71 JANUARY 2013

ROSEMARY CHIAVETTA, SECRETARYPA. PUC
P.O.BOX 3265
HARRISBURG, PA. 17105-3265
FOUR PAGES
DEAR SECRETARY CHIAVETTA:

REF.YOUR LTR OF27 DEC. 2012ND AND
DOCKET NO. C-2012-2286040

I DO NOT HAVE e-MAIL, CD-ROM, DVD,NORMICROSOFT WORD ACCESS. HENCE I AM INCLUDING AN EXTRA COPY OF MY EXCEPTIONS FOR THE COMMOSSION OFFICE OF SPECIAL ASSISTANTS.

I AM ALSO INCLUDING A COPY OF MY XLIBTIS BOOKS NOS. 16607 AND 19787 TO FURTHER ASSIST YOU IN THE EVALUATION OF MY COMPLAINT.

A COPY OF ALL DOCUMENTS IS BEING SENT TO THE ALJ, AND THE ATTORNEYS FOR PPL UTILITIES (POST & SCHELL.

MY COMMENTS REGARDING THE HISTORY OF PROCEEDINGS AND MY EXCEPTIONS ARE ATTACHED TO THIS LETTER.

I AM ALSO INCLUDING A COPY OF MY CRITIQUE OF DIRECT TESTIMONT OF J. MICHAEL SILVA, PE (EXHIBIT NO. 2.

NOTE: SEE ENCLOSED TABLE OF CONTENTS
AND MAILING ADDRESSES

YOURS TRULY,

Dr. Daniel D. Brunda

DR. DANIEL D. BRUNDA
ELECTROMAGNETIC RADIATION PE ENGR.
FOUNDER, INVENTOR, AUTHOR
XLIBRIS BOOKS, NOS. 16607 & 19787
SEVERAL ADDITIONAL PATENTS AREPENDING
WITH THE PTO.

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JAN 14 2013

PA PUBLIC UTILITY COMMISSION
SECRETARY'S BUREAU

HISTORY OF THE PROCEEDING

PAGE 2. EDWARD C. LOGAN, ESQ. DID NOT REPRESENT ME (COMPLAINANT)AT ANY HEARINGS ALL OF WHICH WERE PRO SE. MY COMPLAINT WAS, ESSENTIALLY, WITHOUT LEGAL REPRESENTATIOM. AND CONTINUES TO BE WITHOUT LEGAL REPRESENTATION. PLEASE STOP ALL COMMUNICATIONS WITH MR. EDWARD C, LOGAM! IMMERDIATELY

EXCEPTIONS OF DR. DANIEL D. BRUNDA (COMPLAINANT) (PRO SE)

1. DR. BRUNDA,S COMPLAINT TO THE PA. PUC QUESTIONS THE SAFETY AND QUALITY OF THE PPL 12.7kv tranSMISSION LINE ENERGY AND POWERBEING DELIVERED. IN RESPONSE TO AND IN DISAGREEMENT WITH THE INITIAL DECISION OF THE OFFICE OF ADMINISTRATION LAW JUDGE, I, HEREBY, FILR THESE EXSEPTIONS:

PAGE 4. NO. 8 THE 60 HZ FIELD GENERATED BY PPL 12.7 KV LINE IS OF POOR QUALITY AND CONSISTS OF A WIDE RANGE OF FREQUENCIES WHICH INCLUDE LOW FREQUENCY VERY HARMFUL NOISE, ACOUSTIC NOISE, AND ELECTRIC NOISE WHICH RANGE FROM0.78HZ TO 150 HZAND CAUSE MEMBRANE EXCITATION, BEATS, ZAPS, INSOMNIA, NEUROPOTHY, DEAFNESS, SARCOMA, PAGETS DISEASE, LEUKEMIA,MUSCULAR dystrophy, HEART DISEASE BY INDUCING AND CONDUCTING ELECTRICAL ENERGY INTO HUMAN BEINGS WHICH RANGEAS HIGH AS150JOULES(SEE DISTURBANCES BY JERRY WHITAKRE)(XLIBRIS NO. 19787, ref. NO. 32. (ELECTRIC CHAIR- 79 JOULES) NO. 4 AND 5?NO. 9 AND 10) PPL DID NOT ANSWER MY QUESTION ABOUT THEIR RIGHT OF WAY FOR THISTRANSMISSION LINE. THEIR MEASUREMENTS MUST INCLUDE THE ELECTRIC AND MAGNETIC FIELDSALONG THE RIGHT OF WAY WHICH ISINHABITED BY HUMAN BEINGS.

no. 11.THE COMMON SOURCES OF ELECTRIC FIELDSSTATED BY PPL HAVE A wide rANGE OF VOLTAGES WHICH DETERMINE THE POWER OF THE FIELDS.

NO. 12. WATER PIPES ARE COMMONLY STEEL PIPES WHICH PROVIDE SHIELDING FROM THE MAGNETIC FIELDS.LOW VOLTAGE ELECTRICAL CABLES CAN ALSO BE EASILY SHIELDED BY AN ELECTRICIAN IN VARIOUS WAYS: ONE OF WHICH ISTO USE BXMC STEEL SHIELDED CABLES. THERE ARE OTHERS.MY ENTIRE HOUSE IN NEW JERSEY IS SHIELDED WITH ALUMINUM SIDING AND SHIELDED ELECTRICAL CABLES. PEOPLE ARE WRONGFULLY BEING EXPOSED TO DANGEROUS MAGNETIC FIELDS WHICH MUST BE LESS THAN TEN MICROGAUSS, PREFERABLY 4.0 microgauss IN THE HABITABLE RANGE(XLIBRIS NO. 19787, FIGURE 6A, PAGE 36).

NO. 13

PAGE 5., NO. 14-ELECTRIC EXPOSURE LIMITS HAVE EXISTED FOR MANY YEARS BY THE USNRCAND HAVE RANGED FROMFIVE Rems many YEARS AGO TO THE PRESENT LIMIT OF 0.05 Rems.

PAGE 5. NO. 14. THE 2000. milligauSS DAILY EXPOSURE LIMIT FOR THE GENERAL PUBLIC CLEARLY DEMONSTRATES THEIR LACK OF KNOWLEDGE OF THE RADIATION LIMITS OF HUMAN BEINGS DEFINED IN XLIBRIS BOOK NO. 16607 and NO. 19787 (THE UNIVERSAL PLAGUE).

NO. 15.- 9040. milligAUSS IS SIMILARLY VERY WRONG!

PAGE 5. NO. 16 THE USNRC EXPOSURE LIMIT FOR HUMAN BEINGS HAS FOR MANY YEARS RANGED FROM 5.0 REMS TO THE PRESENT 0.05 REMS (XLIBRIS BOOK N BOOK NO. 19787).

PAGE 6. NOS. 17 AND 18 THIS ISWHY AERIAL POWERLINES ARE A UNIVERSAL PLAGUE. THIS IS

NO. 19- MY PATENTED DEVICE TO MEASURE EMFS IS PATENTED, ACCURATE, AND RELIABLE.

NO. 20. LOWERING THE VOLTAGE TO 4.0 KV REQUIRES THAT THE CURRENT IS ALSO CORRESPONDINGLY REDUCED. LANSFORD, A SMALL NON_INDUSTRIAL TOWN OF 4500. POPULAtion DOES NOT NEED THE PRESENT HIGH CURRENTS WITH THE 12.7 KV LINES.

NO. 21. PPL DEMONSTRATES ITS LACK OF KNOWLEDGE OF THE DESIGN OF SAFE ELECTRIC TRANSMISSION AND DISTRIBUTION LINES. (XLIBRIS BOOK NO. 16607.

NO, 22- THE "WHO" IS COMPLETELY WRONG ABOUT THE SAFETY OF AERIAL POWERLINES (SEE REFS. IN XLIBRIS BOOK NO. 16607OREFS. 10 AND 11)

DISCUSSION

PAGE 7. PARA. ! - PPL DENIALS DO NOT PROVE ANYTHING EMFS ARE NOT SAFE AND ARE OF POOR QUALITY. AS PROVEN BY DR. BRUNDA.

PARA. 3- XLIBRIS BOOKS NOS. 16607 aND 19787&PROVE THAT AERIAL POWERLINES ARE A UNIVERSAL PLAGUE (SEE PAGE 13.
FEDERAL STANDARDS (USNRC) HAVE EXISTED SINCE PRIOR TO 1930 for emr LIMITS WHICH RANGE FROM 5.0 REMS TO THE PRESENT 0.05 REMS.

PAGES 7 AND 8.-THE PA. PUC HAS WRONGFULLY NOT PROMULGATED REGULATIONS REGARDING AERIAL POWERLINES SEE LETTER OF 10 APRIL 2012 FROM ERIKA DOMINICK OFFICE OF COMMUNICATIONS.

BURDEN OF PROOF _ MY XLIBRIS BOOKS N)S. 16607 AND 19787 CONTAIN SUBSTANTI FUNDAMENTAL PROOF REGARDING THE SAFETY AND QUALITY OF AERIAL POWERLINES WHICH ARE PROVEN TO BE A UNIVERSAL PLAGUE.
THE EVIDENCE PROVIDED BY PPL INCLUDES THREE CASES OF NORFOLK & WESTER MORRISSEY: AND PPLELECTRIC & PHILADELPHIA ELECTRIC. THEY MUST BE CONSIDERED IRRELEVANT BECAUSE THEY DO NOT PROVE THE SAFETY AND QUALITY OF AERIAL POWERLINES.

CONCLUSION PAGE 9.- THE COMMISSIONHAS WRONGFULLY STATED THATDR. BRUNDA HAS NOT PROVI SCIENTIFIC EVIDENCE. MY BOOKS ARE SCIENTIFIC PROOF OF MY COMPLAINTS.
PARA. 2 - PPL HAS FAILED TO COMPLY WITH FEDERAL USNRC REGARDING THE RADIATION LIMITS OF HUMAN BEINGS. THIS APPLIES TO ALL STATES. BECAUSE OF A LACK OF LIMITATIONS ON THE EMISSIONSOF POWERE LINES ALL AERIAL POWERLINES ARE A UNIVERSAL PLAGUE.

CONCLUSIONS

PAGE 9., SECOND PARAGRAPH - THE INITIAL CONCLUSION STATED INCORRECTLY THAT " COMPLAINANT PROVIDED NO MEDICAL OR SCIENTIFIC EVIDENCE TO SUPPORT HIS CONTENTIONS" THIS IS NOT CORRECT. IN ACTUALITY, COMPLAINANT SUBMITTED NUMEROUS ITEMS OF EVIDENCE, INCLUDING WITH THE INITIAL COMPLAINT, WHICH TH THE RESPONDENT UNDOUBTEDLY RECEIVED.

2. ATTORNEY EDWARD C. LOGAN, ESQ. FILED A NOTICE OF APPEARANCE ON 17 AUGU AUGUST 2012, but SUBSEQUENTLY FAILED TO PROVIDE RESPONDENT WITH COPIES OF COMPLAINT DOCUMENTS, ALTHOUGH THE DOCUMENTS WERE DISCUSSED WITH RESPONDENT BY COMPLAINANT. ATTORNEY LOGAN HAS NOT TAKEN ANY ACTIONS AS REQUIRED BY TH COURT IN COMPLAINANTS INTEREST.

PARA. 3- FOR THE ADMINISTRATION LAW JUDGE TO IGNORE COMPLAINANTS DOCUME DOCUMENTARY EVIDENCE AS IF IT DID NOT EXIST ANF/OR WERE NOT PROVIDED TO RESPONDENT WOULD BE A MISCARRIAGE OF JUSTICE.

DR brunda,S COMPLAINT MUST NOT BE DISMISSED BECAUSE OF ALL THE REASONS HE SUBMITTED SINCE FILING THE COMPLAINT ON 1 FEBRUARY 2012.

ORDER

PAGE 10. THE PPL DID NOT PROVIDE SAFE AND QUALITY ELECTRIC SERVICE TO MY PROPERTY IN LANSFORD PENNA. AS THE CPMPLAINANT HAS PROVEN IN HIS BOOKS.

2. THE COMPLAINT OF DOCKET NO. C- 2012-2286040 MUST NOT BE MARKED CLOSED BECAUSE OF ALL THE REASONS HE SUBMITTED SINCE FILING THE COMPLAINT ON 1 FEBRUARY 2012.

THE COMPLAINANT REQUESTS THAT THE INITIAL DECISION BE VACATEDAND THE CASE REOPENED, SO THE SUBMITTED DOCUMENTARY EVIDENCE CAN BE PROPERLYENTERED INTO THE RECORD AND A PROPER DECISION DETERMINED AFTER CONSIDERATION OF THE ACTUAL MERITS OF THIS CASE.

THE COMPLAINANT,

DR. DANIEL D. BRUNDA, PE
ELECTROMAGNETIC RADIATION ENGINEER
FOUNDER, INVENTOR, AUTHOR
XLIBRIS BOOKS NOS. 16607 AND 19787
SEVERAL ADDITIONAL PATENTS ARE PENDIN
WITH THE PTO.

7 JANUARY 2013

CONCLUSION, Continued

PARA. 3 - DR. BRUNDA,S COMPLAINT MUST NOT BE DISMISSED. BECAUSE OF ALL THE REASONS HE SUBMITTED SINC FILING THE COMPLAINT ON 1 FEBRUARY 2012.

ORDER

CONCLUSION, Continued

PARA. 3 - DR. BRUNDA,S COMPLAINT MUST NOT BE DISMISSED. BECAUSE OF ALL THE REASONS HE SUBMITTED SINC FILING THE COMPLAINT ON 1 FEBRUARY 2012.

ORDER

PAGE 10. ppl diD NOT PROVIDE SAFE AND QUALITY ELECTRIC SERVICE TO MY PROPERTY IN LANSFORD PENNA.

2. THE COMPLAINT OF DOCKKET NO. C- 2012- 2286040 MUST NOT BE MArked closed.BECAUSE OF ALL THE REASONS HE SUBMITTED SINCE FILING THE COMPLAINT ON 1 FEBRUARY 2012

THE COMPLAINANT,

Dr. Daniel D. Brunda

DR. DANIEL D. BRUNDA PE

3 jaNUARY 2013

ELECTROMAGNETIC RADIATION ENGR.
FOUNDER, INVENTOR, AUTHOR
XLIBRIS BOOKS NOS. 16607 AND 19787
SEVERAL ADDITIONAL PATENTS ARE PENDING WITH THE PTO.

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PA.P.U.C.
SECRETARY'S BUREAU

MAILING ADDRESSES

1. 1. rosemary CHIAVETTA, SECRETARY, PA. PUC
P.O.BOX 3265
HARRISBURG, PA. 17105-3265

2. PENNA. PUBLIC UTILITY COMMISSION
OFFICE OF SPECIAL ASSISTANTS
BUREAU DIRECTOR,S OFFICE
CHERYL WALKER DAVIS, DIRECTOR

3. 3. KATRINA L. DUNDERDALE
ADMINISTRATIVE LAW JUDGE
PA. PUBLIC UTILITY COMMISSION
SUITE 220 , PIATT PLACE
301 FIFTH AVE.
PITTSBURGH, PA. 15222

4. JESSICA R. ROGERS
POST & SCHELL , ATTORNEYS AT LAW
17 NORTH SECOND STREET
12TH FLOOR
HARRISBURG, PA. 17101-1601

NOTE : PLEASE RETURN THE ORIGINAL PACKAGE TO ME (DR. DANIEL D. BRUNDA) IN A SIMILAR MAILING BOX. I WILL PICK IT UP AT MINUTE PRESS WHEN ALL PACKAGES ARE READY FOR MAILING, RECEIPT OF MAILING IS REQUIRED FOR EACH PACKAGE.

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
P.O. BOX 3265, HARRISBURG, PA 17105-3265

IN REPLY PLEASE
REFER TO OUR FILE

December 27, 2012

C-2012-2286040

DANIEL BRUNDA
V.
PPL ELECTRIC UTILITIES CORPORATION

TO ALL PARTIES:

Enclosed is a copy of the Initial Decision of the Office of Administrative Law Judge.

If you do not agree with any part of this decision, you may send written comments (called Exceptions) to the Commission. Your signed Exceptions to the decision, if any, must be: 1) **filed** with the Secretary of the Commission, **and** 2) mailed or hand-delivered to each party of record, **within twenty (20) days** of the date of this letter.

To file Exceptions with the Secretary of the Commission, you must mail or hand-deliver them as follows:

If using U.S. Postal Service:

Secretary
Pa. Public Utility Commission
P.O. Box 3265
Harrisburg, PA 17105-3265

If using Overnight or Hand Delivery Service:

Secretary
Pa. Public Utility Commission
400 North Street
Commonwealth Keystone Building, 2nd Floor
Harrisburg, PA 17120

Or, instead of mailing or hand-delivering your Exceptions, you may electronically file them with the Secretary of the Commission. To do so, you need to establish an account on the Commission's eFiling system, which may be accessed at http://www.puc.state.pa.us/efiling/default.aspx. Please note that Exceptions sent to the Commission by fax or e-mail will **not** be accepted for filing.

In addition to filing your Exceptions with the Secretary of the Commission, a courtesy copy of your Exceptions should be e-mailed to the Commission's Office of Special Assistants (OSA) at ra-OSA@pa.gov. If the document is too large to e-mail, please mail or hand-deliver a copy on CD-ROM or DVD (or other data storage media), in Microsoft Word 2010 format or other compatible format to either address noted above.

Replies to Exceptions, if any, must be **filed** with the Secretary of the Commission and **served** on each party of record and the Commission's OSA, in the manner described above. **They are due within ten (10) days of the date when Exceptions are due.**

It is your responsibility to serve all the parties with your Exceptions and Replies to Exceptions. Failure to do so may render your filing unacceptable. A certificate of service (see format in 52 Pa. Code §1.58) shall be attached to the filed Exceptions or Replies to Exceptions.

Exceptions and Replies to Exceptions shall follow 52 Pa. Code §§5.533 and 5.535 particularly the 40-page limit for Exceptions and the 25-page limit for Replies to Exceptions. Exceptions should clearly be labeled as "EXCEPTIONS OF (name of party) - (protestant, complainant, staff, etc.)". Any reference to specific sections of the Administrative Law Judge's Initial Decision shall include the page number(s) of the cited section of the decision.

If no Exceptions are received, the decision of the Administrative Law Judge may become final without further Commission action. You will receive written notification if this occurs.

Very truly yours,

Rosemary Chiavetta
Secretary

Enclosures
Certified Mail
Receipt Requested

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Daniel Brunda	:	
	:	
v.	:	C-2012-2286040
	:	
PPL Electric Utilities Corporation	:	

INITIAL DECISION

Before
Katrina L. Dunderdale
Administrative Law Judge

HISTORY OF THE PROCEEDING

On February 1, 2012, Daniel Brunda ("Complainant") filed a formal complaint with the Pennsylvania Public Utility Commission ("Commission") against PPL Electric Utilities Corporation ("Respondent" or "PPL") alleging there is a safety or quality problem caused by electromagnetic radiation ("EMRs") from PPL's power lines surrounding Complainant's properties in Lansford, Carbon County, Pennsylvania. On February 21, 2012, Respondent filed an Answer to Complaint with the Commission in which it generally denied the allegations concerning electromagnetic fields.

On June 20, 2012, the Commission issued a Hearing Cancellation/Reschedule Notice #2 scheduling this matter for an initial telephonic hearing on Thursday, August 16, 2012, in the Commission's offices in Pittsburgh, Pennsylvania.

On Thursday, August 16, 2012, the presiding officer conducted a telephonic hearing at which Complainant was present, *pro se*, and Respondent appeared represented by John H. Isom, Esq. and Jessica R. Rogers, Esq.

At the hearing, Complainant provided his testimony in the form of Written Direct Testimony (marked and admitted as "Complainant Exhibit 1") which includes six (6) unnumbered pages of testimony and 39 pages of unmarked documentation. Respondent provided testimony from J. Michael Silva, P.E., orally at the hearing and in the form of a 25-page, numbered Written Direct Testimony (marked and admitted as "PPL Statement 1") with two accompanying exhibits (marked and admitted as "PPL Exhibit JMS-1" and "PPL Exhibit JMS-2").

After presenting his evidence and prior to the end of the hearing, Complainant requested permission to submit in writing after the hearing his criticisms and comments about the Written Direct Testimony of Respondent's witness, J. Michael Silva. Respondent objected on the grounds it had no way to know what Complainant would submit and, therefore, would not have time in which to comment or object. The presiding officer granted Complainant's request and thereafter issued the Sixth Interim Order on August 16, 2012 which commemorated the directives provided at the hearing and gave Respondent an opportunity to respond to Complainant's written criticisms on or before August 31, 2012.

On August 17, 2012, Edward C. Logan, Esq., filed a notice of appearance on behalf of Complainant.

On August 20, 2012, Complainant submitted a document previously discussed at the hearing on August 16, 2012 and which the presiding officer ordered marked as Complainant Exhibit 2. Complainant did not include a Certificate of Service or indicate if he provided a copy of the exhibit to Respondent.

On August 30, 2012, Respondent filed a Motion to Reopen the Record. Respondent averred Complainant Exhibit 2 included primarily Complainant's opinion about various facts covered by Respondent's witness. Respondent asked to submit a document entitled "Verification" from its witness, J. Michael Silva, which document included factual averments in response to averments contained within Complainant Exhibit 2. Respondent included the verification as Appendix A to the Motion and served both on Complainant and his attorney. Specifically, Respondent requested the hearing record be reopened for the limited purpose of admitting Respondent's response to Complainant Exhibit 2 as set forth in the Verification.

On September 10, 2012, Complainant sent correspondence to his attorney and copied the presiding officer in which Complainant contested factual averments contained in Appendix A to the Motion. The presiding officer's staff contacted Complainant's attorney to request proof that the correspondence dated September 10, 2012 was served on opposing counsel but no proof of service by Complainant's attorney was received and Complainant did not respond to Respondent's Motion to Reopen Record.

On September 27, 2012, the presiding officer issued the Seventh Interim Order in which a verification attached to Respondent's Motion to Reopen Record was ordered to be included in the hearing record, and the parties were granted leave to file briefs. The date for submitting reply briefs was October 19, 2012.

On October 12, 2012, Respondent filed its Main Brief. Complainant did not file a Main or Reply Brief. The hearing record closed by operation of the Seventh Interim Order on October 19, 2012.

FINDINGS OF FACT

1. Complainant, Daniel Brunda ("Brunda"), resides at 106 West Upper Ferry Road, Ewing, New Jersey but owns two parcels located at 402 East Snyder Street and 417 E. Ridge Street, Lansford, Carbon County, Pennsylvania 18232. (Tr. 6).

2. Respondent, PPL Electric Utilities Corporation ("PPL"), owns and transmits electricity using two distribution lines that cross over Complainant's parcels located in Lansford, Pennsylvania. (Complainant Exhibit 1 at 2-3).

3. Complainant owns two adjacent lots. On one lot, there is located one-half of a two-family home, referred to as 402 East Snyder Avenue, and on the other lot there is a commercial building, referred to as 417 East Ridge Street, which contains a vacant office and a magistrate's office. (Complainant Exhibit 1 at 2).

