

Title: ***Elimination of Electrical Noise, 2nd Edition***

Author: D. Pinnock

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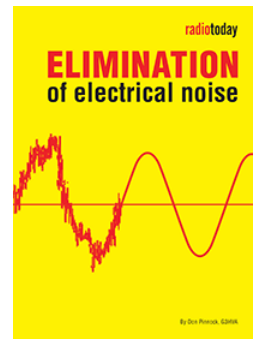
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Reviewer: Whitham D. Reeve



The target audience for this little booklet is the amateur radio operator. It has appeared in at least two editions, the current one and one from 2010. The covers are different but I believe the content is the same. Because radio astronomers face the same problems with radio frequency interference (RFI) as amateur radio operators, I thought it would be worthwhile to read ***Elimination of Electrical Noise*** to see what it has to offer.

Unfortunately, I quickly discovered this booklet has little substance and at times is repetitious to the point of monotony. Reorganization and better efficiency of writing would substantially reduce its already meager size. There is very little in this book for readers outside Britain, and some of the advice given is downright dangerous, as I will explain later. This is not an expensive book but, in my opinion, it has little value.

Elimination of Electrical Noise has twelve chapters, each written something like an outline. A list of definitions for use throughout the book is given in chapter 1 and “*Sources and characteristics of noise*” are given in chapter 2. Here, the author lists things like battery chargers, vehicle ignition systems, thermostats and PC crystal oscillator “*carriers*” among many other noise sources. For each offending source, he provides a brief description of the noise, its coverage (or distance range) and a cure to eliminate it. It seems the coverages and cures for almost all noise sources are identical: 30 m coverage and use “*clip-on*” ferrites to suppress the noise. The sage advice given for noise from fluorescent lights is “*replace worn out tubes and install appropriate capacitors to suppress any residual noise*”. The author never tells us what capacitance and voltage rating is “*appropriate*” or how or where to install the capacitors. Also, he never mentions the ballast, which can be an important noise source in these types of light fixtures.

The author frequently says to “*install appropriate ...*” something or other but never tells us what is appropriate or provides any other details. Perhaps his assumption is that the reader already knows what is *appropriate*. If so, why buy the book in the first place?

Chapter 3 goes into “*choosing a property & setting up a station*”. The apparent assumption here is that readers are going to leave their existing homes and buy another one based on its RFI environment. He discusses the advantages of operation from a “*garden shed*” or “*caravan in a relatively noise-free zone*”. The author tells us the “*noise-free zone*” is somewhere on the property but he never tells us how to find it. Obviously, small properties in non-rural neighborhoods are problematic because there may be no “*noise-free zone*”.

Chapter 4, “*Dealing with electrical noise*”, describes noise location methods but this chapter has so little detail that I was left wondering why it was included and, more importantly, what to do now. Chapter 5, “*Noise immunity of antennas*”, discusses some specific types of antennas such as the Windom and G5RV, presumably because the author believes these are low-noise antennas. Unfortunately, he offers no proof that they are, in

fact, low noise antennas. One must ask, do all readers use or should they use these antenna types? The discussion in this chapter would be much more useful if it had been generalized to include why certain antennas may be more or less noisier than others and what characteristics non-noisy antennas have.

Chapter 6, "*Electrical noise from outside the premises*", is where things get interesting. The author suggests using "*filters at the main input to the premises and/or shack*". He goes on to say that "*most modern domestic systems would require a filter rated 80 or 100 A*". While a large filter like this may reduce powerline noise conducted into the premises, it is very expensive both to purchase and install, possibly requiring major modifications to the electrical service entrance or the building's load center. It is very easy to under estimate the cost and effort of electrical mains filtering if it is to be done correctly. Before spending the money for such an upgrade, a thorough investigation should be undertaken to determine if conducted interference really is a problem. It is arguable that a filter on the "*main input*" is better or worse than point-of-use or individual branch circuit filtering, but the author should have posed and discussed that argument.

