:** June 12, 2020, 08:13:59 PM >

Well, there would be a number of different noise mechanisms going on in there I would think, including one for gaseous ionization. But just my guess - the tube's noise follow the 1/f function. It appears to be coming to that slope as it approaches 100 kHz, but right at 100 kHz the curve seems to be leveling off!?! The 0.01 uF cap should be countering that but we don't know what the input impedance of the frequency measuring device was; must have been high.

A Zener diode makes a great noise generator. (Keep them out of supply busses of low-noise circuits.)

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73 de Tom WA3KLR AMI # 77 Amplitude Modulation - a force Now and for the Future!

K7MCG

Member



Offline Offline

Posts: 31

Re: 6D4 noise generator tube

< **Reply #2 on:** June 12, 2020, 08:27:43 PM >

The 6D4 noise generator tube was the basis of the General Radio 1390 series of noise generators. A manual is available at:

https://www.ietlabs.com/genrad_history/historic_manuals#Genrad%20Manuals%201300%20-%201399

There are probably some GR Experimenter articles around,.

https://www.ietlabs.com/pdf/GR_Experimenters/1951/GenRad_Experimenter_Dec_1951.pdf

Chuck K7MCG

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Opcom

Patrick J. / KD5OEI

Contributing Member



Offline Offline

Posts: 8280



Re: 6D4 noise generator tube

< **Reply #3 on:** June 14, 2020, 01:43:23 AM >

Thanks for the tips on that!

Yes, it seems to be leveling off and will go to low frequencies. I have some manuals to read!

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Radio Candelstein



Pages: [1] [Go Up](#)

[Print](#)

[« previous](#) [next »](#)

[The AM Forum](#) > [THE AM BULLETIN BOARD](#) > [Technical Forum](#) > Topic: [6D4 noise generator tube](#)

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