4. There are 247 feet of 12 kilovolt ("kV") distribution power lines which cross over the front of the parcels. (Complainant Exhibit 1 at 2).

5. Complainant is a licensed Professional Engineer in the state of New Jersey who patented a device and system for "measuring the electrical induction of current in human beings from electro magnetic fields." (Complainant Exhibit 1 at 4).

6. Complainant has taken radiation measurements at his parcel since 1990 using the device he invented and patented. (Complainant Exhibit 1 at 3-4).

7. "EMF" refers to electric and/or magnetic fields which are created when there is a flow of electricity. The EMF associated with alternating electric power is created as a result of electrical voltage, which in turn creates an electric field, and the flow of electric current, which in turn creates a magnetic field. (PPL Statement No. 1 at 7).

8. Electric and/or magnetic fields are referred to as "power frequency" or 60 Hertz ("Hz") fields. A Hertz field is a unit that measures the frequency of the field oscillations in cycles per second. (PPL Statement No. 1 at 8).

9. A 60 Hz electric field is associated with the voltage on conductors of an electric power line or device and is commonly described as volts per meter (V/m) or kilovolts per

meter (kV/m). One characteristic of a 60 Hz electric field which arises from a transmission line is that the electric field decreases rapidly with distance. (PPL Statement No. 1 at 8).

10. A 60 Hz magnetic field is associated with the flow of electric current on an electric power line, wires or in an electrical device and is commonly described as a Gauss ("G") or milligauss ("mG"). Similar to electrical fields, one characteristic of a 60 Hz magnetic field which arises from a transmission line is that the magnetic field decreases rapidly with distance. (PPL Statement No. 1 at 8).

11. Common sources of 60 Hz electrical fields are residential wiring, business wiring, lighting, residential appliances, power tools, and electrical equipment in offices, medical facilities or industrial facilities. (PPL Statement No. 1 at 8).

12. Common sources of magnetic fields are water flowing through water pipes and rotating steel-belted radial tires. (PPL Statement No. 1 at 11).

13. People are exposed to typical magnetic fields in everyday life which can range from 1 mG to above 1,000 mG. (PPL Statement No. 1 at 13).

14. There are no federal or Pennsylvania exposure limits for magnetic fields but voluntary industry guidelines for general public exposure suggest limiting 60 Hz magnetic field exposures to less than 2,000 mG daily. (PPL Statement No. 1 at 15).

15. The standard established by the Institute of Electrical and Electronics Engineers ("IEEE") for safe electromagnetic field levels recommends public exposure to 60 Hz magnetic fields should not exceed 9,040 mG daily. (PPL Statement No. 1 at 15).

16. The federal Nuclear Regulatory Commission ("NRC"), Federal Communications Commission ("FCC"), and the National Electric Code ("NEC") have not adopted an exposure limits for power frequency EMFs. (PPL Statement No. 1 at 16-17).

17. PPL measured magnetic field levels at the service addresses on May 2, 1994; May 7, 2004; January 12, 2006 and April 29, 2011. The highest levels (1.9 to 4.9 mG) were measured directly underneath the 12 kV distribution line that runs along East Ridge Road on the southern side of the properties. Levels ranging from 0.30 to 1.4 mG were measured at locations closer to the residence, garage and sheds. (PPL Statement No. 1 at 18).

18. The EMF levels measured in most residences and public places typically exceed the magnetic fields measured under residential electric distribution lines. (PPL Statement No. 1 at 19).

19. Complainant's device and system he developed to measure EMFs near power lines does not comply with the industry standard set forth by IEEE and does not produce accurate or reliable measurements of power line EMFs. (PPL Statement No. 1 at 21).

20. Lowering the voltage carried on distribution power lines increases the magnetic field levels. Power lines that carry a voltage of 4 kV or less carry three times more current (in order to provide the same level of electric power to residences) and three times higher magnetic field levels than currently measured on the power lines that cross over Complainant's property. (PPL Statement No. 1 at 22).

21. Respondent cannot eliminate all sources of EMFs from Complainant's property, unless Respondent stopped providing electric service to the residences serviced by the distribution line that crosses over Complainant's property and removed all interior electric wiring and electric appliances in all the residences nearby. (PPL Statement No. 1 at 23).

22. A 2007 research study conducted by the World Health Organization ("WHO") concluded there is no evidence to support a conclusion that exposure to low levels of electromagnetic fields are harmful to human health. (PPL Statement No. 1 at 23-24).

DISCUSSION

On February 1, 2012, Brunda filed a formal complaint with the Commission against PPL alleging there is a safety or quality problem caused by electromagnetic radiation from PPL's power lines surrounding Complainant's property in Lansford, Carbon County, Pennsylvania. Complainant requested the Commission order Respondent to eliminate all EMRs, and to reduce the line voltage to less than 4.0 kilovolts. In addition, Complainant requested compensatory and punitive damages for the suffering and death of his entire family. On February 21, 2012, Respondent filed an Answer to Complaint with the Commission in which it generally denied the allegations concerning electromagnetic fields.

Complainant contends the human absorption of the energy generated by high voltage power lines can be measured just as the energy generated by high voltage power lines itself can be measured. When too much energy is absorbed into the body, then nerve cell function is altered, the density and healing rate of bone is affected, cancer cell growth rate increases, cancer cells' sensitivity to drugs is altered, and the hormonal imbalance occurs. Complainant further contends his family members died due to long-term exposure to EMRs over time when living in the family residence.

Respondent contends Complainant does not understand the engineering principles incident to electric and magnetic fields arising from transmission power lines. Respondent avers the design of its transmission lines are consistent with and in compliance with federal, state and industry standards, and that the EMRs recorded near transmission lines is less than the EMRs found in or near homes and public places. In addition, Respondent argues there is no proof that EMRs cause health concerns in humans or any other form of life.

Responsibility of Public Utility

"Every public utility shall furnish and maintain adequate, efficient, safe, and reasonable service and facilities, and shall make all such repairs, changes, alterations,

substitutions, extensions, and improvements in or to such service and facilities as shall be necessary or proper for the accommodation, convenience, and safety of its patrons, employees, and the public. Such service also shall be reasonably continuous and without unreasonable interruptions or delay. Such service and facilities shall be in conformity with the regulations and orders of the Commission. Subject to the provisions of this part and the regulations or orders of the Commission, every public utility may have reasonable rules and regulations governing the conditions under which it shall be required to render service...." 66 Pa. C.S.A. §1501.

Burden of Proof

As the party seeking affirmative relief from the Commission, Complainant bears the burden of proof by substantial evidence. 66 Pa. C.S.A. §332(a). Substantial evidence is defined as such evidence that a reasonable mind might accept as adequate to support a conclusion. More is required than a mere trace of evidence or a suspicion of the existence of a fact sought to be established.[1]

Upon a complainant's presentation of evidence sufficient to satisfy initially the burden of proof, the burden of going forward with the evidence, sometimes called the burden of persuasion, to rebut the evidence of the customer shifts to Respondent. If the evidence presented by Respondent is of co-equal value or weight, the burden of proof has not been satisfied by the complainant. A complainant still must provide additional evidence to rebut the contrary evidence presented by Respondent.[2]

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[1] Norfolk & Western Ry. Company v. Pennsylvania Public Utility Commission, 489 Pa. 109, 413 A.2d 1037 (1980); Erie Resistor Corp. v. Unemployment Board of Review, 194 Pa. Superior Ct. 278, 166 A.2d 96 (1961); Murphy v. Department of Public Welfare, 480 A.2d 382 (Pa. Cmwlth. 1984).

[2] Morrissey v. Commw., Dept. of Highways, 424 Pa. 87, 225 A.2d 895 (1967) and Burleson v. Penna. Public Utility Commission, 66 Pa. Commw. 282, 443 A.2d 1373 (1982), aff'd 501 Pa. 443, 461 A.2d 1234.

DENIS DOBOSH-

Conclusion

In previous proceedings, the Commission considered the question which forms the basis for Complainant's averments here – whether electric or magnetic fields arising from electricity coursing through transmission lines cause adverse health effects. In each of those proceedings, the Commission has found that no conclusive and/or scientific evidence exists to reach the conclusion which Complainant insists be accepted here.[3]

In this proceeding, Complainant provided no medical or scientific evidence to support his contentions. In addition, Complainant was unable to show that PPL has violated any industry standard or failed to comply with any state or federal statutory or regulatory requirements. In fact, no federal or state entity has promulgated requirements concerning a limitation on the emission of electro-magnetic fields from transmission lines.

Based on the totality of evidence presented, Complainant did not meet the burden of proving Respondent violated the Commission's regulations by failing to provide a reasonably safe product. Accordingly, the complaint is dismissed in the ordering paragraphs below.

CONCLUSIONS OF LAW

1. The Commission has jurisdiction over the parties and the subject matter of this proceeding. 66 Pa. C.S.A. §701.

2. Complainant carries the burden of proving Respondent did not provide reasonable and adequate service. 66 Pa. C.S.A. §332(a).

[3] Application of PPL Electric Utilities Corp., Docket No. A-2009-2082652 (Final Order February 12, 2010); Letter Notification of Philadelphia Electric Company, Docket No. A-110550F0155 (Final Order November 12, 1993); Certification Application of Pennsylvania Power and Light Co., Docket Nos. A-110500F0162 and A-110500F0169 (Final Order March 17, 1994).

DENIS DOBOSH - 7/12

3. Complainant failed to meet the burden of proving Respondent did not provide reasonable and adequate service.

ORDER

THEREFORE,

IT IS ORDERED:

1. That the complaint of Daniel Brunda versus PPL Electric Utilities Corporation at Docket No. C-2012-2286040 hereby is dismissed because Complainant failed to prove Respondent did not provide reasonable and adequate service.

2. That the complaint of Daniel Brunda versus PPL Electric Utilities Corporation at Docket No. C-2012-2286040 be marked closed.

Date: December 5, 2012

Katrina L. Dunderdale
Administrative Law Judge

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA PUBLIC UTILITY COMMISSION
P.O. BOX 3265, HARRISBURG, PA 17105-3265

IN REPLY PLEASE
REFER TO OUR FILE

April 10, 2012

DR DANIEL D BRUNDA
106 W UPPER FERRY ROAD
APT 1
EWING NJ 08628-2740

Re: Comments on PPL Electric Utilities Corp. on the company request for relief to Administrative Law Judge Katrina L. Dunderdale

Dear Dr. Brunda:

Judge Dunderdale referred your letter to the Public Utility Commission's Office of Communications for response.

With regards to your comments on the scientific limits of EMFs for humans within the design of distribution lines, the Commission recognizes that scientific studies have been conducted which reach varying conclusions on the health effects of radiation from power lines.

We understand your concerns, but currently, the Commission has not taken a position on the health effects of EMFs from power lines, and therefore, has not promulgated regulations regarding this matter.

PPL IS RELYING ON OLD STUDIES MADE BY THE UNITED KINGDOM PRIOR TO 2007 REF. PPL ANNUAL REPORT 2011 PAGE 177

If you have any other questions, please feel free to contact me.

Sincerely,

Erika Dominick

Erika Dominick
edominick@pa.gov
Office of Communications
Pennsylvania Public Utility Commission
PO Box 3265
Harrisburg, PA 17105

NOTE BY DR. BRUNDA
PPL IS RELYING ON OLD STUDIES MADE BY THE UNITED KINGDOM TO 2007 AS STATED IN THEIR PPL ANNUAL REPORT OF 2011, PAGE WH: 177 WHICH IS ENCLOSED!
(TWO PAGES)

COPY TO: [illegible]

pending on the outcome of investigations at sites where investigations have not begun or been completed or developments sites for which PPL currently lacks information, the costs of remediation and other liabilities could be substantial. PPL and subsidiaries also could incur other non-remediation costs at sites included in current consent orders or other contaminated es which could be significant. PPL is unable to estimate a range of reasonably possible losses, if any, related to these atters.

ie EPA is evaluating the risks associated with polycyclic aromatic hydrocarbons and naphthalene, chemical by-products of al gas manufacturing. As a result of the EPA's evaluation, individual states may establish stricter standards for water ality and soil cleanup. This could require several PPL subsidiaries to take more extensive assessment and remedial actions former coal gas manufacturing facilities. PPL cannot estimate a range of reasonably possible losses, if any, related to these atters.

nder the Pennsylvania Clean Streams Law, subsidiaries of PPL Generation are obligated to remediate acid mine drainage at mer mine sites and may be required to take additional steps to prevent potential acid mine drainage at previously capped fuse piles. One PPL Generation subsidiary is pumping mine water at two mine sites and treating water at one of these sites. nother PPL Generation subsidiary has installed a passive wetlands treatment system at a third site. At December 31, 2011, PL Energy Supply had accrued a discounted liability of $24 million to cover the costs of pumping and treating groundwater the two mine sites for 50 years and for operating and maintaining passive wetlands treatment at the third site. PPL Energy pply discounted this liability based on risk-free rates at the time of the mine closures. The weighted-average rate used was 15%. Expected undiscounted payments are estimated at $2 million for 2012, $1 million for each of the years from 2013 rough 2016, and $133 million for work after 2016.

rom time to time, PPL undertakes remedial action in response to spills or other releases at various on-site and off-site ications, negotiates with the EPA and state and local agencies regarding actions necessary for compliance with applicable quirements, negotiates with property owners and other third parties alleging impacts from PPL's operations, and undertakes milar actions necessary to resolve environmental matters which arise in the course of normal operations. Based on analyses date, resolution of these general environmental matters is not expected to have a material adverse impact on PPL's perations.

uture cleanup or remediation work at sites currently under review, or at sites not currently identified, may result in material dditional costs for the Registrants.

PPL ANNUAL REPORT - 2011

Electric and Magnetic Fields

Concerns have been expressed by some members of the public regarding potential health effects of power frequency EMFs, which are emitted by all devices carrying electricity, including electric transmission and distribution lines and substation quipment. Government officials in the U.S. and the U.K. have reviewed this issue. The U.S. National Institute of Environmental Health Sciences concluded in 2002 that, for most health outcomes, there is no evidence that EMFs cause dverse effects. The agency further noted that there is some epidemiological evidence of an association with childhood eukemia, but that the evidence is difficult to interpret without supporting laboratory evidence. The U.K. National Radiological Protection Board (part of the U.K. Health Protection Agency) concluded in 2004 that, while the research on EMFs does not provide a basis to find that EMFs cause any illness, there is a basis to consider precautionary measures beyond existing exposure guidelines. The Stakeholder Group on Extremely Low Frequency EMF, set up by the U.K. Government, has issued two reports, one in April 2007 and one in June 2010, describing options for reducing public exposure o EMF. The U.K. Government responded to the first report in 2009, agreeing to some of the proposals, including a proposed voluntary code to optimally phase 132 kilovolt overhead lines to reduce public exposure to EMF where it is cost effective to lo so. In February 2011, the U.K. Government and the Energy Networks Association agreed to voluntary codes of practice nder which new high voltage lines will be designed and operated using optimal phasing to reduce EMF unless doing so vould be unreasonable, and defining the circumstances under which utilities will need to provide evidence of compliance with EMF exposure limits adopted by the U.K. Government. The U.K. Government is currently considering the second eport which concentrates on EMF exposure from distribution systems. PPL and its subsidiaries believe research on EMF nd health issues should continue and are taking steps to reduce EMFs, where practical, in the design of new transmission nd distribution facilities. PPL and its subsidiaries are unable to predict what effect, if any, the EMF issue might have on heir operations and facilities either in the U.S. or the U.K., and the associated cost, or what, if any, liabilities they might ncur related to the EMF issue.

Environmental Matters - WPD *(PPL)*

WPD's distribution businesses are subject to environmental regulatory and statutory requirements. PPL believes that WPD nas taken and continues to take measures to comply with the applicable laws and governmental regulations for the protection of the environment.

APRIL 2012

EXHIBIT 2 = REQUESTED BY JUDGE KATRINA L. DUNDERDALE (8/16/12 8/6/2012

DR. DANIEL D. BRUNDA,S CRITIQUE OF DIRECT TESTIMONY OF J. MICHAEL SILVA, PE

PAGE 1, LINE 3-CALIFORNIA IS THE ONLY STATE IN THE U.S.A. WHICH DOES HAVE CALIF. PUC GENERAL ORDER NO. 95 RESOLUTION SU-25-19 jaNUARY 1994 FOR REGULATING CONDUCTION OF ELECTRIC CURRENTS INTO LIVING BEINGS.MR. SILVA SHOULD KNOW THIS!
LINE 12A-EMF MEASUREMENTS INCLUDE ONLY ELECTRIC (V/M) AND MAGNETIC FIELDS(MICROGAUSS). COMPUTER MODELING IS NOT ACCURATE BECAUSE IT IS BASED SOLELY ON EMF MEASUREMENTS.

PAGE 2, LINE 10 &11- WHAT YEARS?
LINE 17 & 18-WHAT WERE THE POWER LINE VOLTAGES?
LINE 19 & 20-WHAT WERE THE ENGINEERING DETAILS AND DESIGN SPECS?

X PAGE 3,LINES 1-12-WHAT WERE THE LINE VOLTAGES? GROSS OMISSION!!

PAGE 4-1-10, NONE OF THEIR WORK INVOLVED THE MEASUREMENT OF ABSORBED ENERGY IN LIVING BEINGS!

PAGE 5-,1-12-WHEN WERE THESE MEASUREMENTS (EMDEK) DEVELOPED? MY RESEARCH AND MEASUREMENTS STARTED IN 1978BEFORE EMDEK WHICH CAN"T MEASURE SINGLEDIGITS
PAGE 6, HAVE YOU MADE MEASUREMENTS (EMDEK) ON THE RUSS ALLEN FARMIN DEPERE WISCONSIN?

PAGE 8-LINE 6, THE LINES ARE GEWNERALLY OF POOR QUALITY AND INCLUDE MANY HZ

LINE 17, AT WHAT DISTANCE IS THE MAGNETIC FIELD 1.5 MICROGAUSS?
19-22, THE VOLTAGES VARY WIDELY!
PAGE 9-16-18, THE RAZOR VOLTAGE IS LOW (110VOLTS OR LESS).

PAGE 10. IT IS THE BODILY ABSORBED ENERGY FROM THESE APPLIANCES WHICH IS MOST IMPORTANT AND CAUSE DISEASES.

PAGES 11,12&13- NOMEASUREMENTS OF THE BODILY ABSORBED ENERGY OR CURRENTS!

PAGE 14LINES 12-14-IT IS NOW KNOWN THAT FOR RESTFUL SLEEP THE BEDROOMMUST BE DEVOID OF ELECTRICAL APPLIANCES.

PAGE 15-THE STANDARDS QUOTED ARE JUST A LOT OF HOT AIR WITHOUT ABSORBED
22 & 23. ENERGY JUSTIFICATION.!!!

PAGE 16, LINES 1-3, THE IEEE RECOMENDATION IS WITHOUT BODILY ABSORBED
AND PAGE 17 ENERGY JUSTIFICATION!
1-13. LINES 11-21, MR. SILVA IS WRONG!HARMFUL ABSORBED BODILY ENERGY IS INDEPENDENT OF THE GENERATING SOURCE WHETHER IT IS A NUCLEAR REACTOR OR A POWERline!! SEE MY BOOK NO. 19787 PAGES 11, 12 AND 13 (UNIVERSAL PLAGUE)
PAGE 18-EAM ENVIRONMENTAL AND OCCUPATIONAL MEDICINE IN NEW JERSEY. I AGAIN REPEAT THAT THE ABSORBED BODILY ENERGY AND CURRENT ARE THE FACTORS WHICH CAUSE DISEASE RATHER THAN THE MICROGAUSS!

PAGE 20-THE MAXIMUM HABITABLE VOLTAGE IS 2-4KV AT 1.5μG AND 1.OMILLIAMP(UL) AND JERRY WHITAKRE!
LINE 4-22-THIS IS EXACTLY WHY THE UNIVERSAL PLAGUE EXISTSTHROUGHT THE WORLD (XLIBRIS BOOK NO. 19787 AND RUSS ALLEN,S BOOK "THE ELECTROCUTION OF AMERICA")
PAGE 21 LINE 1-2-I HAVE A PATENTED INVENTION WHICH THE IEEE DOES NOT HAVE!
IS EMDEK PATENTED???

8/6/2012

DR. BRUNDA'S CRITIQUE, CONTINUED

PAGE 22 LINES 1-10-LOWERING THE VOLTAGE TO 2-4KV CLEARLY REQUIRES A REDUCTION OF THE TRANSMITTED POWER WHICH IS NOT NEEDED IN THE SMALL NON_INDUSTRIAL COMMUNITY OF LANSFORD, PA. WHICH HAS A POPULATION OF ABOUT 4500.

LINE 15- JERRY WHITAKRE CLEARLY SHOWS THAT SAFE DISTRIBUTION LINES SHOULD BE 2-4KV in RESIDENTIAL AREAS!

LINES 15-22- SAFE AERIAL DISTRIBUTION SYSTEMS REQUIRE LOW VOLTAGES AND LOW POWER! WHICH ARE IDEAL IN SMALL COMMUNITIES!
THERE ARE, HOWEVER, OTHER METHODS TO TRANSMIT HIGHER ELECTRICAL POWER WHICH IS NOT NEEDED IN LANSFORD, PA.! WHICH ARE FAR SIMPLER THAN INDICATED BY MR. SILVA! SEE MY XLIBRIS BOOKS!

PAGE 23- lines 1-0, THIS IS EXACXTLY THE REASON FOR THE EXISTENCE OF THE UNIVERSAL PLAGUE AND THE ELECTROCUTION OF AMERICA!

LINES 10-16 I AM NOT REFERRING TOTHE HOUSE WIRING OR APPLIANCES WHICHARE A RELATIVELY MINOR PROBLEM AT 110 VOLTS!

PAGE 23& 24- THE "WHO"IS COMPLETELY WRONG ABOUT THE SAFETY OF AERIAL POWERLINES WHICH BOTH INDUCE AND CONDUCT ELECTRICAL POWER (JOULES AND AMPERES) INTO HUMAN BEINGS.:XLIBRIS BOOK NO. 16607
no. 19787-UNIVERSAL PLAGUE
19994-THE ELECTROCUTION OF AMERICA

PAGE MR. SILVA'S OPINION IS WRONG! !!!
24. LINE 21 AND 22-PEOPLE CANNOT SAFELY EXPERIENCE THESE LEVELS ON A REGULARBASIS IN A VARIETY OF LIVING AND WORKING ENVIRONMENTS!! FOR ALL OF MY PRECEDING REASONS!!!

RESPECTFULLY,

Dr. Daniel D. Brunda

DR. DANIEL D. BRUNDA, PE,ABI,IBC
ELECTROMAGNETIC RADIATION ENGINEER
FOUNDER, INVENTOR, AUTHOR
XLIBRIS BOOKSNO. 16607 and 19787

TO: EDWARD C. LOGAN, ESQ.
APPENDIX A_PENNA. PUC C_2002-2286040

DR. DANIEL D. BRUNDA,SCRITIQUE OF J. MICHAEL SILVA, PE (8/27/2012)

1. MR. SILVA,SCOMMENT ABOUT MY FUNDAMENTAL LACK OF UNDERSTANDING IN ENGINEERING AND TECHNICAL CONCEPTS IS GROSSLY FALSE AS DEMONSTRATED BY MY DEGREES FROM LEHIGH UNIVERSITY,CAMBRIDGE UNIVERSITY, MY BOOKS (XLIBRIS#16607,19787 AND MY NUMEROUS WORLDWIDE AWARDS.