The so-called *switched-reluctance motors* and even ordinary electric motors used in clothes washers and dryers and heat pumps used for cooling can be significant noise sources, but these are not specifically mentioned in the book nor are any remedies provided.

Correctly, the author states many times that installations involving lethal voltages "*should be carried out by a competent registered electrician*". On the other hand, the author recommends disconnecting the "*mains earth*" to see if noise is reduced. In the US this would mean disconnecting the electrical service *grounding electrode*. I am not familiar with Britain's electrical practices, but in the US disconnecting the grounding electrode from the electrical service is extremely dangerous and never should be attempted because the voltages and currents involved can kill you. Also, in the US all grounding electrodes, including so-called secondary or supplementary electrodes, such as ground rods at a tower or "*shack*" must be bonded together (readers in the US should see [ReeveGrdg]).

In chapter 7, "*Direction finding equipment*", the author points out specific brands and models of loop antennas that may be used in locating noise sources, but he does not adequately describe how to use them or even why loop antennas could be useful for this purpose. My assumption here is that readers do not know how to use a direction finder and bought this book to learn how. They will be disappointed.

Chapter 8, "*Noise cancelling equipment*", does not go far enough in describing the techniques in using noise cancellers such as the Timewave ANC-4, which the author singles out. For a far more useful "how-to" article on using the ANC-4 and mitigating noise, I refer readers to [Beaumont-1] and [Beaumont-2].

I tried to find some value in ***Elimination of Electrical Noise***. The only thing of real value is the author's acknowledgement that many problems with RFI are self-caused and that station operators must first eliminate their own noise sources. The author describes troubleshooting and noise location methods that he appears to have thought out in advance, but his presentation of those thoughts in this booklet are not always clear or useful. The author claims to have many years' experience but that is only partially reflected in this book. How the reader can rely on this experience is not at all clear. Motivated readers might be able to use this book as a springboard to learning more about RFI from other publications and then gaining experience from their own investigations.

The book has some illustrations and pictures but with few exceptions they add nothing to the book. The author discusses several noise location schemes and provides a few photographs of hand-built equipment items. These sections are of little use because there are no schematics or construction and application details that would help the reader replicate the locating methods or equipment described.

There are much better books and articles on locating and mitigating radio frequency interference, some already mentioned. For a more complete RFI bibliography, see [ReeveRFI].

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Reviewer - Whitham Reeve is a contributing editor for the SARA journal, *Radio Astronomy*. He worked as an engineer and engineering firm owner/operator in the airline and telecommunications industries for more than 40 years and has lived in Anchorage, Alaska his entire life.

Experimenter Publishing was an American media company founded by Hugo Gernsback in 1915. The first magazine was The Electrical Experimenter (1913â€“1931) and the most notable magazines were Radio News (1919â€“1985) and Amazing Stories (1926â€“2005). Their radio station, WRNY, began broadcasting...Â Their radio station, WRNY, began broadcasting experimental television in 1928. In early 1929 the company was forced into bankruptcy and the Gernsback brothers lost control of Experimenter Publishing. share Share. No_Favorite Favorite. Browse IEEE publications and standards and visit the IEEE Xplore Digital Library. Link to IEEE Spectrum Magazine and The Institute member newsletter.Â These communities are active participants in research and authorship, conferences, and important conversations about today's most relevant technical topics locally and globally. What do you want to do? Select an option. Edition Author: D. Pinnock Publisher: Radio Today ISBN: 978-1-910-193143 Date published: 2015 Length: 64 pages, no index Status: In print Availability: Softcover available for about 11 USD from Radio Society of Great Britain Reviewer: Whitham D. Reeve. The target audience for this little booklet is the amateur radio operator. It has appeared in at least two editions, the current one and one from 2010. The covers are different but I believe the content is the same. Because radio astronomers face the same problems with radio frequency interference (RFI) as amateur radio operators, I thought it w