2. THIS PARAGRAPH IS ALSO ENTIRELY FALSE. MY ENTIRE BOOK XLIBRIS @16607 IS ABOUT THE SAFE DESIGN, OF ELECTRIC TRANSMISSION AND DISTRIBUTION LINES. MY WORK IS BASED ON AMPERES LAW, MAXWELLS LAW, OHMS LAW, LAMBERTS LAW , BEERS LAW, ETC. WHICH LED TO DR. BRUNDA'S DISCOVERY OF BRUNDA,SABSORBANCE LAW.

3. mr. sILVAS REFERENCE TO NUCLEAR REACTORS AND POWERLINESIS FUNDAMENTALLY WRONG, MISLEADING AND DEMONSTRATESHIS LACK OFKNOWLEDGE THAT ENERGY (JOULES, AMPS)ARETHE SAME REGARDLESS OF HOW THE ENERGY IS GENERATED. SEE MY PAGES 11, 12, AND 13 IN XLIBRIS BOOK #197871

4. MR SILVA HAS MADE GROSS OMISSIONS OF THE POWERLINE VOLTAGESWHICH ARE NECESSARY TO SHOW THE UNSAFE LEVELS OF MAGNETIC FLUX DENSITY WHICH HE HAS CQUOTED. SEE MY FIGURE 6A ON PAGE 36 in xlibris book no. 19787

5. MR. SILVA,S STATEMENT PROVES THAT CALIF. GENERAL ORDER NO. 95AND RESOLUTION SU_25 919 JANUARY, 1994)IS CALIFORNIA,SVERSION OF THE NATIONAL ELECTRICAL SAFETY CODE.EVEN THOUGH EMF,S ARE NOT ADDRESSED AT THIS PO.

6. NEITHER THE IEEE, ICNIRP NOR "WHO" HAVE DONE ANY RESEARCH REGARDING THE INDUCTION AND CONDUCTION OF ELECTRICAL CURRENTS INTO THE BODYBLOOD,AND NERVOUS SYSTEM OF LIVING BEINGSAS BOTH I, DR. DANIEL D. BRUNDA AND RUSS ALLEN HAVE DONE!

8. THIS STATEMENT IS GROSSLY FAL:SEBECAUSE LANSFORDDOES NOT NEED THE EXTREMELY HIGH LEVELS OF POWER TRANSMITTED BY 12.7KV FOR EXAMPLE,: IF THE 4500 POPULATIONCONSISTS OF 2250 households, EVEN 3.0 HP/HOUSEHOLD MAXIMUM WOULD ONLY REQUIRE A TOTAL TRANSMITTED POWER OF 6750.HP WHICH IS WELL WITHIN THE AMPACITIES OF COPPER CONDUCTORS,

8. THE RESEARCH FROM MY "THE UNIVERSAL PLAGUE:, ELECTROCUTION OF AMERICA, PROVES WHY THEY EXIST THROUGHOUT THE WORLD TODAY!

IN SUMMARY, MR. SILVA IS COMPLETELY WRONG ABOUTHIS IDEAS REGARDING THE SAFETY OF ELECTROMAGNETIC RADIATION FROM AERIAL POWERLINES. IN ADDITION HE HAS FAILED TO ANSWER MY QUESTIONS ANDCOMMENTS IN EVERY LINE ITEM OF MY EXHIBIT NO. 2 HUMAN BEINGS ARE AFFECTED BY VOLTAGE, FREQUENCY TRANSMITTED POWER DENSITY(MW/ACRE)RADIATED POWER DENSITY, ABSORBEDPOWER ENERGY(JOULES) AND MAGNETIC FLUX DENSITY((BOOK NO. 16607, paGE 90

AND IMPEDANCE!

RESPECTFULLY,

Dr. Daniel D. Brunda

DR. DANIEL D. BRUNDA, PE,ABI,IBC
ELECTROMAGNETIC RADIATION ENGINEER
FOUNDER, INVENTOR, AUTHOR
XLIBRIS BOOKS NO. 16607 AND 19787

1 SEPT. 2012

SEVERAL ADDITIONAL PATENTS ARE PENDING WITH THE PTO

6/9/12

DR. DANIEL D. BRUNDA'S CRITIQUE OF PUC EMF'S

THE ENTIRE PUC ARTICLE ON EMF'S IS A TERRIBLE WRONGFUL MESS BECAUSE:

1. NONE of the powerlines has BEEN IDENTIFIED BY THE CHARACTERISTIC DESIGN IMPEDANCE.(SAFETY)

2. NO MEASUREMENTS OF THE ELECTRIC FIELD STRENGTH WERE MADE AT THE RIGHY-OF-WAY.

3. NO MEASUREMENTS OF THE WAVE IMPEDANCE (Zw) WERE MADE AT THE RIGHT OF-WAY.

4. NO MEASUREMENTS WERE MADE OF THE INDUCED BODY ENERGY CAUSED BY EACH LINE AT THE RIGHT-OF WAY. THE ENERGY CAUSES DISEASES.

5. NO MEASUREMENTS WERE MADE OF THE INDUCED BODY CURRENT WHICH IS CAUSED BY EACH POWERLINE AT THE RIGHT-OF-WAY.THE CURRENT CAUSES DISEASES. THEY CAN,T MAKE THESE MEASUREMENTS BECAUSE I HAVE THE PATENT!

6. THERE IS NOINDICATION OF THE QUALITY (HZ) OF THE POWERLINEEMISSIONS WHICH CAUSE MANY DISEASES. THE FREQUENCY IS SUPPOSED TO BE 60HZ.

7. ALLPOWERLINE EMISSIONS EXCEED THE RADIATION LIMITS OF (o.o5 REMS/YEAR FOR HUMAN BEINGS (AT THE RIGHT-OF-WAY) AT THE THRESHOLD OF PERCEPTION AND THEREFORE CAUSES INSOMNIA AND MANY OTHER DISEASES LIKE CANCER AND HEART DISEASE! (SAFETY)

8. STUDIESIN ALL EMF SPECIALITIES INCLUDING MEDICAL SCIENCE, BASIC SCIENCE, ENGINEERING, PHYSICS, AND EPIDEMIOLOGY ARE ALL USELESS WITHOUT ALL OF THE REQUIRED PRECEDING ENERGY MEASUREMENTS WHICH ARE THE CAUSE OF THE UNIVERSAL PLAGUE! (SAFETY)

IN SUMMARY THE TIME IS LOMG OVERDUE FOR BOTH THE PENNA. PUC AND PPL ELECYRIC UTILITIES TO GET THEIR ACT TOGETHER!

9. THERE ARE NO PROVISIONS FOR HUMAN BEING PROTECTION FROM AC LINE DISTURBANCES. (SAFETY AND QUALITY) 10^{-6} JOULES TO 150. JOULES AND THOSE CAUSED BY THE CONTROL SYSTEM.

10. THE RIGHT-OF-WAY MUST BE AT LEAST 150 feet from the POLE FOR LIGHTNING PROTECTION.(SAFETY)

Dr. Daniel D. Brunda

DR. DANIEL D. BRUNDA, PE
ELECTROMAGNETIC RADIATION ENGR.
FOUNDER, INVENTOR , AUTHOR.

11. THE MAXIMUM TRANSMITTED POWER IS NOT SPECIFIED. (SAFETY)

12. THE MATERIAL OF CONSTRUCTION, CABLE SIZE AND SPACING ARE NOT SPECIFIED AND HEIGHT ABOVE THE GROUND. (SAFETY).

13. THE MAXIMUM RADIATED POWER DENSITY IS NOT SPECIFIED! (SAFETY)

14. THERE IS NO INFORMATION ON THE CONTROL SYSTEM WHICH IS A MIGHTY BIG PROBLEM! MY XLIBRIS BOOK NO. 16607, PAGE 12, SUMMARY! VACUUM TUBES, RELAYS, RESISTORS, RECTIFIER DIODES, MEDIUM AND HIGH POWER TRANSISTORS, LOW POWER TRANSISTORS, INTEGRATED CIRCUITS, MICROWAVE DIODES 10^{-6} JOULES TO 150 JOULES (PAGE 63). VERY HIGH INDUCED ENERGIES!

MODIFIED PAGE 4/29/12

XLIBRIS BOOK NO. 16607

FIGURE 8. PPL ELECTRIC UTIL.

Magnetic Field Measurements
Brunda Residence
402 East Snyder Avenue
Lansford, PA
(readings in milliGauss)

Location	May 2, 1994	May 7, 2004	Jan 12, 2006	APR. 29 2011	2012
1	1.1	1.8	1.3		
2	0.9	1.1	1.1		
3	1.6	1.3	0.8		
4	1.6	1.3	0.8		
5	4.0	3.2	2.3		
6	4.3	2.8	2.4	~~1.9 TO a2.4~~	
7	4.9	3.0	1.9		
8	4.4	2.4	2.0		
9	1.1	0.7	0.5		
10	1.0	0.6	0.3		
11	0.9	0.5	0.3		
12	0.9	0.5	0.3		
13	1.4	0.8	0.5		
14	1.2	0.6	0.3		

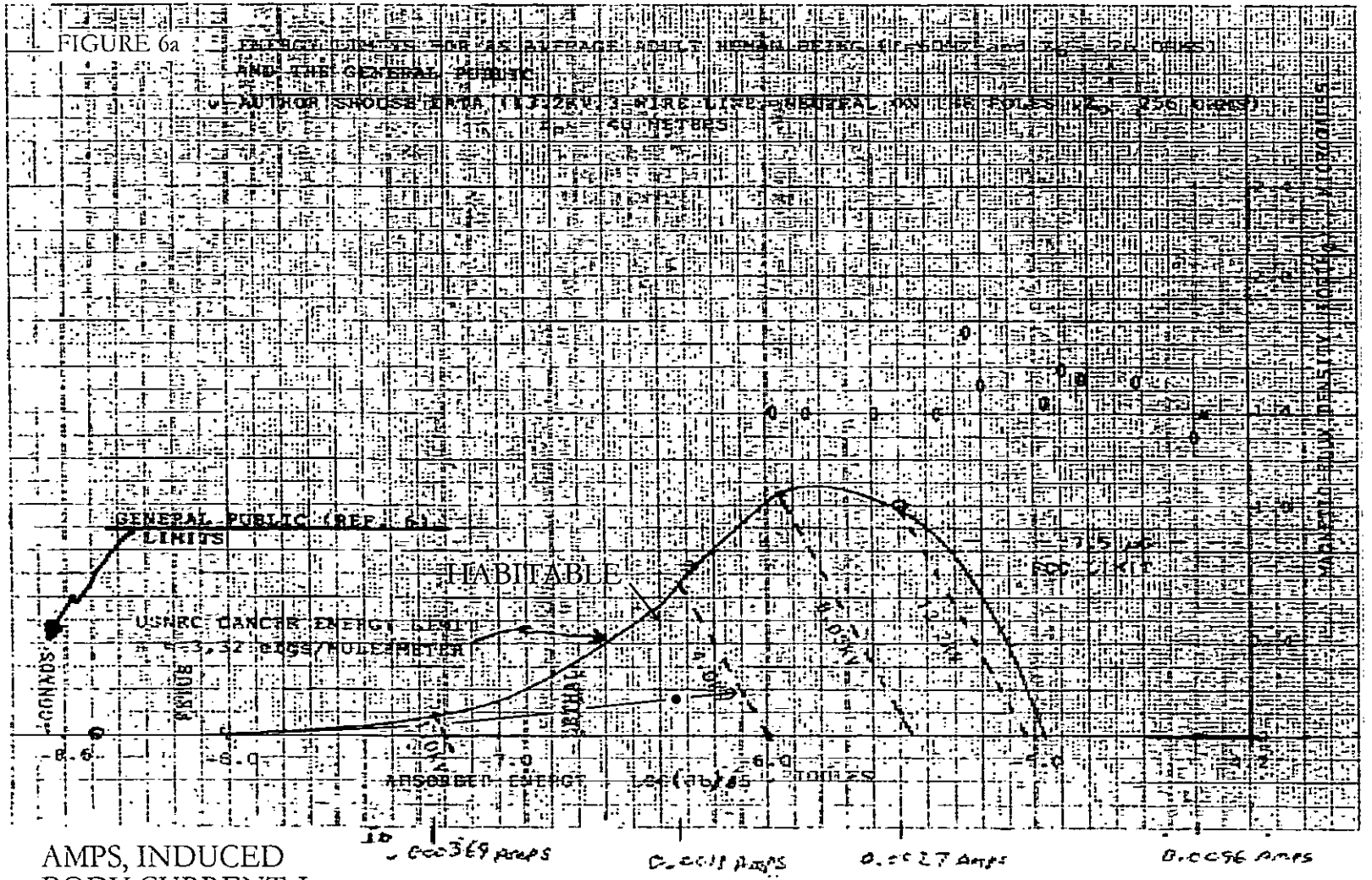
ONE MILLIGAUSS EQUALS ONE THOUSAND MICROGAUSS

RECOGNIZED SCIENTIFIC LIMITS
FOR
HUMAN BEINGS SAFETY

	MICROGAUSS	rems	MILLIAMPS (BODY CURRENT)	
USNRC	10.0	(4/39 1851.0.5e991)	2.7	(NRC.10CFR-20,1301)
FCC	7.5		1.2	
NEC	1.26		0.87	
EUM THRESHOLD OF PERCEPTION	1.50		1.0	ENVIRONMENTAL/OCCUPATIONAL MEDICINE ROBERT WOOD JOHNSON MEDI MEDDICAL SCHOOL
IEEE	ZERO		ZERO.	

REFERENCE: XLIBRIS BOOKS NO. 16607 AND 19787
AUTHOR: DANIEL D. BRUNDA:PE, DDGIBC,DGABI, ELECTROMAGNI
De. RADIATION ENGINEER AND FOUNDER, INVENTOR, AUTH

FIGURE 6a



AMPS, INDUCED
BODY CURRENT. I_b

UL, EOM & JEOM – • – THRESHOLD OF PERCEPTION (REF. 32, 51 & 52)

XLIBRIS BOOK N). 19787

XLIBRIS BOOK NO. 19787

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Configurations; I. Exposure Model, BEMS, VOL. 20, No. 7, October1999.

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47. **Biologically closed electric circuits: clinical, experimental, and theoretical evidence for an additional circulatory system**
Author: Nordenstörm, Björn
Publication: Stockholm, Sweden: Nordic Medical Publications, 1983
Document: English: Book
Libraries Worldwide: 80

48. POPULAR MECHANICS, MARCH 2004 – ABOUT LAB STENTS

49. D. T. MAX, AUTHOR – THE FAMILY THAT COULDN'T SLEEP
RANDOM HOUSE – 1745 BROADWAY, N.Y., NY 10019

50. ALTERNATIVES DR. DAVID WILLIAMS – THE LINK ...
VOL 15, NO ...

PAGE 47

31 MARCH 2012

ROSEMARY CHIAVETTA, SECRETARY
PENNSYLVANIA PUBLIC UTILITY COMMISSION
COMMONWEALTH KEYSTONE BUILDING
400 NORTH STREET, 2ND FLOOR NORTH
P.O.BOX 3265
HARRISBURG, PA. 17105-3265

REF.: POST SCHELL LTR, 5 MARCH 2012
PPL ELECTRIC UTILITIES CORP.
REQUEST FOR RELIEF
DOCKET NO. C-2012-2286040.

DEAR SECRETARY CHIAVETTA:

PPL ELECTRIC UTILITIES MUST BE DENIED THEIR REF. REQUEST FOR RELIEF BECAUSE NEITHER PPL ELEC. NOR ANYONE ELSE CAN SCIENTIFICALLY dispute my request for a REDUCTION OF VOLTAGE TO 2-4KV WHICH IS SCIENTIFICALLY confirmed by my research(BOOKS #16607 AND #19787) WHICH ARE COMPLETELY SUPPORTED BY:

1. SEVEN SCIENTIFIC EMR HUMAN BEING LIMITS (USNRC,FCC,NEC,EOM AND IEEE), AND MY ENTIRE BOOK #16607 ABOUT SAFE DESIGN PRACTCES! AND THE UIVERSAL PLAGUE BOOK #19787.
2. THRESHOLD OF PERCEPTION OF HUMAN BEINGS REPORTED BY ROBERT WOOD JOHNSON UNIVERSITY MEDICAL SCHOOL, EOM. (1.0 MILLIAMP AT 1.5 microG) EOM AND UL. THEREFORE THE RADIATION LIMIT FOR HUMAN BEINGS IS 0.05REM
3. HUMAN BEINGS ARE SUBJECTED TO THE UNIVERSAL PLAGUE (BOOK # 19787) BECAUSE OF THEIR LOW INDUCTIVE IMPEDANCES OF THE BLOOD, BONE, TISSUES, AND NERVES AT LOW FREQUENCES OF THE EMR (POOR QUALITY 60HZ AND MANY OTHERS) D.C. TO 150HZ
4. THE CRC PRESS BOOK BY JERRY C. WHITAKER IN 1991 entitled;
AC POWER SYSTEMS HANDBOOK (SAFETY AND QUALITY)
WHICH STATES THAT DISTRIBUTION LINES ARE LIMITED TO 2-4KV, PROTECTION IS REQUIRED FROM ACLINE DISTURBANCES AND CONTROL SYSTEM DISTURBANCES!
5. COMPLETE IGNORANCE OF THE USNRC CANCER LIMITS FOR HUMAN BEINGS BY THE ELECTRIC UTILITY INDUSTRY. THE USNRC RADIATION ENERGY LIMIT FOR HUMAN BEINGS WAS LOWERED FROM 4.39 rems to 0.5 rems in 1991. (NRC.10CFR-20.1301) THE LIMIT IS NOW PROVEN TO BE 0.05rem
6. MY PROPERTY CANNOT BE PRODUCTIVELY UTILIZED IN ACCORDANCE WITH MY PLANS BECAUSE OF THE ABOVE PRECEDING ISSUES. I WANT TO BE ABLE TO LIVE THERE SAFELY AND PRODUCTIVELY! MY BOOK NO. 19787
7. TWENTY EIGHT DANGEROUS RADIATION ENERGY SOURCES ARE LISTED ON PAGES 11 TO 13 ALONG WITH THEIR INJURIES. MY BOOK NO. 19787. (SAFETY)
8. i HAVE ALTERED MY REQUEST FOR A REDUCTION IN VOLTAGE TO (2-4KV) BY MY 14APRIL LTR.TO ERICKA DOMINICK BECAUSE PPL SAID ON 2 APRIL 2012 THAT THEY WILL NOT REDUCE THE VOLTAGE.
9. THE CONTROL SYSTEM IS A MIGHTY BIG PROBLEM!

SINCERELY,

Dr. Daniel D. Brunda 6/17/12

DR. DANIEL D. BRUNDA, PE
ELECTROMAGNETIC RADIATION ENGINEER
FOUNDER, INVENTOR, AUTHOR

UL- UNDERWRITER LABORATORIES

BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION

Daniel Brunda	:	
	:	
v.	:	C-2012-2286040
	:	
PPL Electric Utilities Corporation	:	

FIRST INTERIM ORDER (FOUR PAGES)

Change Initial Telephonic Hearing
to
Telephonic Prehearing Conference

On February 1, 2012, Daniel Brunda ("Complainant") filed a formal complaint with the Pennsylvania Public Utility Commission ("Commission") against PPL Electric Utilities Corporation ("Respondent" or "PPL") alleging there is a safety or quality problem caused by electromagnetic fields ("EMFs") from PPL's power lines surrounding Complainant's property in Lansford, Carbon County, Pennsylvania. Complainant requests the Commission order PPL to *eliminate all electromagnetic radiation around his property.*

On February 21, 2012, Respondent filed an Answer to Complaint with the Commission in which it generally denied the allegations concerning electromagnetic fields.

On March 1, 2012, the Commission issued a Telephone Hearing Notice scheduling this matter for an initial telephonic hearing on Monday, April 2, 2012 in the Commission's offices in Pittsburgh, Pennsylvania.

On March 5, 2012, PPL filed a Request for Relief of PPL Electric Utilities Corporation, which request was served on Complainant and his counsel. In its request, PPL asks the presiding officer to convert the hearing scheduled for April 2, 2012 into a prehearing conference in order to deal with some of the complex issues arising from an allegation of safety

or quality problems arising from electromagnetic fields. Specifically, PPL asks to find out if Complainant plans to proceed using only fact testimony or if he intends to use the services of an expert witness. PPL avers it needs to know this information in order to prepare its response. Lastly, PPL contends a prehearing conference "would facilitate administrative efficiency by providing the parties with a meaningful opportunity to determine what expert witnesses will be required for this proceeding and what issues those experts should be prepared to address."

Discussion

1. SAFETY
2. QUALITY
3. ABILITY FOR PRODUCTIVE USE OF PROPERTY

Pursuant to 52 Pa. Code §1.2, the presiding officer may waive a requirement or disregard an error or defect when necessary or appropriate and when it is applicable, provided there is no adverse effect to the substantive right of any party.

In addition, a presiding officer may conduct a prehearing conference and order the parties to appear if a prehearing conference would expedite the orderly conduct and disposition of the proceeding and serve the ends of justice and the public interest. 52 Pa. Code §5.222.

Complainant has alleged serious safety and quality issues concerning the impact of electromagnetic fields on the health of individuals who reside on the property and on Complainant's ability to make productive use of the property. If expert testimony is to be taken, then it will be necessary and expedient for the parties to meet to discuss how the testimony will be submitted and to ascertain if settlement of all or a portion of the issues can be obtained.

Therefore, the Initial Telephonic Hearing scheduled to begin at 1:30 p.m. on Monday, April 2, 2012 will be converted into a telephonic prehearing conference that will begin at the same time on the same date. The presiding officer will convene the prehearing conference from the Commission's hearing room in Pittsburgh, Pennsylvania.

The undersigned Administrative Law Judge enters the following Order and provisions:

1. The request of Respondent to change the Initial Telephonic Hearing into a prehearing conference in the proceeding of *Daniel Brunda v. PPL Electric Utilities Corporation* at Docket No. C-2012-2286040 is granted.

2. The Office of Administrative Law Judge's Scheduler will issue a notice which schedules the Initial Telephonic Hearing as a telephonic prehearing conference on Monday, April 2, 2012, at 1:30 p.m. from the Commission's hearing room in Pittsburgh, Pennsylvania.

Date: March 9, 2012

Katrina L. Dunderdale
Administrative Law Judge

C-2012-2286040 - DANIEL BRUNDA v. PPL ELECTRIC UTILITIES CORPORATION

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absorption cross section (see p. 9–192) may be high enough to cause significant transmutation to another element.

Fission in fuel-bearing materials causes damage by substitution of new elements for the original fuel element, volumetric change by substituting two atoms for one, and lattice damage by intrusion of the high-velocity fission fragments.

HEALTH PHYSICS

Under normal conditions of life, with no irradiation, living cells are subject to spontaneous chemical change. A minor change may cause a mutation of one of the 20,000 genes of a germ cell; a more radical change may damage a chromosome. Severe damage to a germ cell may render that particular cell incapable of reproducing or may result in hereditary abnormality; similar damage to a body cell may destroy the cell or may cause it, in the process of bodily repair, to reproduce in an abnormal and possibly cancerous manner.

Radiation, by causing ionization, produces additional changes. Exposure to radiation must be controlled so that no evident physiological effects occur, and so that the number of mutations is not large compared with those expected to occur spontaneously.

Biological dose units. Damage to tissue depends on the kind of radiation, as well as on the energy absorbed per gram. The unit of biological dose is the **roentgen equivalent man, rem,** defined as 1 rad multiplied by the **relative biological effectiveness, RBE,** of the radiation. The RBE is usually taken as 1 for X rays, gamma radiation, and beta particles; 2.5 for thermal neutrons; and 10 for fast neutrons and alpha particles.

The **roentgen equivalent physical, rep,** was formerly used in place of the rad in defining the rem. The rep is usually defined as 93 ergs per gram, corresponding approximately to the energy absorption per gram of soft tissue from a dose of 1 roentgen. The rep is obsolescent.

Biological Effects. Some types of biological damage are directly proportional to the dose accumulated in a lifetime. A total dose of 50 rem of gamma radiation, largely independent of the rate of administration, causes approximately the same number of mutations as occur spontaneously in a lifetime. This same dose causes approximately 0.5 percent reduction in average life span—but in this case the same dose administered over a short time would cause several times as much shortening.

Other types of biological damage are susceptible of bodily repair. If the rate of exposure is less than the rate of repair, there will be no evidence of damage; but a large dose administered over a short time will cause symptoms. A dose of 50 rem over the entire body, administered within a few hours, will in most cases cause radiation sickness, the most pronounced effect being a temporary decrease in white blood cells. A dose of 400 rem will cause severe sickness, followed by fifty percent fatalities. The effects would be much less if the same doses were administered over a period of several days. Overexposure may cause skin erythema, increase of the normal incidence of leukemia (a cancerous condition of the white blood cells), and tumors. Overexposure of the eyes, especially to neutron flux, may cause cataracts. Severe local exposure can cause damage such as temporary loss of hair or temporary sterility.

Maximum Permissible External Dose. *The basic maximum permissible dose rate* is set at 0.3 rem per week, or 7.5 mrem (milliroentgen equivalent man) per hr for a 40 hr week. The damage at this rate of exposure is well below the rate of repair and produces no detectable physiological effects. The cumulative effect of long continued exposure at the maximum rate would result in a significant decrease in life span and an increase in the number of mutations. The basic maximum is therefore scaled down as it applies to minors under eighteen, the general public, and workers exposed to radiation over a long period of years. In actual practice, the average rate of exposure is far below the maximum permissible rate, and these cumulative effects are kept to an acceptable level. The basic exposure rate is adjusted to meet special cases—in an emergency, a total dose of 25 r is considered acceptable. The dose defined by the above standard may be compared with the following X-ray doses in roentgens—the rem dose is essentially the same.

The amount of gamma radiation that would be received from a 100 mg radium capsule, in equilibrium with its decay products, at a distance of about 12 ft, is 7.5 mr per

hr, approximately. A dose of 1 r is administered in many types of diagnos examinations; a typical dental X-ray examination administers 5 r. A stomach X-ray may administer a dose up to 50 r to the stomach and a large surrounding organs. Extreme cases of whole-body therapeutic treatment 300 r in a month, administered as single doses up to 50 r. Local treatment may total 10,000 r, administered in a few weeks.

Maximum Permissible Internal Dose. Radioactive isotopes may enter through the nose, mouth, or cuts in the skin. Many of the elements preferentially in particular parts of the body, and some are strongly retained internal irradiation from accumulated radioactive isotopes must not exceed the sible rate of 0.3 rem per 40-hr week.

Radium (an alpha emitter) and some of the fission products (beta emitters centrate and are strongly retained in the skeleton, causing possible destr sarcoma of the bone. Radioactive particles retained in the lung may cause the lung. The much-publicized early industrial cases of severe illness and radium "poisoning" were caused by intake of radium—the present maximum sible limit for radium in the body is one microcurie (in this case, by defin microgram). The permissible concentration of an isotope in the air or drin thus depends on the intake, the ultimate distribution of the isotope in the mode and rate of decay, and the rate of elimination. Generally, the concen air is set at an upper limit of 5×10^{-12} microcuries per cc for strong alpha emit 10^{-9} microcuries per cc for beta emitters. For water-borne alpha or beta em corresponding figure is 10^{-7} microcuries per cc.

Monitoring. Working areas are monitored by fixed gamma or neutron (ion chambers, proportional counters, Geiger counters), usually with associated recorders, and warning signals. The area may be monitored for air-borne pa drawing air through a filter and continuously monitoring the filter. Portable ments in great variety are used for special or routine surveys of working areas.

Special dosimeters are worn by persons exposed to radiation. These includ graphic-film badges, with filters to make them sensitive to different types of pocket direct-reading dosimeters, etc.

Where alpha and beta contamination can occur, air, water, clothing, floor surfaces, and hands and feet are monitored; special equipment and clothing eating, smoking, and hazardous practices are prohibited in contaminated a special techniques are used for decontamination. Special care is taken to a tamination of drainage systems.

REACTOR DESIGN

Critical Size

A reactor is *critical* if the chain reaction is just self-sustaining, the rate neither increasing nor decreasing. It is necessary that an average of one neu each fission find a target that undergoes a consequent new fission. A neutron in fission may escape from the reactor without effectively finding a target; the right kind of target to produce fission, it may be absorbed in U^{238} or in breed the new fissionable isotopes Pu^{239} or U^{233}, or it may find the wrong kind and be absorbed parasitically. Competition between these possibilities is exp terms of target *cross sections* for the various processes.

Cross Sections. When a neutron strikes a nucleus, it may be *scattered*, elastically as in mechanical collision of perfectly elastic bodies, or it may be with or without producing fission; still other nuclear reactions may occur.

The atomic nuclei account for only about 10^{-14} of the total volume *matter*. A nucleus presents an exceedingly small target, and neutrons through matter with considerable freedom. The geometric cross-sectional nucleus is of the order of 10^{-24} sq cm. This area is used as a unit of cross se is called a **barn**. The geometric area of cross section of a nucleus is not a the probability that a wandering neutron will strike it or react with it. section for a particular nuclear reaction can be defined as a fictitious target

AN OTHER PAGE FOR MAN... HAND BOOK

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TABLE V LISTS CHROMOSOMES AND THEIR DESEASE CAUSING DEFECTS

POWERLINE SYSTEMS DESIGN POINTS

The following Table VI shows that properly matched powerline systems can be designed to operate at the safe NRC Cancer Poiwer Limit of 286HP and at 6000HP by the use of various wire-line configurations. The required distance

TABLE VI -HIGH HP SYSTEM DESIGN POINTS

HIGH HORSEPOWER HIGH	AVOIDANCE DISTANCE r_m, METERS	IMPEDANCE OHMS	LINE VOLTAGE, E_C	MAGNETIC FLUX DENSITY, H_ϕ MICROGAUSS	WIRE-LINE CONGIGUR-ATION
NRC CANCER LIMIT		Z_W, Z_C, Z_O			
286.	56.2	2.66	762.	14.1	RECTANGULAR FOUR-WIRE LINE.
6000.	83.2	3.94	4167.	34.67	RECTANGULAR FIVE-WIRE LINE.
100.	30.0	1.42	1733.0	14.1	THIN-WIRE CIRCULAR LINE.
* 286.	30.	4.42	13,250.	10.0max.	

* REF - 41

to avoid radiation, r_m, can be further reduced by reducing the power and/or by using shielded aerial cables and shielded underground cables. The Author's house is located 30 meters from the power lines.

NOTE: 286 HP is adequate power for 286 residences in a residential zone, or for 143 two-HP residences in a residential zone. Hence, proper zoning ordinances are extremely important to ensure a safe low radiation environment in a community. The avoidance distance, r_m, and the environmental safety can be further improved by limiting the number of two=HP residences in a residential zone to 71.

There are forty single-family residences located in the River-side Residential tract where this author resides. Consequently, there is no reason whatsoever for P.S.E.&Gas Co. to be experimenting with a 13.2KV, 50 Megawatt powerline in this Residential Neighborhood since 1978 where only 100HP is required for a land area of 31.ACRES

This author did not experience any physical or mental problems due to electromagnetic radiation from powerlines in his house prior to 1978 when the powerline voltage was a nominal 4000 VOLTS at a distance of 30 meters.

The High HP System Design Points Voltages shown in Table VI are also consistent with the line voltage range of 2300-4160 VOLTS shown for a typical residential power-distribution network (Figure 1.17-Simplified Power-Distribution System) in REF. 32. Therefore, this rreport proves that Powerline-Distribution Networks can be properly designed and controlled to operate within the NRC Cancer Energy Limit to protect the PUBLIC HEALTH, in accordance with REF. 41.

THE UNIVERSAL PLAGUE

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Mr. Daniel Donald Brunda,

9. **VERIFICATION AND SIGNATURE** (OF COMPLAINANTS COMPLAINT)

You must print or type your name below on the line provided for the verification paragraph, and you must sign and date (in ink) this form on the lines provided.

Verification:

I DR. DANIEL D. BRUNDA ***, hereby state that the facts above set forth are true and correct (or are true and correct to the best of my knowledge, information and belief) and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).***

Dr. Daniel D. Brunda — 20 January 2012

(Signature) **(Date)**

Title of authorized employee or officer

10. **FILING**

Please return the completed form to one of the addresses listed below:

If using U.S. Postal Service:	If using overnight delivery service:
Secretary Pennsylvania Public Utility Commission P.O. Box 3265 Harrisburg, PA 17105-3265	Secretary Pennsylvania Public Utility Commission 400 North Street Commonwealth Keystone Building, 2nd Floor Harrisburg, Pennsylvania 17120

Facsimiles and/or electronic filings of the complaint will not be accepted.

If you have any questions about filling out this form, please contact the Secretary's Bureau at 717-772-7777.

Keep a copy of your complaint for your records.

I first complained to Pennsylvania Power and Light about the issues of my concerns with respect to the Electro Magnetic Field (EMF) on the property prior to 1990. The power company was requested to shield the power lines that go across my property on Ridge Street and at that time, the power company installed a steel pipe for the power drop to the home at 402 E. Snyder Street. The extremely high levels of electromagnetic radiation which I believe cause a safety and quality problem, have caused the deaths of my entire family and rendered my properties uninhabitable.

Q: What have you done to measure the Electromagnetic Fields on your property?

I began taking radiation measurements at the East Snyder property prior to 1990. I began measuring the radiation on the property using a Gauss Meter and an Electric Field Strength Meter. The measurements were substantial and I conveyed my findings to PPL and PPL began monitoring the EMF's at the residence at 402 East Snyder on May 2 1994 again on May 7, 2004 and on January 12, 2006. (See, Exhibit "A" to my testimony) The measurements taken on the property at 402 E. Snyder and 417 E. Ridge Street, have consistently been higher than the limits set forth in the Code of Federal Regulation as set forth in 10 CFR-20.1301. The highest reading in 1994 on the property as determined by PPL Electric was 4.9 milligauss on May 7 2004 the highest reading was 3.0 on January 11 2006 the highest reading 2.4 milligaus.

Q: Do you think PPL believes that the EMF from its power lines is a danger?

Yes. It is reported in their Annual Corporate Report (See, Exhibit "B" to my testimony). They have also made periodic measurements of the EMF on my property so there must be some concern.

Q: What is your background in Engineering and the science of Electromagnetic Radiation?

I have a background in Science and Engineering. I was awarded a Bachelor of Science in Mechanical Engineering from Lehigh University in 1952 and received a Master of Science in Mechanical Engineering in 1953. I am a licensed Professional Engineer in the State of New Jersey. I have done extensive research in the effect of power line radiation upon human beings and the danger of high voltage power lines and the electro magnetic fields that they generate to humans. I also have patented a device and a system for measuring the electrical induction of current in human beings from electro magnetic fields and a copy of the patent issued by the United States Patent Office (See Exhibit "C" to my testimony). Using the instrument that I invented, developed and patented, I had made measurements of the electrical current induced in humans on the property in question. Much of the research is substantially detailed in my book, "The Universal Plague – Powerline Radiation, Your Genes, Hereditary Diseases, Unified Nature of Electro Magnetic Radiation, Energy and Control of the Radiation Limits of Human Beings." This book was copyrighted in 2003 and published by Xlibris Corporation, 1663

Liberty Plaza, Ste 200, Bloomington, Indiana. I also authored another book; "The Design of Safe Electrical Transmission and Distribution Lines, Electromagnetic Power Radiation Engineering", a copy of which is attached to this testimony (See Exhibit "D"). This book was copywritten in 2003 and was published by Xlibris as well. On Figure 7 on page 19 of that book, there is a graph of energy limits for an average adult human being at voltages from 1 kilovolt to 13.2 kilovolts using the data from the authors home. Figure 8 on page 20,shows electric utility magnetic field measurements at 402 E. Snyder Avenue Lansford, Pennsylvania . On page 21 of the book, Figure 9 there are magnetic field measurements around the Brunda residence at 402 E. Snyder Avenue, Lansford pa. There is also analysis and discussion within the book that clearly demonstrates that the electromagnetic radiation from the electro magnetic fields exceeds the allowance of radiation exposure set by the Nuclear Regulatory Commission. Also included as an exhibit to my testimony is a copy of a photograph of the dosimeter and the rear calibration stamp that was used to measure the electromagnetic fields on the property located in Lansford, Pennsylvania (See Exhibit "E")

Q: Why do you believe that Electromagnetic Fields are hazardous or harmful to human beings?

The energy generated by high voltage power lines can be measured and using my patented device, the human absorption of this energy can also be measured. If too much of this energy is absorbed by the human body, the alteration of the function of the nerve cells occurs. The density and healing rate of bone is affected by this energy, the growth

rate and drug sensitivity to cancer cells is altered and the balance of important hormones is affected. This has all been shown in my research that has been published by Xlibris.

Dated: 7/9/12

Dr. Daniel D. Brunda

COMPLAINANTS PATENT (SEVEN PAGES)

US005350999A

United States Patent [19]

Brunda

[11] **Patent Number: 5,350,999**

[45] **Date of Patent: Sep. 27, 1994**

[54] **MEASUREMENT SYSTEM AND METHOD FOR DETERMINING THE AMOUNT OF ELECTROMAGNETIC RADIATION ENERGY BEING ABSORBED BY LIVING BEINGS**

[76] Inventor: [redacted]106 W. Upper Ferry, W. Trenton, N.J. 08628

[21] Appl. No.: **137,983**

[22] Filed: **Oct. 19, 1993**

Related U.S. Application Data

[63] Continuation of Ser. No. 858,626, Mar. 27, 1992, abandoned.

[51] **Int. Cl.**[5] **G01R 31/02**

[52] **U.S. Cl.** **324/72**; 324/457

[58] **Field of Search** 324/72, 457; 361/212; 307/326; 340/660

[56] **References Cited**

U.S. PATENT DOCUMENTS

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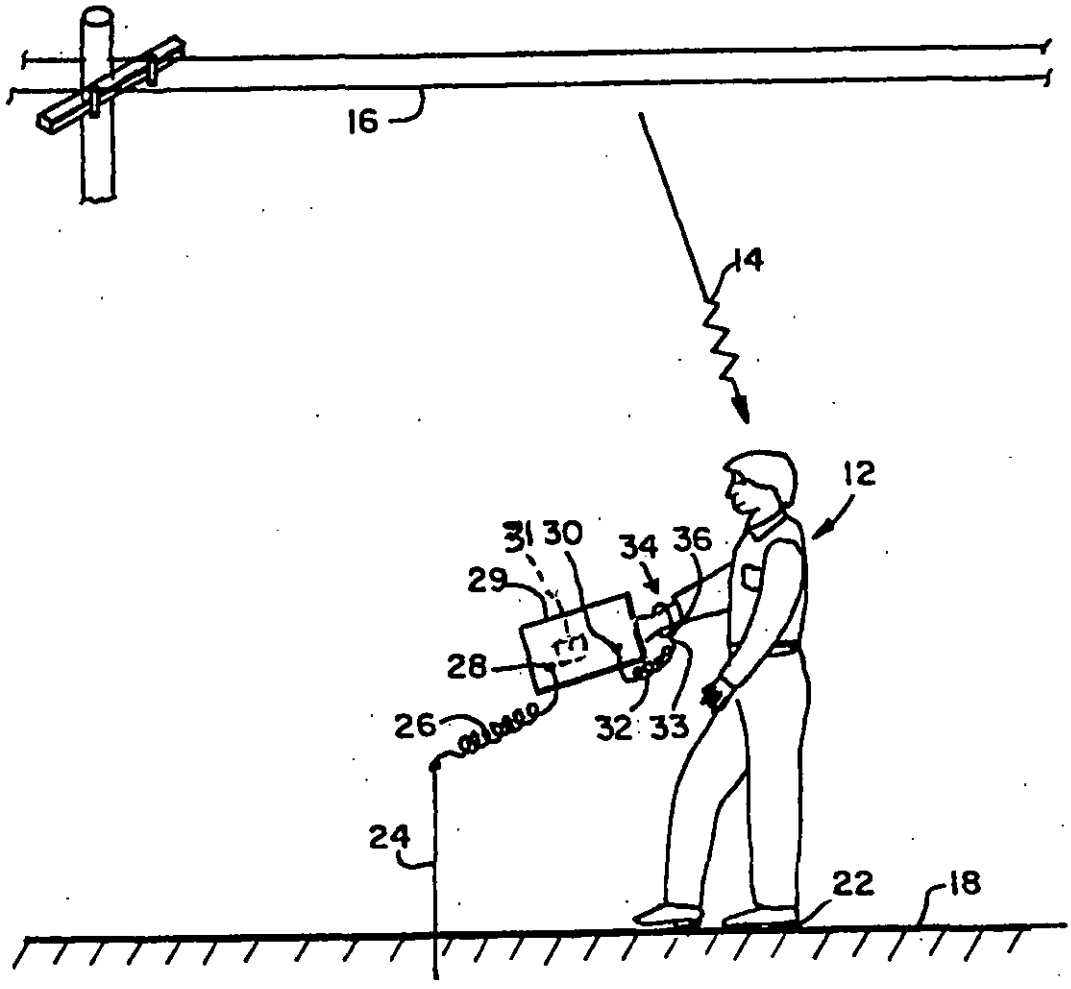
Primary Examiner—Maura K. Regan
Attorney, Agent, or Firm—Sachs & Sachs

[57] **ABSTRACT**

A measurement system and method for determining the amount of radiation absorbed by living beings includes a measurement device capable of measuring the amount of radiation emanating from power lines and any other source of radiation of electromagnetic energy (non-ionizing) at a particular location and electrically conductive contact devices for connecting the measurement device to a living being and to a ground and requires that a reference reading be taken and then a second reading obtained by connecting the measurement device to an appendage on a living being with the other end of the meter being connected to ground, a subtraction device indicates the amount of radiation being absorbed by the living being.