Elimination of Electrical Noise explains the various types of noise radio operators experience, how the noise is generated and the most practical way to deal with it. Author Don Pinnock, G3HVA, discusses his personal experiences with electrical noise and offers solutions useful for many hams. He shares his experiments with selecting wire antennas that have increased immunity to external noise. If you suffer from electrical noise problems, G3HVA will guide you to take charge of the situation, put up defenses in your station and make the most out of the hobby. Product Details Softcover: 64 pages... ISBN: 978-1-91019-314-3. Item No.: 0036. Price: \$13.95. Edition Author: D. Pinnock Publisher: Radio Today ISBN: 978-1-910-193143 Date published: 2015 Length: 64 pages, no index Status: In print Availability: Softcover available for about 11 USD from Radio Society of Great Britain Reviewer: Whitham D. Reeve. The target audience for this little booklet is the amateur radio operator. It has appeared in at least two editions, the current one and one from 2010. The covers are different but I believe the content is the same. Because radio astronomers face the same problems with radio frequency interference (RFI) as amateur radio operators, I thought it w RadioToday UK. BBC Director of Radio James Purnell leaving next month. RadioToday UK. America. iHeartMedia acquires Voxnest; focus on advertising technology. RAIN 4 hours ago. MIDiA Research: Spotify #1 podcast platform in international survey. RAIN 1 day ago. Jeff Umbro: Porsches and Podcasts. RAIN 1 day ago. Pandora: New metrics for streaming listeners, and advice for advertisers. RAIN 1 day ago. Australia. SCA says DAB+ stations have helped it weather ratings turbulence. Radio Today Australia 20 hours ago. Today's Radio News. Commercial radio calls on Government for more support. BBC Director of Radio James Purnell leaving next month. Will Harding steps down from Global strategy role after 14 years. Tributes paid to former Signal presenter Johnny Owen.

Electrical world. Publication date. 1883. Topics. Electrical engineering. Publisher. [New York McGraw-Hill Pub. Co., etc.]
Absorbed the Electrical railway gazette in 1896; the Electrical engineer, Mar. 11, 1899; and, the American electrician Jan. 21, 1883, the Operator and electrical world; Mar. 11-June 24, 1899, Electrical world and electrical engineer; July 1, 1899-Dec. 30, 1905, Electrical world and engineer. 12. Elimination of Electrical Noise explains the various types of noise radio operators experience, how the noise is generated and the most practical way to deal with it. Author Don Pinnock, G3HVA, discusses his personal experiences with electrical noise and offers solutions useful for many hams. He shares his experiments with selecting wire antennas that have increased immunity to external noise. If you suffer from electrical noise problems, G3HVA will guide you to take charge of the situation, put up defenses in your station and make the most out of the hobby. Product Details Softcover: 64 pages... ISBN: 978-1-91019-314-3. Item No.: 0036. Price: \$13.95. Edition Author: D. Pinnock Publisher: Radio Today ISBN: 978-1-910-193143 Date published: 2015 Length: 64 pages, no index Status: In print Availability: Softcover available for about 11 USD from Radio Society of Great Britain Reviewer: Whitham D. Reeve. The target audience for this little booklet is the amateur radio operator. It has appeared in at least two editions, the current one and one from 2010. The covers are different but I believe the content is the same. Because radio astronomers face the same problems with radio frequency interference (RFI) as amateur radio operators, I thought it w Science Publishing Group is a professional publisher of scientific and academic Books. High-quality paperback and hardback books and eBooks in every discipline are produced. Experiences in SciencePG: SciencePG is up to speed with giving feedback to authors and does thorough scrutiny of work prior to publication. The group works to schedule and encourages authors to work to agreed schedules. Yury Latypov: Overall Evaluation: Good. Experiences in SciencePG: The print is in good shape and good print. The article is devoted to dynamic authentication method of electronic network devices with built-in analog-to-digital converters (ADCs) based on authentication templates. The following results were obtained: the authentication of each electronic device can be carried out uniquely by its internal electrical noise (like biometric authentication of a person). Uniqueness of authentication is provided by the invariants of the noise signal such as the shape of the graph of the autocorrelation function of noise and the set of resonance frequencies of the device. The electronic device authentication t