4 Claims, 2 Drawing Sheets



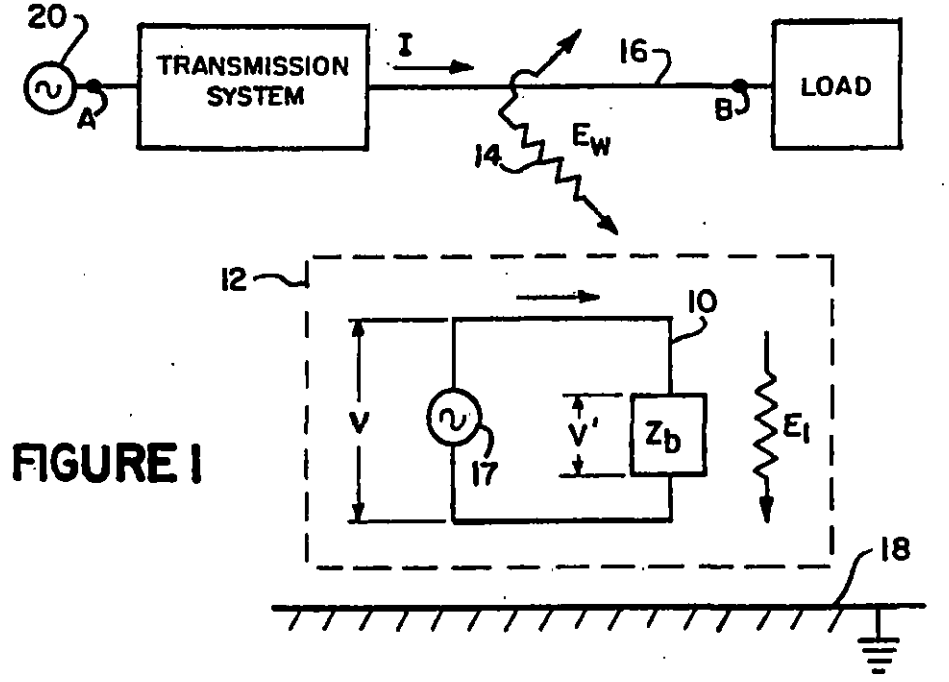


FIGURE 1

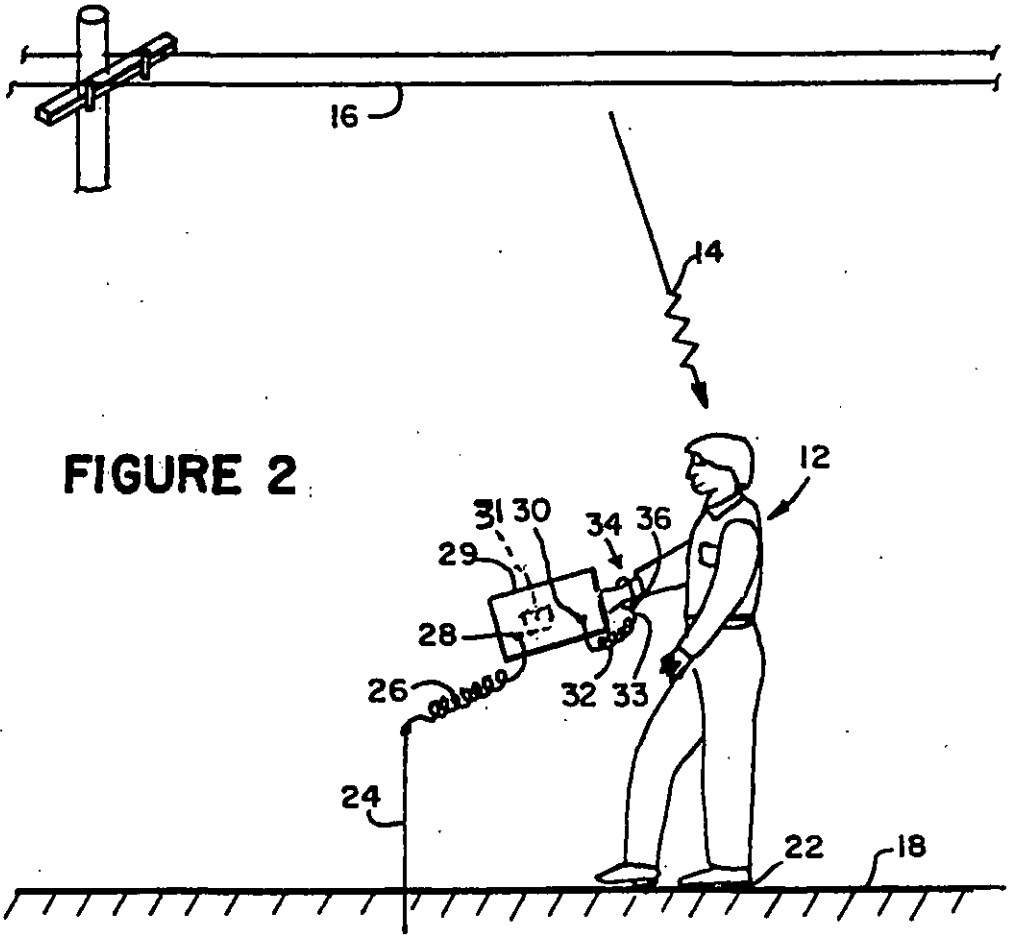


FIGURE 2

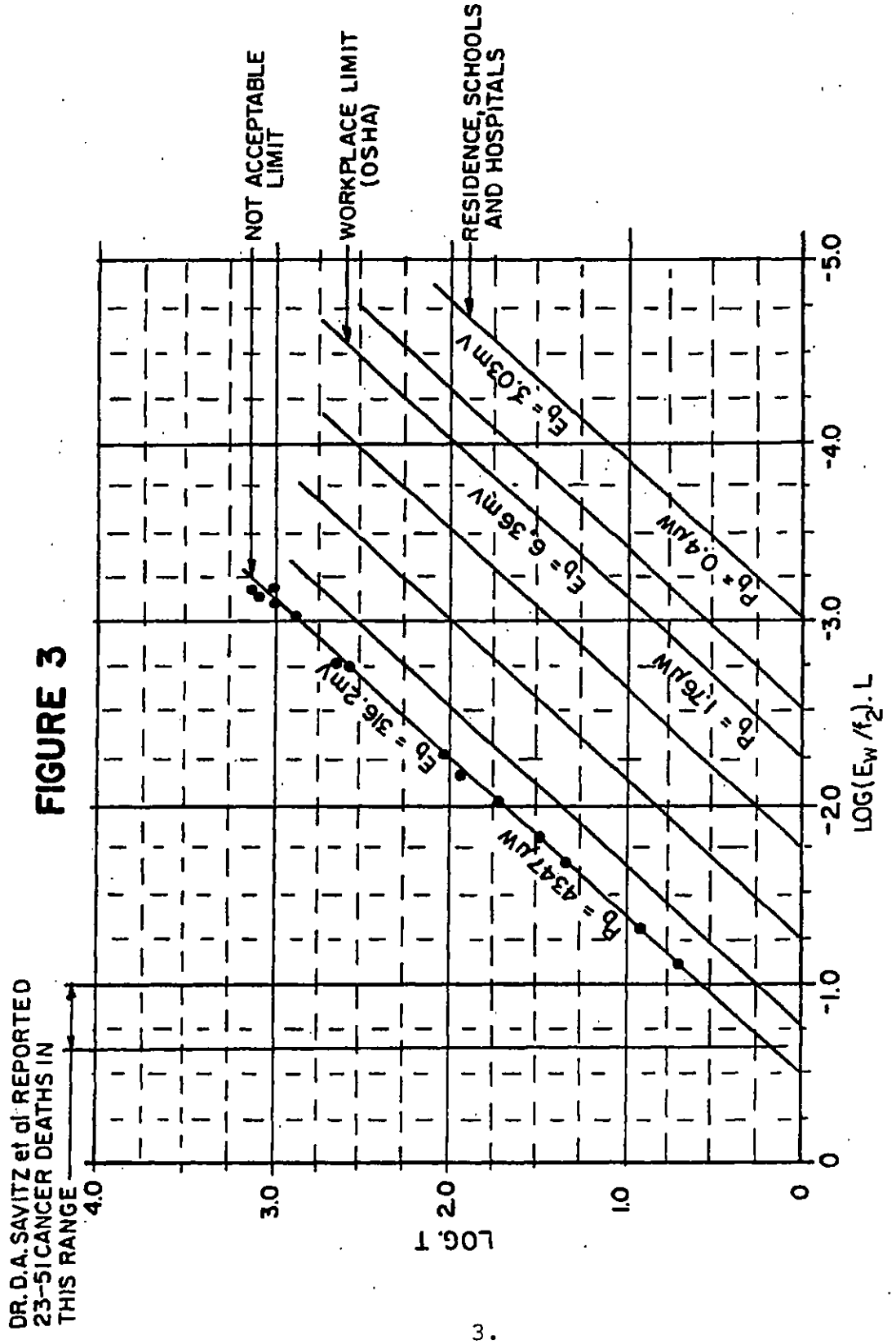

NOT ACCEPTABLE LIMIT
WORKPLACE LIMIT (OSHA)
RESIDENCE, SCHOOLS AND HOSPITALS
Eb = 3.03mV
Eb = 6.36mV
Eb = 316.2mV
Eb = 4347μW
Eb = 1760μW
Eb = 0.4μW
DR. D.A. SAVITZ et al REPORTED 23-SICANCER DEATHS IN THIS RANGE
LOG T
LOG(Ew/f2). L
4.0
3.0
2.0
1.0
0
-1.0
-2.0
-3.0
-4.0
-5.0

FIGURE 3

MEASUREMENT SYSTEM AND METHOD FOR DETERMINING THE AMOUNT OF ELECTROMAGNETIC RADIATION ENERGY BEING ABSORBED BY LIVING BEINGS

This application is a continuation of U.S. patent application Ser. No. 07/858,626, filed Mar. 27, 1992, by the applicant, Daniel D. Brundra, now abandoned.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the measurement of electromagnetic (non-ionic) radiation emanating from power lines and, more particularly, relates to the measurement of the electromagnetic waves being absorbed by human beings proximate overhead power lines and/or electronic equipment utilizing electrical energy.

2. Discussion of the Relevant Art

The art abounds with measurement devices suitable for measuring electromagnetic waves and radiated electromagnetic energy in the low frequency (60 Hz), high frequency, very high frequency, etc. ranges throughout the spectrum, including light waves.

There have been numerous studies made on the effect of these radiated (non-ionizing) waves on living beings to determine what effect, if any they may cause. Several studies have been made to evaluate the effects on living beings and various results have been obtained both favorable and non-favorable.

The present invention is concerned with low frequency radiation, in particular, 60 Hz, which radiates from high voltage power transmission lines, as well as, electronic equipment using the standard 110 and 220 volts, 60 Hz power. In an industrial and/or office environment where lighting is present, as well as, computers and other electronic media it would be advantageous to be able to measure the amount of radiation present in a particular location, where the living being may be living and working, and to measure the radiation absorbed by a human being.

This invention provides a means for making relative measurements of the environment so that studies may be made hereafter to determine the effect of the electromagnetic waves upon living beings placed in an environment where electromagnetic radiation is present. There is no attempt in this invention to evaluate the effects of the radiation upon living beings, but rather to provide an apparatus and method for taking measurements at a particular location, which then can be compared with measurements taken in an environment that is free of the electromagnetic radiation so that studies thereon will be able to determine the effect of various levels of radiation.

Therefore, it is an object of the present invention to provide a system for determining the amount of radiation absorbed by living beings at a particular location.

It is another object of the present invention to provide a measurement system for determining the amount of electromagnetic radiation at a particular location.

It is yet another object of the present invention to provide a relatively simple apparatus and method for taking these measurements.

It is still yet another object of the present invention to provide a method for obtaining the amount of electromagnetic radiation absorbed by a living being at a particular location.

SUMMARY OF THE INVENTION

A measurement system for determining the amount of radiation absorbed by living beings, according to the principles of the present invention, includes a measurement device for measuring the amount of radiation emanating from power lines and any other source of radiation of electromagnetic energy at a particular location, a grounding device for obtaining an adequate electrical ground connection, and a measurement device having a ground terminal and a measurement terminal to measure the electromagnetic energy. A first electrical conducting device is connected between the grounding device and the ground terminal of the measurement device. An electrical contact device makes electrical conductive contact with a living being and a second electrical conducting device connected between the electrical contact device and the measurement terminal of the measurement device. The measurement device includes a subtracting device for providing a reading of the difference of the two measurements.

The method of obtaining the measurement of the amount of electromagnetic radiation absorbed by a living being at a particular location, according to the principles of the present invention, includes the steps of (a) obtaining a measurement of the amount of electromagnetic radiation occurring at the particular location; (b) obtaining a measurement of the amount of electromagnetic radiation occurring when the living being is disposed at the particular location and connected to a measurement device; and subtracting the reading obtained in step (a) from the reading obtained in step (b).

The foregoing and other objects and advantages will appear from the description to follow. In the description reference is made to the accompanying drawing, which forms a part hereof, and in which is shown by way of illustration a specific embodiment in which the invention may be practiced. This embodiment will be described in sufficient detail to enable those skilled in the art to practice the invention and it is to be understood that other embodiments may be utilized and that structural changes may be made without departing from the scope of the invention. The following detailed description is, therefore, not to be taken in a limiting sense, and the scope of the present invention is best defined by the appended claims.

DESCRIPTION OF THE DRAWING

In order that the invention may be more fully understood, it will now be described, by way of example, with reference to the accompanying drawing in which:

FIG. 1 is a pictorial schematic representation of electromagnetic radiation emanating from overhead power transmission lines and electronic equipment impinging upon a biological equivalent circuit of a living being, according to the principles of the present invention;

FIG. 2 is a pictorial representation of a living being showing the method of obtaining the measurements required; and

FIG. 3 is a graph showing the effects of radiated power absorbed by the living being and the levels in which cancer rates are increased relative to the amount of absorbed power by a living being.

DESCRIPTION OF THE PREFERRED EMBODIMENT

A low frequency (60 Hz) alternating current transmission system, supplying power to industrial environ-

ments, homes, etc. for utilization by different types of equipment, as is well known, radiates electromagnetic fields. The power lines, as well as, the electronic equipment utilizing this energy are continuously radiating non-ionizing electromagnetic waves that may be absorbed by living beings in close proximity thereto. Many papers have been written with regard to the effect on living beings (the human body) affected by exposure to these radiated waves. What the inventor has attempted to do herein is to provide a simple system and method for obtaining measurements of these absorbed electromagnetic waves so that the relative information obtained will be useful in future studies. The earlier studies made on the effects of electromagnetic radiation such as for example the study entitled: "CASE-CONTROL STUDY OF CHILDHOOD CANCER AND EXPOSURE TO 60-Hz MAGNETIC FIELDS", made by Doctor David A. Savitz, Howard Wachtel, Frank A. Barnes, Esther M. John and Jiri G. Tvrdik published in the American Journal of Epidemiology, copyright 1988 by The Johns Hopkins University School of Hygiene and Public Health (which is incorporated herein in its entirety), did not measure the radiation absorbed by human beings. However, correlation between different studies may be readily made with ease, since a simple method and apparatus is now available to obtain the measurements.

Referring now to FIG. 1, which shows a pictorial schematic representation of inductive coupling of a biological circuit **10** of a human body **12**, illustrated in block form, from an external electromagnetic field (E_w) **14** produced by an overhead power transmission line **16**. The reactive impedance of the body **12** may be represented by Z_b. The body power source **17** represented by the symbol V causes a current i to flow in the circuit for the body **10**.

When the body **12** is introduced into the field **14** by appearing beneath power line **16**, the body **12** experiences an increased electric current flow i'. Inside the body **12**, there takes place a voltage drop V' to which there corresponds an internal electric field **18** (E_i) that is generally different from the external electric field E_w associated with the field **14**. The body's surface causes a distortion of the external electromagnetic field **14** with considerable local variations that depend on the curvature radii of the various parts of the living being **10** and on its dielectric characteristics.

Human beings are sensitive to the electromagnetic field **14** primarily because of the low inductive body impedance, especially in the cranium or head. Conducting objects placed in the electromagnetic field **14** can modify and enhance the field. The magnitude of the enhancing effect depends on the shape and orientation of the conducting object.

For the human body **10** not in contact with ground **18**, the electromagnetic field **14** is enhanced immediately about the head to 15 to 20 times that of the undisturbed field. Approximately one-third of the body current i' enters the head. Low bodily impedance Z_b permits the electromagnetic field **14** to induce electrical current i' in the head and the entire body, the current i' being conducted throughout the body by the blood.

The human brain operates at frequencies ranging from 1 Hz to 300 Hz with high concentrations of electromagnetic radiation at 1 Hz to 51 Hz. The electromagnetic field **14** when at a relatively low frequency is absorbed by the electrical circuits of the brain, the heart and the nervous system of the body **12** and by virtue of the resonant circuits found therein generates circulating currents much greater than the non-resonant parts of the human body **12**. This current i' caused by the inductive coupling causes the normal electrical control currents of the body (i) to be supplemented (increased) to i+i' by electromagnetic radiation resulting in the heart rate and blood pressure being disturbed by the added current (i').

To define an inductive coupling model for the human body **12** subjected to an electromagnetic field **14** calls for an initial approximation. The presence of a biological equivalent circuit **10** of the human body **12** occurs by an analogy. The electromagnetic field **14** is capable of inducing a current in wires and cables of nearby electrical systems, regardless of the nature of the source or the type of conductor. In the biological equivalent circuit **10** of the human body **12**, blood vessels serve as electric conductor paths (cables), blood serves as one segment of the electrical conductor in the circuit **10**, and interstitial fluid, i.e., the fluid between the cells of tissue, serve as another. Since all tissues are irrigated by blood and interstitial fluid, the entire body can be considered as being made up of predominantly essentially homogeneous conducting material.

According to this equivalent model, electrical current (i') is induced in the human body **12** by the intersecting, alternating electric and magnetic fields formed by the radiated electromagnetic field **14** generated by the current I flowing through the power line **16**.

The outer membrane cells have a sufficiently high resistance so that almost all of the current flows around these cells. However, the blood conducting cells and membrane are controlled in part by electric current flow and thus are the sites of a number of physiological processes which are important to cell function.

The power P_b induced in the head of the body **12** can be determined by $P_b=(T^2/Z_b)(24.1/ME)^2\ (E_c/P_c)^2$, wherein ME is a cell or membrane excitation parameter, Z_b is the bodily impedance, T is the transfer function, E_c is the powerline voltage and P_c is the powerline transmitted power.

The method of transferring the power P_b from the power lines to the head involves treating the body **12** as having an inductive impedance (Z_b) equal to **23** ohms and disposed parallel to the transmission line **16**. For example, the transfer of radiated electrical power from the power line **16** to the "parallel" body **12** having blood vessels, etc. therein, assumed to be the same as the transfer of electromagnetic energy from one power transmission line to an adjacent parallel transmission line, not shown.

In the electrical equivalent circuit model for power transmission and coupling therein, the natural frequency of approximately one Hertz the human body's biological equivalent circuit is referred to as f_2. If we assume that this is the natural biological frequency for the human body **12**, Then acceptable or preferred radiation level for human beings occurs when:

$$0<H_\phi<10\ uG$$

$$0<f_2<1\ Hz$$

Inductive power coupling transfer function (T) for parallel conductors may be calculated as follows:

$$(I_b)ind = E_w/f + 20 \log (I_c/E_w)$$
$$(I_cE_w) = E_cZ_b/12{,}600ME$$

-continued

$(I_cE_w) = 24.1/ME = 13{,}200V(23 \text{ ohms})/12{,}600ME\ (\mu w/M)$
$I_c = (24.1/ME)\ [1/(E_w/f_2)] = E_c/Z_c$
$E_c = (24.1/ME)\ (Z_c/E_w/f_2)$
$P_b = E_b^2/Z_b = (24.1/ME)^2\ (E_c/P_c)^2\ (T^2/z_b)$;
where $T = E_b/(E_w/f_2)L$

From actual measurements the following was obtained:

$\text{Log } P_b = 2 \text{ Log } T + 2 \text{ Log } (E_w/f_2) - \text{Log } Z_b$
$\text{Log } T = 0.5 - [\text{Log } (E_w/f_2) + 1.0]$
$\text{Log } T + \text{Log } (E_w/f_2) = -0.5$
$T = E_b/(E_w/f_2)L$
Therefore; $E_b = 316.2\ mv$
And $P_b = 4347\ \mu w$, which is not an acceptable level.

The calculations shown above show that an unshielded 13.2 kv power line at 30 meters provides a radiated power which is not acceptable.

An attempt to determine the maximum acceptable power line voltage (5000 volts) to obtain the acceptable radiation absorption level at 30 meters is shown below:

(I_cE_w) at $5kv = 5000(23)/12{,}600 - 9.13/ME\ (\mu W/m)$
and (P_b) at a maximum of $5kv = (9.13/ME)^2 \cdot (E_c/P_c)^2\ (T^2/Z_b)$
$(P_b)max = 43.47$ microwatts for $E_c = 5000$ volts at 30 meters.

Therefore, it is advisable to obtain readings of the electromagnetic radiation occurring at a particular location where living beings are to be present.

Referring now to FIG. 2 which shows a human being 12 absorbing radiation from a power line 16 appearing overhead by means of the radiated energy 22 given by the equation:

$$P_b = E_b^2/Z_b$$

entering the body of the human being 12. If the living being (human 12) is effectively above a common ground 18 by some insulated material 22 e.g. non-conducting rubber shoes, carpeting, etc., etc., then the human being is absorbing the radiated electromagnetic energy.

By utilizing an effective ground 24, which may be a ground rod set in the earth or the ground connection of a three pronged electrical socket, which eventually gets to the earth 18 we have a ground reference. Utilizing an electrically conductive path (wire) 26 that is connected to the ground terminal 28 of a true RMS reading meter 29, such as Fluke Model 87 manufactured by the Fluke Corporation of Everett, Wash. and preferably includes a subtracting device 31 disposed within the meter 29.

The measurement terminal 30 of meter 29 is connected by means of an electrically conducting wire 32 to a wrist strap 34, which is adjustable and includes a receptacle 36 thereon adapted to receive the wire 32 therein, via a plug 33. The wrist strap or band 34 and receptacle 36 is of the type manufactured by DESCO Industries, Inc., of Walnut, Calif. as Model No. 9081A which is placed on an appendage of the living being 12.

Initially a reading is taken by the meter 29 with the wrist strap left suspended in air or lying on an object nearby so that a zero reference reading may be obtained. The cuff is then placed upon an appendage of the living being and a second reading in millivolts is taken. The first reading is subtracted from the second reading by the subtraction device 31, located preferably within the meter 29, yielding the amount of radiated electromagnetic voltage (E_b) available to be absorbed or being absorbed by the human being 12. Measurements as described above taken at different locations at different proximities from the power lines will indicate the relative amount of electromagnetic energy being absorbed by the human being 12. If a ground rod 24 is not available an ESD grounding plug manufactured by the Ideal Industries, Inc., of Sycamore, Ill. as Model No. 61038, may be used for indoor ground circuits instead of an outside grounding rod.

Referring now to FIG. 3, which shows a plot of the log T on the vertical axis and the log $(E_w/F_2)\times L$ on the horizontal axis

T = Transfer Function $= E_b(mv)/(E_w/f_2)L\ (mv/M)$
$\text{Log } T = 0.5 - [\text{LOG}(E_w/f_2) + 1.0]$, and
P_b = Bodily Induced Power (μW) is given by;
$P_b = (E_b^2/Z_b)$
$P_b = (T^2/Z_b)\ (24.1/ME)^2\ (E_c/P_c)^2$
where $E_c = 13.2$KV, and $f_1 = 60$ Hz, and
$r_m = 40$ Meters
$L = 1$ Meter
E_b = Bodily Induced Voltage
E_w = Electric Field Strength
f = Frequency of Electric Field

If the information as obtained by Doctor D. A. Savitz, et al in the report referred to above is inserted onto the graph of FIG. 3 one could see that the cancer deaths associated with the exposure to the electromagnetic radiation occurs when the Log (E_w/f_2) L is less than -1.0 and the Log of T exceeds 0.25. It further follows that the risk of cancer increases when the $P_b > 1.76\ \mu W$ and $E_b > 6.36$ mV in the work place. For residences, schools and hospitals, where people are exposed to powerline radiation for 168 hours per week, the cancer power limit is 0.40 μW and 3.03 mV. Below these power levels, there is no correlation, with the occurrence of cancer and the absorption of electromagnetic radiation.

For further information with regard to the amount of energy being absorbed by a human being reference may be had to co-pending application, (Ser. No. 07/753,,857, filed on Sep. 3, 1991, by Donald F. Brunda) now abandoned.

In operation, the system is utilized by connecting the ground connection 24 or alternatively the internal grounding plug into the electrical socket and the Fluke multimeter 29 is connected to the grounding terminal in a conventional manner. The measuring terminal of the meter 29 is connected to the wrist strap 34 means of wire 32, which has a plug thereon 33 adapted to be received into the socket 36 provided on cuff 34. The cuff 34 permitted to rest upon an object, not shown, or ground at the area where the measurement is to be taken and the reading in millivolts is stored in the subtracting device 31. A second reading is taken by placing the cuff 34 on an appendage of the living being subtracting the reference reading (the first reading) from the second reading, by the subtraction device 31 placed within the meter 29 the amount of voltage being absorbed by the living being is determined. This data then may be used for comparison purposes. The living being may be moved to various places at different distances from the source of electrical energy or the amount of energy being used can be decreased by turning off or reducing lighting and/or other equipment to decrease the amount of radiation being absorbed. The amount of this reading can then be correlated with the statistical data obtained by Doctor Savitz, et al, referred to above.

Hereinbefore, has been disclosed a simple measurement system and method for determining the amount of electromagnetic radiation being absorbed by living beings, which should be useful to those trying to obtain correlation with the amount of electromagnetic radiation absorbed and the number of cancer rates occurring due to the increased strength and the proximity to high powered radiation emanating from power transmission lines. It will be understood that various changes in the details, materials, arrangement of parts and operating conditions which have been herein described and illustrated in order to explain the nature of the invention may be made by those skilled in the art within the principles and scope of the instant invention.

Having thus set forth the nature of the invention, what is claimed is:

1. A measurement system for determining the amount of radiation absorbed by living beings comprises:

a) measurement means for measuring the amount of radiation emanating from power lines and any other source of radiation of electromagnetic energy at a particular location, said measurement means including;

i) grounding means for obtaining an adequate electrical ground connection,

ii) a meter having a ground terminal and a measurement terminal for measuring electromagnetic energy,

b) a first electrical conductor connected between said grounding means and said ground terminal of said measurement meter;

c) an electrically conducting expandable cuff adapted to be affixed on an appendage of said living beings for making electrically conductive contact with said living beings;

d) a second electrical conductor connected between said expandable cuff and said measurement terminal of said meter; and

e) subtracting means connected to said measurement terminal of said meter for subtracting the value obtained when said electrically conductive expandable cuff is not making contact with said living being from the value obtained when electrically conducting expandable cuff is making electrically conductive contact with said living being;

thereby yielding the amount of radiation being absorbed by said living beings.

2. A measurement system for determining the amount of radiation absorbed by living beings according to claim 1, wherein said measurement meter means includes means for measuring low frequency true RMS millivolts.

3. The method of obtaining a measurement of the amount of electromagnetic radiation absorbed by a living being at a particular location comprising the steps of:

a) providing an adequate electrical ground connection;

b) connecting first electrical conducting means between said ground terminal of a measurement meter means;

c) obtaining a first measurement of electromagnetic energy by said measurement meter means at a measurement terminal of said meter;

d) making electrical conductive contact with said living being with electrical contact means;

e) connecting second electrical conducting means between said electrical contact means and said measurement terminal of said measurement meter means;

f) obtaining a second measurement of electromagnetic energy at said measurement terminal of said measurement meter means and

g) determining the amount of radiation absorbed by said living being by subtracting the reading in c) from that in f).

4. The method of obtaining a measurement of the amount of electromagnetic radiation absorbed by a living being at a particular location comprising the steps of:

a) measuring the amount of electromagnetic radiation occurring at said particular location by using a measuring device which includes;

i) grounding means for obtaining an adequate electrical ground connection,

ii) a meter having a ground terminal and a measurement terminal for measuring electromagnetic energy,

iii) a first electrical conductor connected between said grounding means and said ground terminal of said measurement meter,

iv) an electrically conductive expandable cuff for making electrically conductive contact with said living being, and

v) a second electrical conductor connected between said electrically conductive expandable cuff and said measurement terminal of said measurement meter;

b) measuring the electromagnetic radiation occurring when said living being is at said particular location and connected by said electrically conductive expandable cuff to said meter measurement terminal; and

c) subtracting the reading obtained in step a) from the reading obtained in step b), obtaining from said subtraction a quantity indicative of the electromagnetic energy absorbed by said living being at a particular location.

* * * * *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(THE PROBES ARE NOT SHOWN)

5 MAY 2012

DAVID P. SCHROTH, ESQ.
795 PARKWAY AVE.
EWING, N.J. 08628

DEAR ATTORNEY SCHROTH:

AT THE CONCLUSION OF MY PRELIMINARY HALF-HOUR HEARING ON 2 APRIL 20 judge k. dunderdale STATED THAT SHE WOULD SEND ME A LETTER WITHIN A FEW DAYS REQUESTING THAT I FIND A LAWYER TO PREPARE EXHIBITS SO THAT SHE COULD MAKE A DECISION ABOUT MY COMPLAINT. HOWEVER, SHE DID NOT SEND ME A LETTER UNTIL 28 APRIL DIRECTING ME TO OBTAIN A FULL SERVICE LITIGAT ATTORNEY BECAUSE SHE KNEW THAT IF SHE DID NOT RULE IN MY FAVOR THAT AN EXTENDED LONG DRAWN OUT LITIGATION PROCESS WOULD BE REQUIRED. THE JUDGE ALSO KNOWS THAT ANY LITIGATION WOULD BE A COMPLETE WASTE OF MY TIME AND MONEY BECAUSE THE PENNA. PUC HAS NOT PROMULGATED REGULATIONS REGARDING THIS MATTER. (SEE LETTER FROM ERICKA DOMINICK OF 14 APRIL 2012).

MY PROPOSED EXHIBITS ARE LISTED BELOW AND ENCLOSED:

BOOK NO. #19787 PAGES 10, 11, 12, 13, 14, 21, 22, 23, 49.

BOOK #10607: PAGES 4, 8, 9, 11, 19, 20, 21, 22 ENTIRE BOOK.
REF.4=courtesy OF MERCER COUNTY DEP. (SAFETY)

I REQUEST THE SAME INTERROGATORIES FROM PPL ELECTRIC UTILITIES AS THEY REQUESTED FROM ME!

RESPECTFULLY,

Dr. Daniel D Brunda

DR. DANIEL D. BRUNDA, PE, ABI, IBC
ELECTROMAGNETIC RADIATION ENGR.
FOUNDER, INVENTOR, AUTHOR.

CASE FILE
DR. BRUNDA VS PPLELECTRIC UTILITIES

I. BRUNDA VS PPL ELECTRIC COMPLAINT, 28 JANUARY 2012

II. PPL REQUESTS FOR INTERROGAtories

III. JUDGE KATRINA L. DUNDERDALE DIRECTIVES

IV. DR. BRUNDA PROPOSED EXHIBITS (DUE 18 MAY 2012)

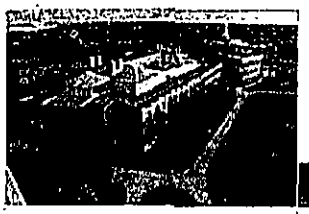
V. I HAVE REQUESTED AN EXTENSION OF THE JUDGE.S TIME LIMIT TO OBTAIN AN ATTORNEY TO HELP ME.

VI. DAVID SCHROTH CALLED ON 5/25/12 AND RECOMMENDED PA. ESQ. GAVIN LABOSKI AT 717/230-4900.

THRESHOLD OF PERCEPTION

EOM 1/732-235-6200

HOWARD M. KIPEN, M.D., M.P.H.



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Its research, teaching, service, and clinical activities combine the knowledge essential for such evaluations and invterventions and address the ethical, organizational and social challenges inherent in linking risk assessment, disease prevention, and health promotion to achieve the mission of Robert Wood Johnson Medical School.

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The Value of Occupational and Environmental Medicine (EOM) - THRESHOLD OF PERCEPTION

Keeping America's Workforce Healthy

As the nation's workplaces become more complex, physicians who practice occupational and environmental medicine play an increasingly visible role in preventing diseases and promoting wellness among workers

The health of America's workforce is a central factor in the nation's overall prosperity, stability and security. More than 130 million Americans spend most of their waking hours either at the workplace or in some way connected to it. Their health status determines everything from our national productivity on the global stage to the long-term stability of programs such as Medicare and Social Security.

As the workplace has evolved and changed in recent decades, employers increasingly have begun making the connection between good health and the overall success of their enterprises. In this environment, the demand for physicians trained in understanding the complex interplay of factors that affect worker health has grown significantly.

The American College of Occupational and Environmental Medicine (ACOEM) is the nation's largest organization representing the voice of the nation's physicians who practice occupational and environmental medicine (OEM).

What does an occupational and environmental medicine physician do?

As highly trained specialists, OEM physicians enhance the health of workers through preventive medicine, clinical care, disability management, research, and education.

How do OEM physicians impact workforce health?

In the early days of occupational medicine, physicians specializing in the health of employees were primarily reactive to the injuries and exposures that occurred in the workplace. Workers who became sick or were injured came to the worksite clinic; the physician's focus was not on prevention or the overall health and wellness of the worker or workplace, but on treating the injured employee.

Now the role of the OEM physician has changed significantly. As disease prevention and wellness have become a greater part of the healthcare equation, occupational and environmental medicine has expanded its scope and presence accordingly, contributing scientific research, new clinical guidelines for medical care, and public health programming aimed at the workforce and the health of the environment.

Occupational physicians have become the nation's leading experts in the complex interplay of factors that affect health in the workplace, helping organizations of all kinds ensure the health of their employees.

They have developed expertise in determining the ability of employees to perform work; the arrangements of work, the physical, chemical, biological, and social environments of the workplace, and the health outcomes of environmental exposures. They recognize that work and the environment in which it is performed can have favorable or adverse effects upon the health of workers as well as upon the communities in which they live; that the nature or circumstances of work can be arranged to protect worker health; and that health and well-being at the workplace are promoted when workers' physical attributes or limitations are accommodated in job placement. They are skilled at using the tools of preventive medicine (primary, secondary and tertiary) to improve the health of a defined population of workers and their families, and they are trained in the complex Return-to-Work process, an advanced system of health monitoring that optimizes the time in which ill or injured workers can safely return to work.

SAFETY

Perhaps most importantly, occupational physicians occupy a critical position at the center of virtually all health-related transactional activities in the workplace. Occupational physicians serve as an important liaison between employer, employee, government, and all components of the health care system – understanding the needs and challenges of each of these diverse groups. They provide a unique bridge between the clinical/scientific medical community and the business-based employer community as advocates for health promotion and health protection. They represent the single part of the workplace health infrastructure that is often connected with virtually all of the other parts – senior management; benefits and human resources; legal; worker's compensation; government regulatory agencies; labor and unions, hospitals and public health organizations.

HEALTH PHYSICS

Why are OEM physicians needed for the workplace?

America faces dramatic demographic shifts, including an aging workforce and a worrisome rise in the incidence of chronic disease among all age groups. With these trends, the vital connection between work, environment, and health will become even more important. A new urgency drives our need for a healthy workforce.

HEALTH PHYSICS

At the same time, the American workplace itself is changing – becoming ever more complex. With emerging global markets and rapidly shifting business models, business leaders face enormous challenges that impact their ability to create healthy workplaces.

HEALTH PHYSICS

Never before has there been such a need for the expertise of physicians trained in workforce health.

Statistics released in 2009 by the Families and Work Institute (FWI) show that the percentage of workers who say they are in excellent health has dropped considerably – from 34 percent in 2002 to 28 percent in 2008.

Why? Researchers at FWI say that, in addition to the rise of chronic conditions such as obesity, the jump is due to increased uncertainty related to the economy and growing difficulty among workers in balancing work and family life.

Employers are becoming much more conscious of the need to address these issues. An annual survey from the management consulting firm, Towers Perrin, indicates that a growing number of companies are taking active steps in monitoring the health of their employees. Towers Perrin reports that while 4 percent of U.S. employers are using remote biometric reporting to assess the vital signs of their employees, this number is expected to grow to 20 percent by 2012. A variety of tools are being developed by employers aimed at keeping employees healthy – from health risk assessments to wellness classes and disease management programs.

There are practical reasons why focusing on worker health is a good idea for employers: Statistics show that for every dollar spent on wellness, employers get a return on investment ranging from $2 to $5 – mostly seen in reduced absenteeism and medical costs, along with increased productivity. Employee health can actually become a competitive advantage for companies, who find that healthier employees add measurably to productivity.

In this new environment, the nation's occupational physicians and the organization that represents them, ACOEM, play a unique and critically needed role. The knowledge, skill and advocacy of occupational physicians will play a crucial role in forming policy and implementing successful strategies as the nation's employers continue on this path.

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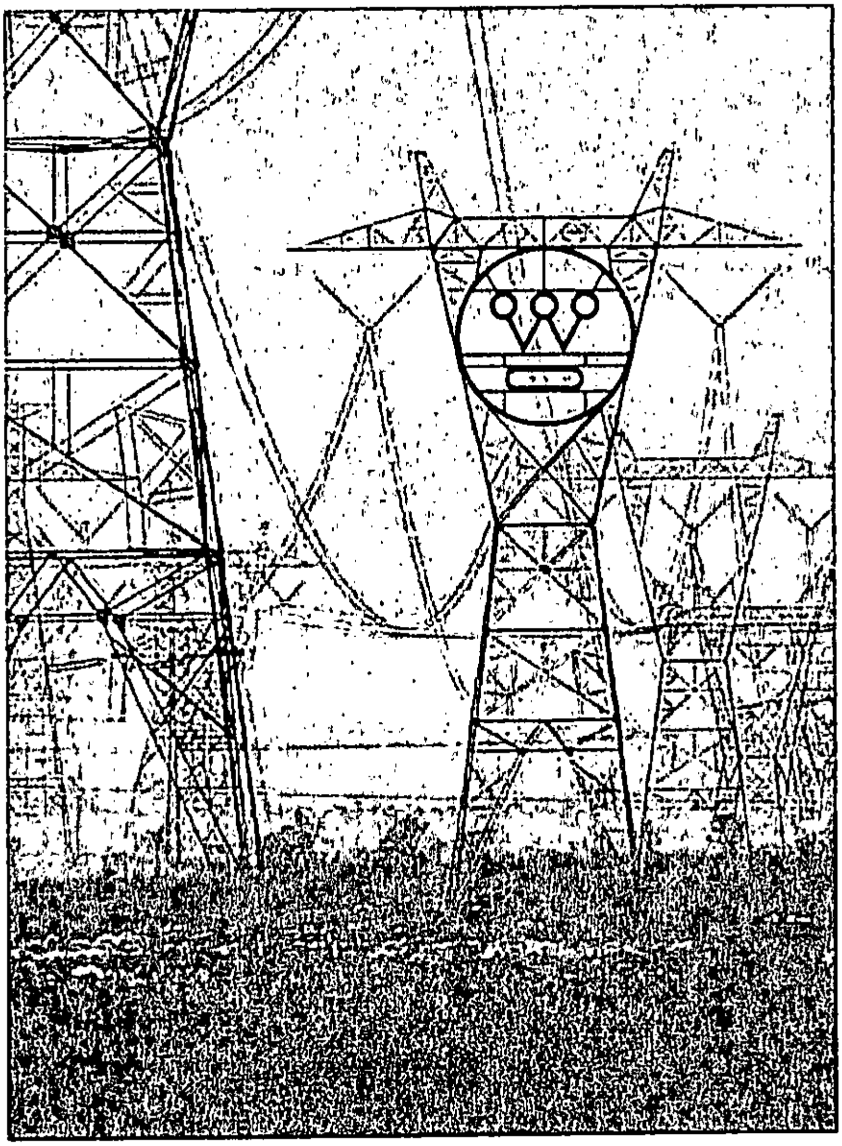

by

DANIEL DONALD BRUNDA DDG LFIBA MOIF IOM, PA

2000 OUTSTANDING SCIENTISTS OF THE 20TH CENTURY

DR. DANIEL DONALD BRUNDA, DDG, LFIBA, PE

For your Outstanding Contribution to
Electromagnetic Powerline Radiation and Control

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DANIEL DONALD BRUNDA, DDG, LFIBA

Registered as a Professional Engineer in the State of New Jersey, USA, Daniel Donald Brunda has had a long and successful career in aerospace engineering. Now retired, he continues to provide consulting services, parallel with pursuing his leisure interests in investment, music and dancing. Apart from being the contributor of more than twenty articles to professional journals, he is an inventor of some stature, holding copyrights, as well as patents including one for a measurement system and method for determining the amount of electromagnetic radiation being absorbed by living beings.

The son of Michael Theodore and Ella Jurba Brunda, Daniel Brunda was born on 22 October 1930 in Lansford, Pennsylvania. Educated locally, he graduated from high school at the end of the 1940s, whereupon he entered Lehigh University, from which he earned a Bachelor of Science degree in Mechanical Engineering in 1952, followed by a Master of Science degree in Mechanical Engineering in 1953. He also carried out postgraduate studies at Johns Hopkins University in 1955, at Princeton University between 1958 and 1965, and finally at Drexel University in 1983.

Mr Brunda's first professional appointment was as an Aerodynamicist working for the Bell Aircraft Corp. then as a Performance Engineer with Glenn L Martin, based in Baltimore. However, it was not long before the firm of Curtiss Wright was established in Princeton, New Jersey, where he spent four years as an Analytical Engineer in propulsion development, testing, evaluation and performance. He left the firm in 1957 to join the US Naval Air Propulsion Center in Ewing, New Jersey, as an Aerospace Engineer engaged in research. In 1972 he was appointed local Manager of Independent Research and Development, a position he held until retiring in 1983. Meanwhile, in 1978 he commenced his present activity as a Consultant in powerline radiation energy engineering.

During his career Mr Brunda has gained a well-deserved reputation for his achievements. He provided the first scientific proof that powerline radiation is a cause of cancer and many other diseases. Following on from this, he determined for the first time the inductive impedance and radiation limits of human beings, as well as mathematically explaining the Electrophonic Effect discovered by Volta in 1800 AD. He himself is the discoverer of Brunda's Absorbance Law, the molecular weight of the average adult human being, and the absorbance of DNA. Notable is his copyrighted report entitled "Power Line Radiation, Your Genes, Hereditary Diseases, the Unified Nature of Electromagnetic Radiation Energy and Control and the Radiation Limits of Human Beings".

Mr Brunda is an Associate Fellow of the Bioelectromagnetic Society. Moreover, besides holding life membership in the American Society of Mechanical Engineers, he gained admission to the American Institute of Aeronautics and Astronautics, where he is a senior member.

A biography of Daniel Donald Brunda, DDG, LFIBA appears in the main section of this Edition.

FOREWORD BY THE AUTHOR

This book is dedicated to my dear mother, Ella Jurba Brunda, who died of sarcoma on 5 February 1999. Her residence was bathed with electromagnetic powerline radiation from 12.7kv powerlines owned by PPL Corp in Lansford, Penna. U. S. A.

PREFACE

The subject matter follows the material which was presented by the author in his copyrighted report #1 entitled, "Powerline Radiation, Your Genes, Hereditary Diseases, the Unified Nature of Electromagnetic Radiation Energy and Control, and the Radiation Limits of Human Beings". 2000 a.d. (ref. 2)

This work will benefit the life of every living human being on this planet (6.3 billion) and all future generations.

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INTRODUCTION

This book proves that practically all transmission and distribution lines in use today constitute a plague on the human race because they have been designed with complete lack of knowledge of the radiation limits of human beings since 1800ad (see fig. 1). In addition, these transmission and distribution lines are improperly operated and controlled. The problem of proper operation and control of these systems was addressed by this author in his copyrighted report (#2), ref. 3, entitled "Control System for Adjusting the Amount of Low Frequency Electromagnetic Radiation of Power Transmission Lines".

NOTE: Even the World Health Organization is completely wrong about the safety of powerlines which both induce and conduct harmful electrical currents in the body, blood and nervous system of human beings! (Ref. 10 and Ref. 11))

ELECTRICAL PROPERTIES OF HUMANS

This book addresses: the problem of designing safe electric transmission and distribution lines within the safe boundaries of the radiation limits of human beings, whose inductive impedance, Z_b= 26 ohms. (ref. 2)

Human beings are affected by the following: (see ref. 2)

1. VOLTAGE, E_c	4. TRANSMITTED POWER DENSITY, HP/ACRE
2. FREQUENCY, f	5. RADIATED POWER DENSITY
3. IMPEDANCE, Z_w	6. ABSORBED BODYENERGY, J_b (JOULES)
7. MAGNETIC FLUX DENSITY, H_ϕ, MICROGAUSS	

The safe boundaries of the radiation limits of human beings are shown in figure 1 which was derived in the copyrighted report no. 1 (ref. 2)

The safe transmitted power density for distribution lines was also determined in the copyright report no. 1. to be 9.2 hp/acre.

THE POWER DENSITY LEVEL THROUGHOUT THE ENTIRE SICK STATE OF NEW JERSEY (SEE WORLD ALMANAC, 2008) IS TWO TIMES GREATER THAN THE MAXIMUM SAFE SCIENTIFIC LEVEL (9.2 HP/ACRE) DETERMINED IN REF .XLIBRIS BOOK NO.19787.

LIST OF EQUATIONS

FIGURE 3
for A TWO WIRE LINE

$$Z_0 = \left[n_0/2\pi(e_r)^{\frac{1}{2}}\right]\left[\cosh^{-1}\frac{(4D^2-d_1^2-d_2^2)}{2d_1d_2}\right]$$

where $n_0 = 377$

FIGURE 4
FOUR WIRE LINE

$$Z_0 = \frac{(n/2)}{\pi}\cosh^{-1}(SL/dD)$$

FIGURE 5

$$Z_0 = (173/e_r^{\frac{1}{2}})\log_{10}(D/0.933d)$$

FIVE WIRE LINE

FIGURE 6

$$Z_0 = (n/2\pi)\ln(2D/Nd)$$

THIN WIRE CIRCULAR LINE

EQ.132: $(R_b)_{132} = \frac{447.34(Z_b)f^2(H_\phi)1.2}{(E_c)^2}\left[(2.265-0.41\ln H_\phi)^2 + 1.0\right]^2$

EQ.1a: $(J_b)_{1a} = 9.3079 \times 10^6 (H_\phi)^2 (Z_0)^7 (Z_b)^{1.4466}/f^3(R_2)^{2.4466}$

CHARACTERISTIC IMPEDANCE OF TRANSMISSION/DISTRIBUTION LINES

Transmission lines and distribution lines consist of various numbers of conducting cables which are strung along towers and poles, with various cable geometries, along the rights of way. The geometries may consist of various voltages arranged in one or more tiers at varying heights above the ground.

The magnetic flux density emitted by this maze of cables may be characterized by the transmission line/distribution line design parameter, Rdesign where,

$$Rdesign = 2 Z_b Z_o f / E_c$$

and Z_b = inductive impedance of human beings = 26 ohms for an average adult human being.

Z_o = characteristic impedance of the transmission/distribution line f = line frequency

f = 60hz

E_c = line voltage.

The characteristic impedance of the line, Z_o, may be mathematically or experimentally determined and is a function of the cable size, materials of construction, geometry of the arranged cables, number of cables, etc. (refs. 4, 5, 6 and 7)

The radiation characteristics of the various transmission line distribution line systems in use today are characterized by this author using the design parameter, Rdesign, and Washington State research data of 15 January 1992, as shown in figure 2. (ref. 4)

The characteristic impedance for various line geometries is given in figures 3, 4, 5, 6 and the list of equations on page 9:

(ref. 5) figure 3: [equation] for a two wire line,

note: the characteristic impedance of a three-wire line may be calculated using fig. 3

(ref. 5) figure 4 [equation] four wire line

(ref. 6) figure 5 [equation] five wire line

(ref. 7) figure 6 [equation] thin wire circular line

This permits the design parameter, R_{design}, to be calculated from $R_{design} = 2 ZbZ_o f /Ec$ where E_c and f are known.

We obtain figure 7 from eq. 132, [equation] and eq. 1a [equation] where $r_b = R_b = 2.3144 \times 10^6$ for human beings.

REQUIRED SAFE OPERATING LINES FOR HUMAN BEINGS

Figure 7 shows the required operating lines within the safe boundaries of the radiation limits for human beings at line voltages of 1 kv, 4kv, 8kv and 13.2kv.

From figures 2 & 7 it may be calculated that the required design characteristic impedance (Z_O) = 4,42, of the distribution line is 4.42 ohms for E_c= 13.2 kv. From a practical point of view this characteristic impedance can only be achieved for an unshielded distribution line by a thin wire circular line design where H$\emptyset$< 10microgauss as shown in figure 6.

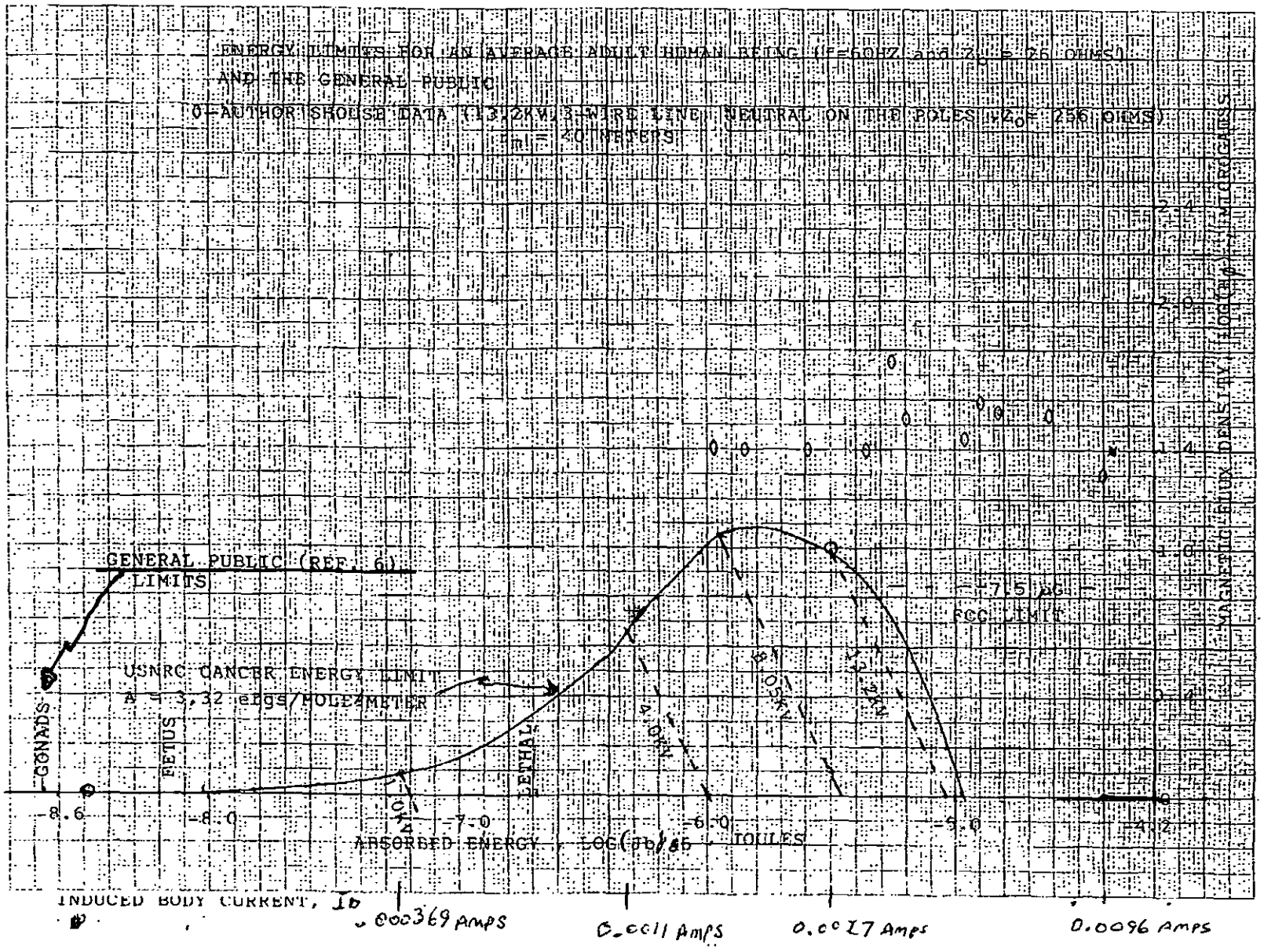
Clearly, all line voltages greater than 13.2kv must be shielded and/or controlled to operate within the safe boundaries of human beings as shown in figure 7. The shielding properties of various materials may be found in reference 8. The control problem was addressed in references 2 and 3. Figure 7 also shows several data points which were measured in the author's house (Ewing, NJ) which is fronted by a 13.2kv (three-wire) powerline since 1978. This PSE&Gas CO, powerline has caused the author much suffering, the loss of his job with the USNAPC in 1983 and resulted in his research reported in the referenced copyright reports and this book; which were unfunded. The material presented, herein, may be adapted to the design of safe powerline transmission and distribution systems having several tiers of voltages.

SUMMARY

Electric transmission, distribution and service line systems are fixed geometry systems as dictated by their characteristic impedance and the design features of their fixed geometry components. As such, they are designed to operate harmoniously only at the design point of the system *and components without regard for their most important fixed geometry component (human beings)*
of the system. When off-design point operation occurs they generate harmful disturbances (ref. 2) which result in membrane excitation, beats, acoustic noise, electric noise, cancer, insomnia, zapping, arrhythmia, neuropathy, etc. in human beings, which are the most important fixed geometry component of the electrical system. Present day electrical control systems permit operation of the transmission and distribution line systems at these unsafe, unregulated off-design point conditions over a wide, unsafe operating envelope without regard for the limited safe operating range of their fixed geometry components, including the radiation limits of human beings (fig. 1). This situation is similar to the harmful conditions which are generated in fixed geometry jet engines when they are operated at off-design point conditions. In fixed geometry jet engines, harmful shock waves, surges, combustor blowouts, etc. occur in the fixed geometry inlets, compressor, turbines, combustors and exhaust nozzles. Consequently, modern jet engines are designed and controlled to operate with variable geometry components at off-design point operating conditions to assure perfect matching of all components throughout the operating range of the system. At the present time the state-of-the-art design of safe electrical transmission and distribution systems has not progressed beyond the fixed geometry design stage where human beings are their most important fixed geometry component. Hence, in conclusion, they must remain fixed geometry systems and must be designed, controlled and regulated to operate within the radiation limits of adult human beings (figure 7). Newborn humans are 97% water; whereas, adults are about 75 percent water and so is the brain (ref. 9) these facts are extremely important because they indicate why the unborn, newborn humans and children are more susceptible to birth defects, leukemia and cancer caused by electromagnetic radiation from powerlines.

The water content of the body is largely responsible for the inductive impedance of the body and, hence, the energy which is being absorbed by the unborn, newborn children and adult human beings from the electromagnetic radiation emitted by powerlines. This absorbed energy is the cause of cancer and many other diseases which afflict the unborn, newborn, children and adult human beings as indicated in this book and ref. 2.

Daniel Donald Brunda, DDG. LFIBA MOIF IOM, electromagnetic powerline radiation engr., founder, scientist and a deputy director general of the international biographical association in the Americas.



* THRESHOLD OF PERCEPTION (1 MILLI AMP)

Figure 01

Figure 02

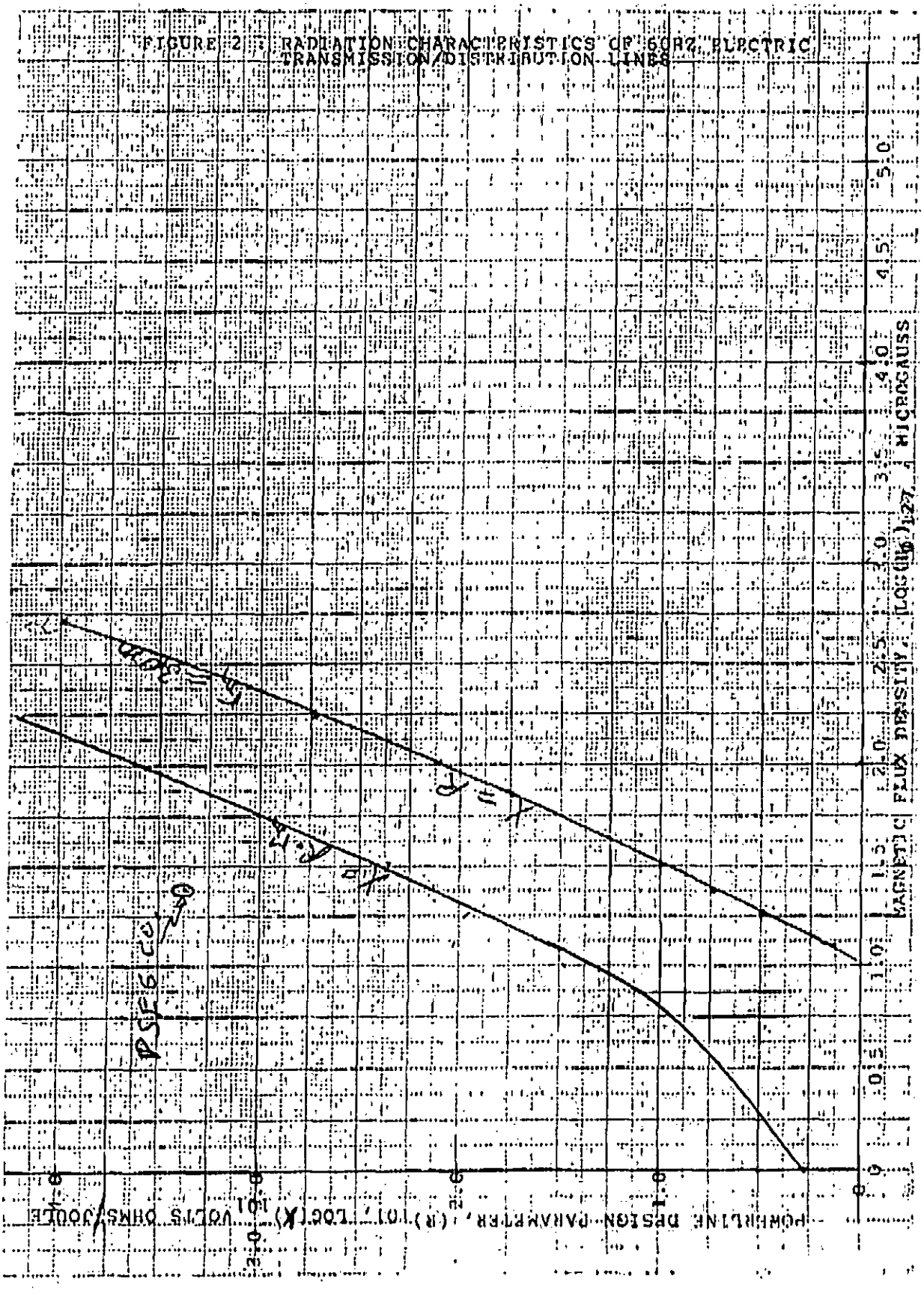


FIGURE 2 RADIATION CHARACTERISTICS OF 60HZ ELECTRIC TRANSMISSION/DISTRIBUTION LINES
MAGNETIC FLUX DENSITY, LOG (B), MICROGAUSS
POWERLINE DESIGN PARAMETER, (R) LOG (X) VOLTS OHMS/JOULE

Figure 03

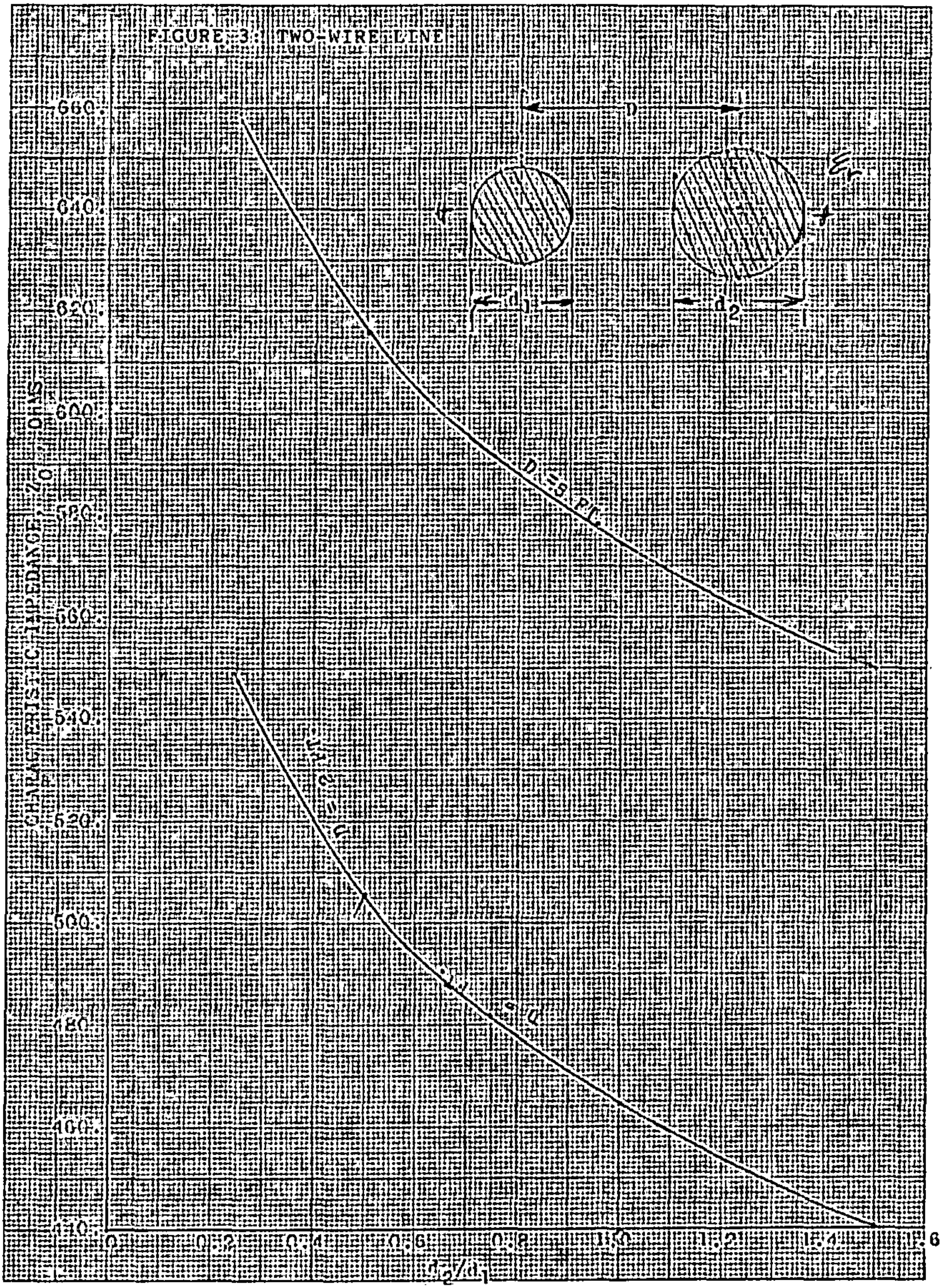


Figure 04

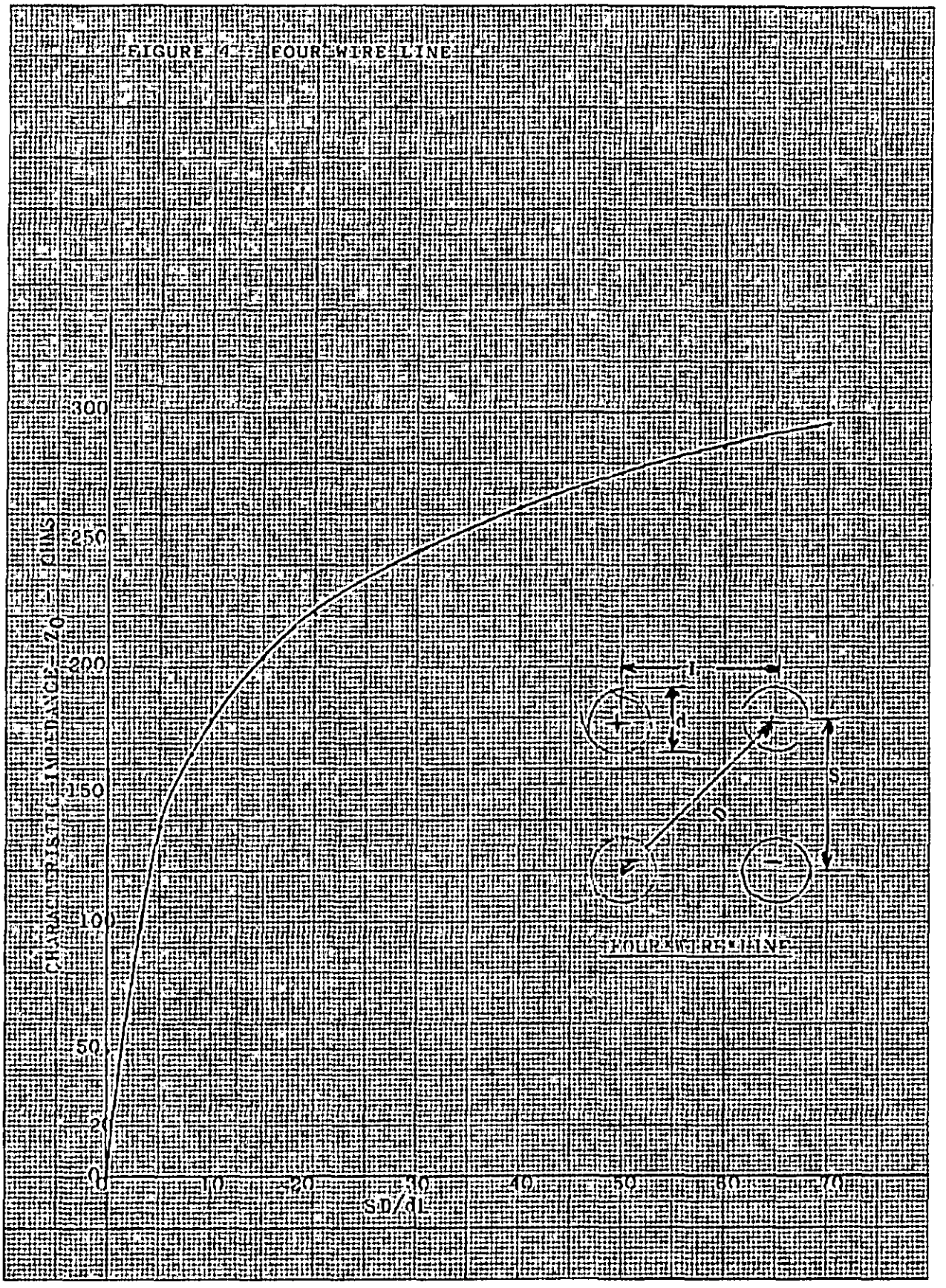


FIGURE 4 - FOUR WIRE LINE
CHARACTERISTIC IMPEDANCE = 70 OHMS
300
250
200
150
100
50
20
0
10
20
30
40
50
60
70
S/d
FOUR WIRE LINE
d
S
D

Figure 05

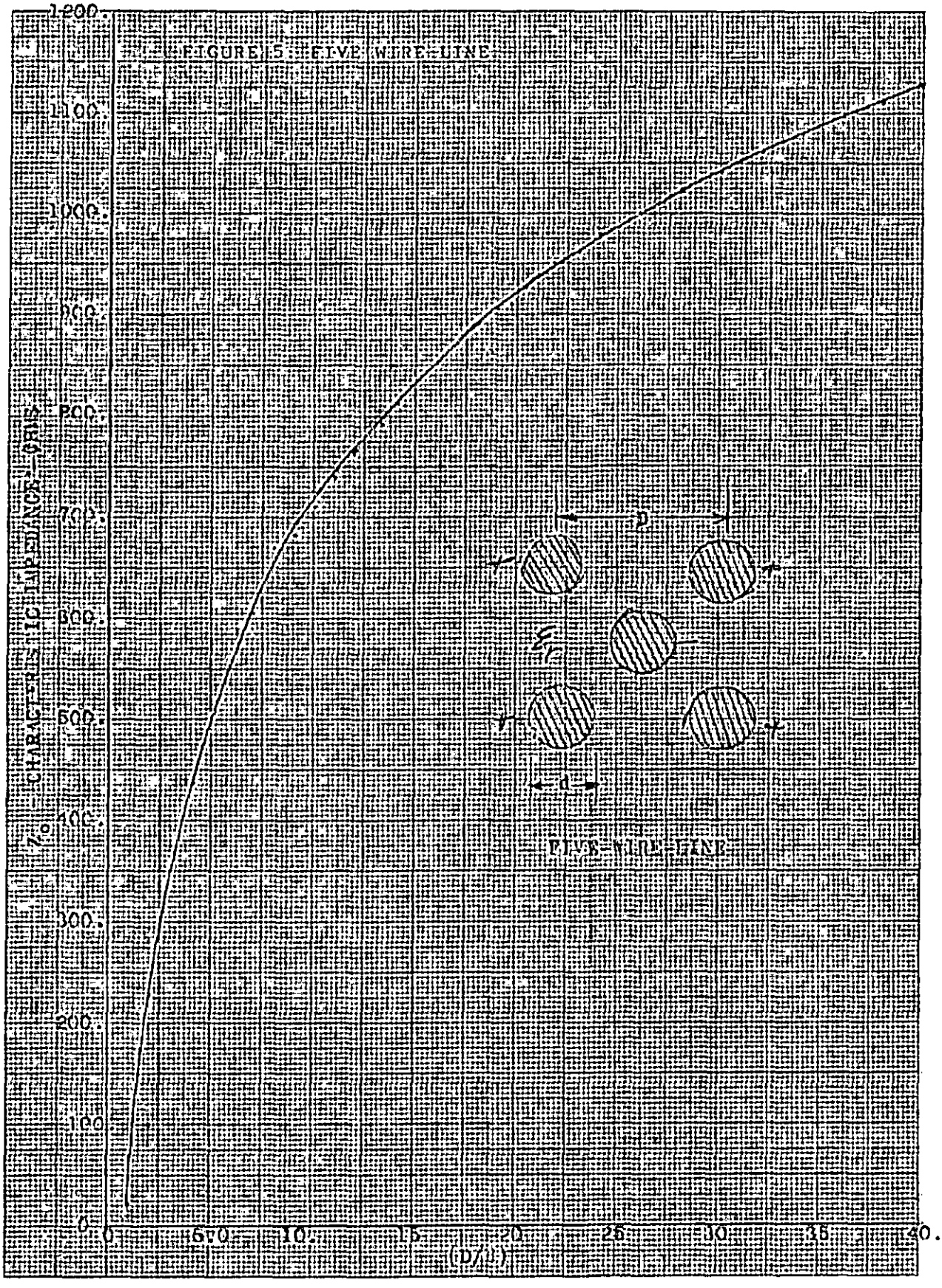


FIGURE 5 FIVE WIRE LINE
CHARACTERISTIC IMPEDANCE - OHMS
1200.
1100.
1000.
900.
800.
700.
600.
500.
400.
300.
200.
100.
0
0
5.0
10.
15
20
25
30
35
40.
(D/d)
D
d
FIVE-WIRE-LINE

Figure 06

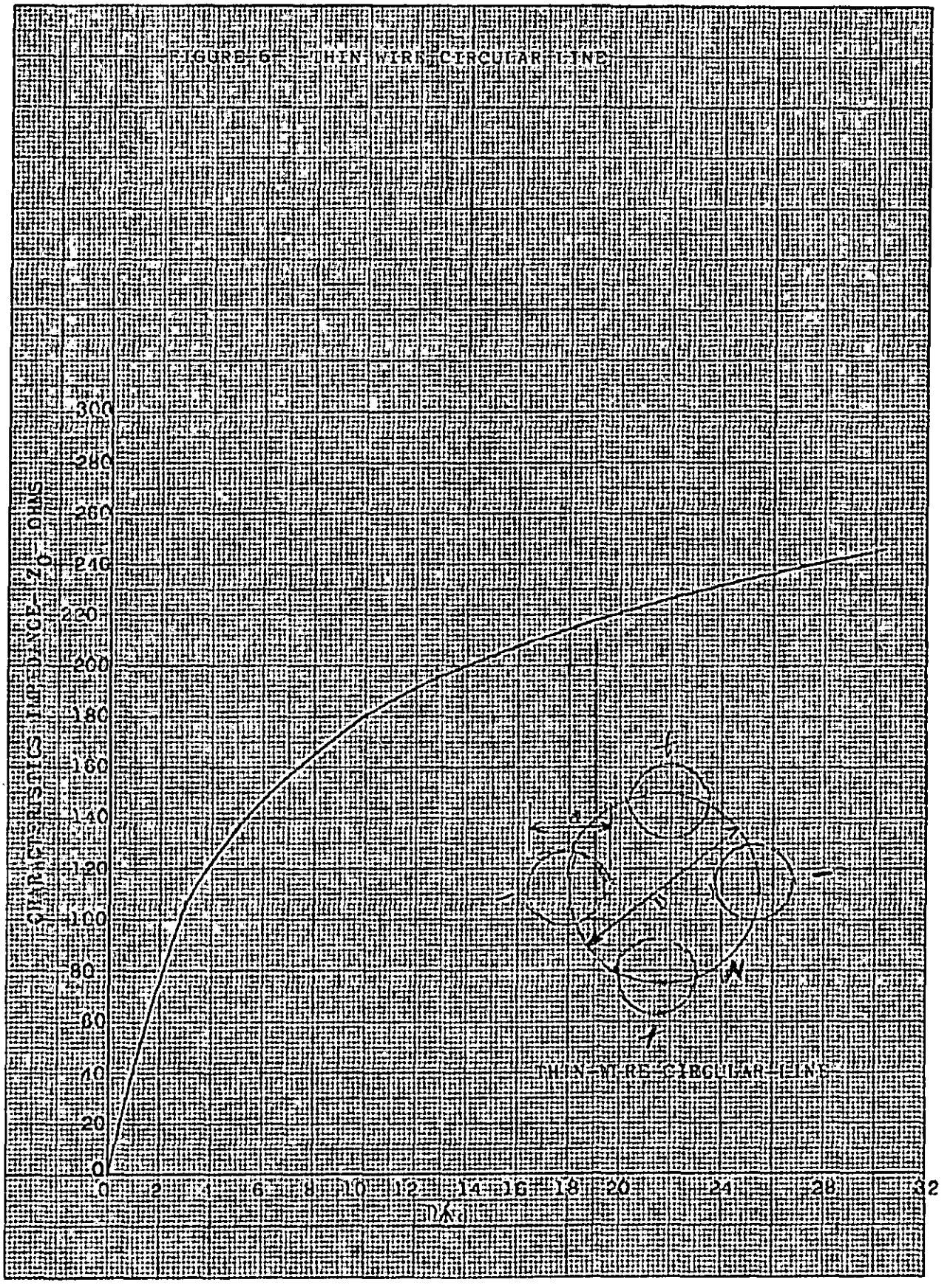
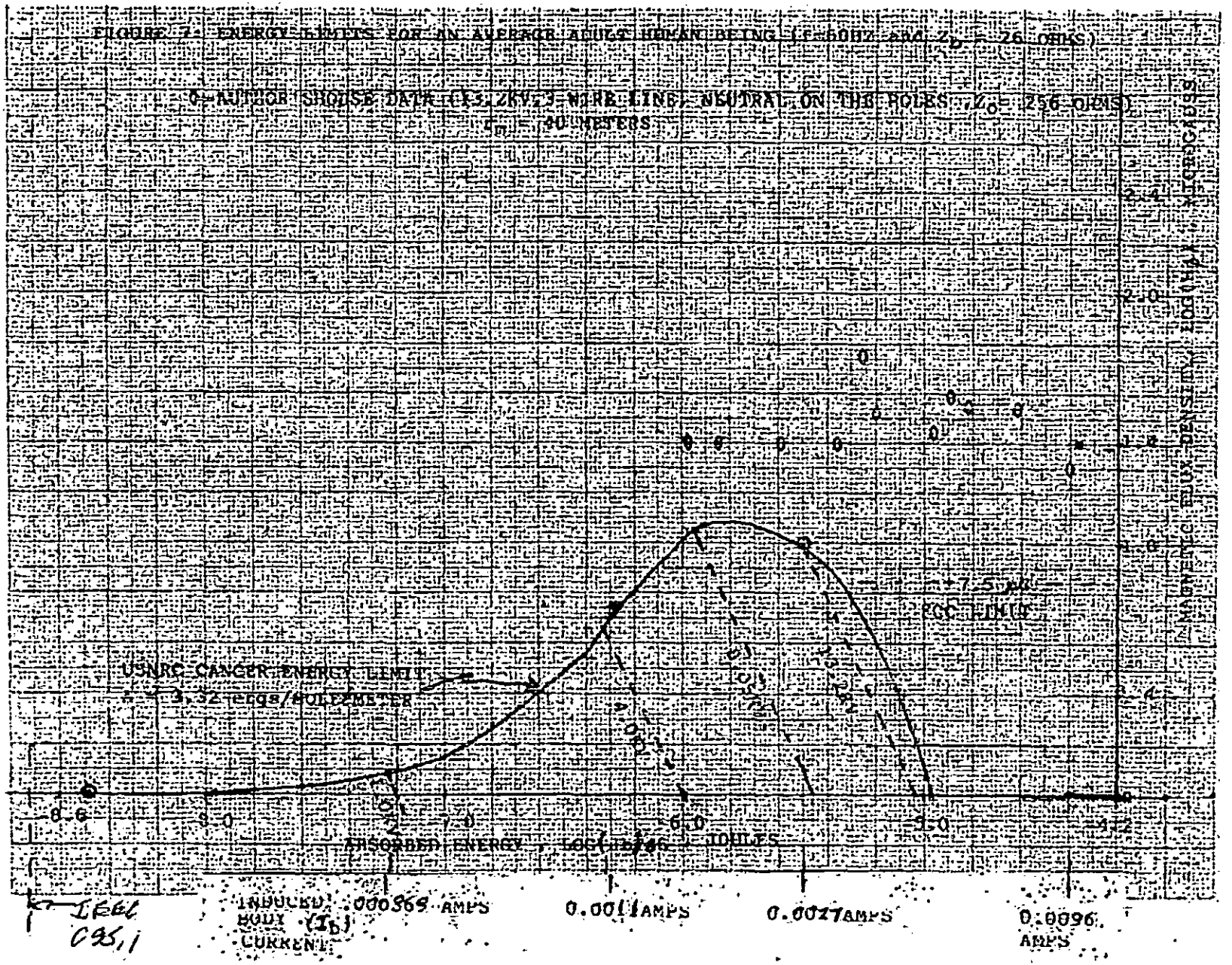


FIGURE 6 - THIN WIRE CIRCULAR LINE
CHARACTERISTIC IMPEDANCE 270 OHMS
300
280
260
240
220
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
24
28
32
KA
THIN-WIRE-CIRCULAR-LINE



* THRESHOLD OF PERCEPTION (1.0 MILLI AMP)

Figure 07

FIGURE 8. PPL ELECTRIC UTIL.

Magnetic Field Measurements
Brunda Residence
402 East Snyder Avenue
Lansford, PA
(readings in milliGauss)

Location	May 2, 1994	May 7, 2004	Jan 12, 2006
1	1.1	1.8	1.3
2	0.9	1.1	1.1
3	1.6	1.3	0.8
4	1.6	1.3	0.8
5	4.0	3.2	2.3
6	4.3	2.8	2.4
7	4.9	3.0	1.9
8	4.4	2.4	2.0
9	1.1	0.7	0.5
10	1.0	0.6	0.3
11	0.9	0.5	0.3
12	0.9	0.5	0.3
13	1.4	0.8	0.5
14	1.2	0.6	0.3

RECOGNIZED SCIENTIFIC LIMITS
FOR
HUMAN BEINGS

	MICROGAUSS	MILLIAMPS (BODY CURRENT)
USNRC	10.0	2.7
FCC	7.5	1.2
NEC	1.26	0.37
EOM	0.16	1.0
THRESHOLD OF PERCEPTION		
IEEE	ZERO	ZERO.

REFERENCE: ALTHRIS BOOKS NO. 16607 AND 19787
AUTHOR: DANIEL D. BRUNDA: PE, DDGIBC, DGABI, ELECTROMAGNI
De, RADIATION ENGINEER AND FOUNDER, INVENTOR, AUTHO

EOM - ENVIRONMENTAL AND OCCUPATIONAL MEDICINE IN N.J.
UL - UNDERWRITER LABORATORIES

FIGURE 9. PPL ELECTRIC UTIL.

Magnetic Field Measuri nents May 2, 1994

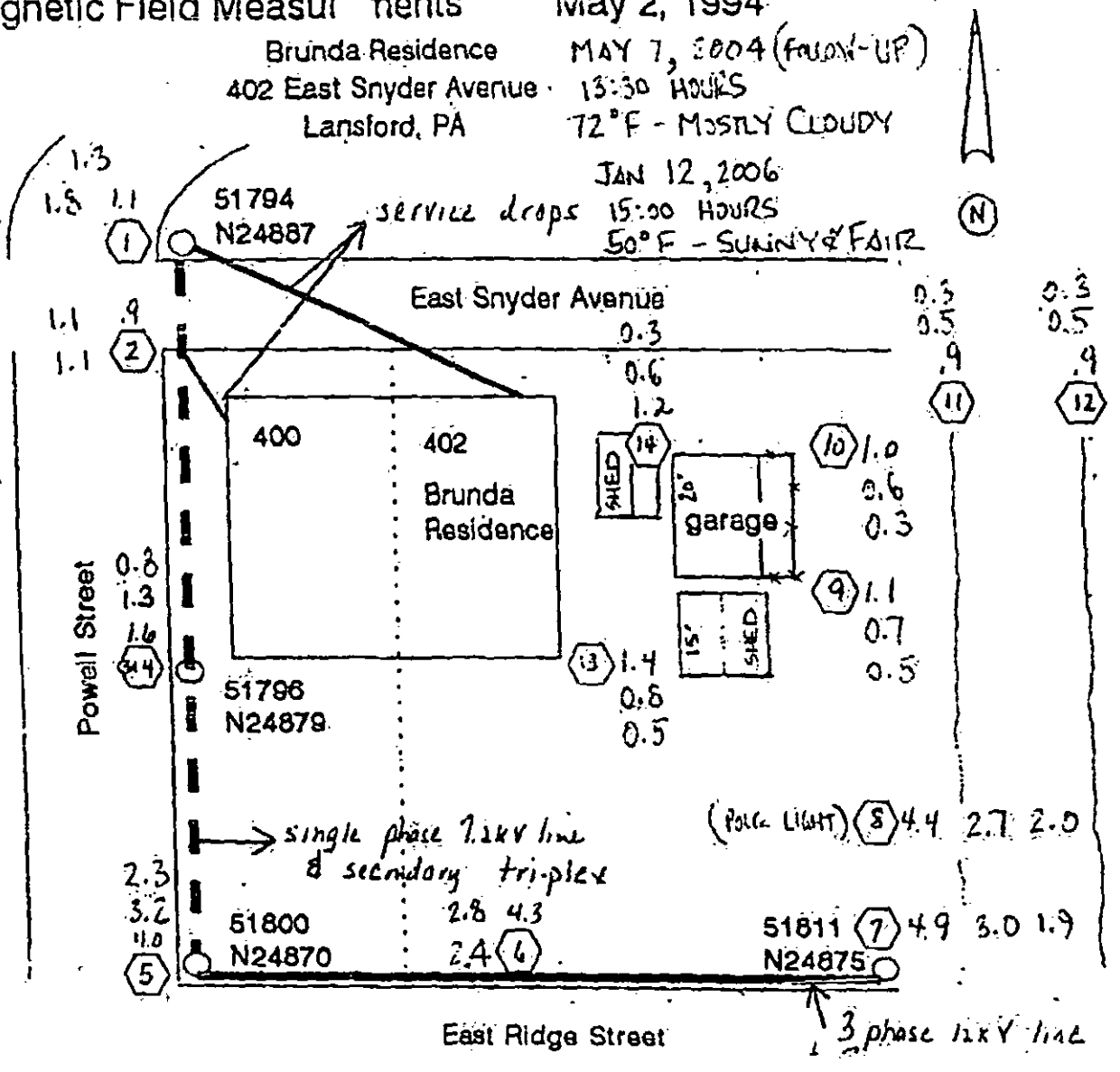
Brunda Residence
402 East Snyder Avenue
Lansford, PA

MAY 7, 2004 (FOLLOW-UP)
13:30 HOURS
72°F - MOSTLY CLOUDY

JAN 12, 2006
15:00 HOURS
50°F - SUNNY & FAIR

LEGEND

Event number identified in charts with corresponding magnetic field reading (in milligauss)



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    Publication: Stockholm, Sweden: Nordic Medical Publications, 1983
    Document: English: Book
    Libraries Worldwide: 80

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REF, 12

UNDERWRITER LABORATORIES

Table 10.1 The Effects of Current on the Human Body

1 mA or less	No sensation, not felt
More than 3 mA	Painful shock
More than 10 mA	Local muscle contractions, sufficient to cause "freezing" to the circuit for 2.5 percent of the population
More than 15 mA	Local muscle contractions, sufficient to cause "freezing" to the circuit for 50 percent of the population
More than 30 mA	Breathing is difficult; can cause unconsciousness
50 mA to 100 mA	Possible ventricular fibrillation of the heart
100 mA to 200 mA	Certain ventricular fibrillation of the heart
More than 200 mA	Severe burns and muscular contractions; heart more apt to stop than to go into fibrillation
More than a few amperes	Irreparable damage to body tissues
6.26 Amps	The Electric Chair (2000 Volts) - 296 Ohms (79.4 Joules)

uncoordinated contractions of the ventricles of the heart resulting in loss of synchronization between heartbeat and pulse beat. The electrocardiograms shown in Figure 10.2 compare a healthy heart rhythm with one in ventricular fibrillation. Unfortunately, once ventricular fibrillation occurs, it will continue. Barring resuscitation techniques, death will ensue within a few minutes.

The route taken by the current through the body greatly affects the degree of injury. Even a small current, passing from one extremity through the heart to another extremity, is dangerous and capable of causing severe injury or electrocution. There are cases in which a person has contacted extremely high current levels and lived to

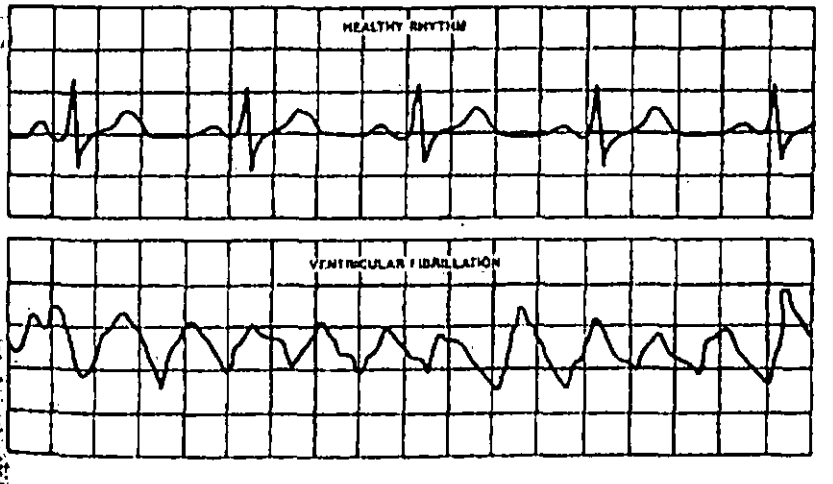

Figure 10.2 Electrocardiograms showing the healthy rhythm of a heart (*top*), and ventricular fibrillation of the heart (*bottom*).

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1975

HOWARD W. SAMS & CO., INC. ITT
INDIANAPOLIS/KANSAS CITY/NEW YORK
A SUBSIDIARY OF
INTERNATIONAL TELEPHONE AND TELEGRAPH CORPORATION

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Brian C. Wadell
Teradyne, Inc.
Boston, Massachusetts

Artech House
Boston • London

1991

REFERENCE 15

A HANDBOOK ON ELECTROMAGNETIC SHIELDING MATERIALS AND PERFORMANCE

By Donald R. J. White, MSEE/PE

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THE UNIVERSAL PLAGUE

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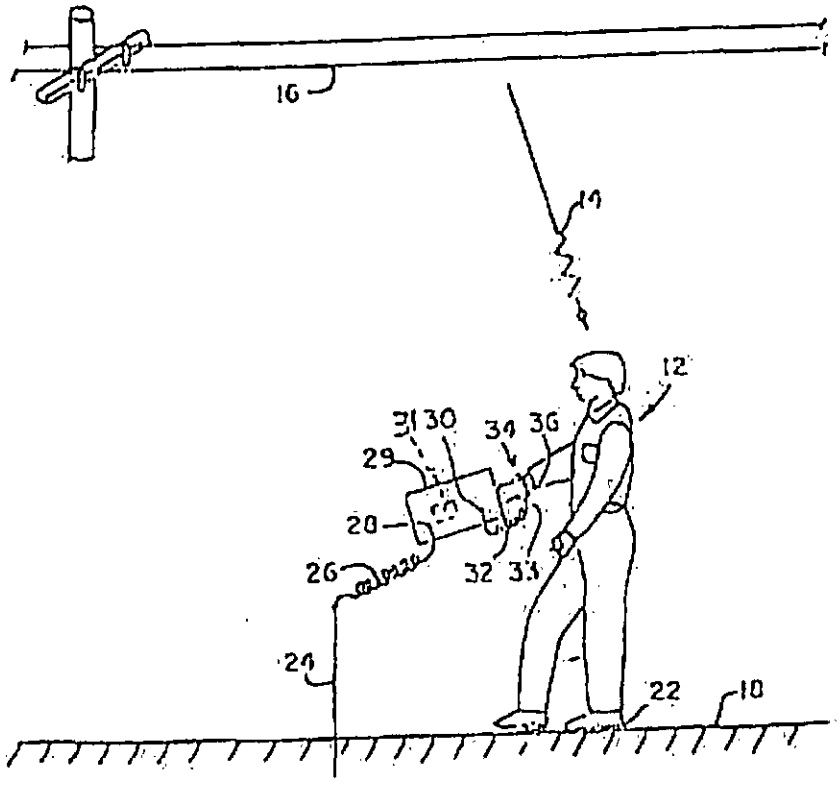
The Radiation Limits Of Human Beings



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Dedications

DR. DANIEL DONALD BRUNDA. DDG, PE
LPIBA, MOIF, IOM, AdVSci, IBC
For your Outstanding Contributions to
The Design and Control of Safe Electrical
Transmission and Distribution Lines

With Great Love This Book is dedicated to my dear departed parents, Michael Theodore Brunda (1990) and Ella Jarba Brunda (1999), and my Brothers Stephen Brunda and Michael Maxim Brunda, who departed this life on the 14th of August 2003.

REF. A

2000 OUTSTANDING SCIENTISTS OF THE 21ST CENTURY

DANIEL DONALD BRUNDA, DDG, LPIBA, MOIF, IOM, AdVSci

Registered as a Professional Engineer in the State of New Jersey, USA, Daniel Donald Brunda has had a long and successful career in aerospace engineering. Now retired, he continues to provide consulting services, parallel with pursuing his leisure interests in investment, music and dancing. Apart from being the contributor of more than twenty articles to professional journals, he is an inventor of some stature, holding copyrights, as well as patents including one for a measurement system and method for determining the amount of electromagnetic radiation being absorbed by living beings. The son of Michael Theodore and Ella Jurba Brunda, Daniel Brunda was born on 22 October 1930 in Lansford, Pennsylvania. Educated locally, he graduated from high school at the end of the 1940s, whereupon he entered Lehigh University, from which he earned a Bachelor of Science degree in Mechanical Engineering in 1952, followed by a Master of Science degree in Mechanical Engineering in 1953. He also carried out postgraduate studies at Johns Hopkins University in 1955, at Princeton University between 1958 and 1965, and finally at Drexel University in 1983.
Mr Brunda's first professional appointment was as an Aerodynamicist working for the Bell Aircraft Corp, then as a Performance Engineer for three years with Glenn L. Martin, based in Baltimore. However, it was not long before the firm of Curtiss Wright was established in Princeton, New Jersey, where he spent one year as an Analytical Engineer in propulsion development, testing, evaluation and performance. He left the firm in 1957 to join the US Naval Air Propulsion Center in Ewing, New Jersey, as an Aerospace Engineer engaged in research. In 1972 he was appointed local Manager of Independent Research and Development, a position he held until retiring in 1983. Meanwhile, in 1978 he commenced his present activity as a Consultant in powerline radiation energy engineering.
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A biography of Daniel Donald Brunda, DDG, LPIBA, MOIF, IOM appears in the main section of this Edition.
FIRST EDITION 2002, INTERNATIONAL BIOGRAPHICAL CENTRE CAMBRIDGE, ENGLAND

Powerline Radiation, Your Genes, Hereditary Diseases, The Unified Nature Of Electromagnetic Radiation Energy And Control And The Radiation Limits Of Human Being

Abstract

THIS UNPUBLISHED, UNFUNDED RESEARCH REPORT IS THE RESULT OF A LONG STANDING INVESTIGATION OF ELECTROMAGNETIC RADIATION ENERGY EMANATING FROM AN EXPERIMENTAL 13.2KV, 50MEGAWATT POWERLINE SYSTEM INSTALLED 30 METERS IN FRONT OF THE AUTHOR'S HOUSE IN 1978 BY PUBLIC SERVICE ELECTRIC AND GAS CO. THIS REPORT PRESENTS IMPORTANT ADVANCEMENTS IN THE STATE-OF-THE-ART OF POWERLINE SYSTEM DESIGN, OPERATION AND CONTROL AND IN THE MEASUREMENT AND MONITORING OF ENVIRONMENTAL ELECTROMAGNETIC RADIATION ENERGY FOR THE PURPOSE OF PROTECTING THE PUBLIC HEALTH. IT ALSO SHOWS SCIENTIFICALLY THAT THE EPIDEMIOLOGICAL STUDIES OF DR. SAVITZ IN DENVER, COLORADO AND THE AUTHOR'S ENERGY MEASUREMENTS IN EWING, N. J. PROVE THAT POWERLINE RADIATION ENERGY CAUSES CANCER AND MANY OTHER DISEASES IN HUMAN BEINGS. MOST IMPORTANTLY IT INDICATES THAT P.S.E.& GAS CO. HAS MADE AN EGREGIOUS ERROR BY INCREASING THE VOLTAGE IN FRONT OF THE AUTHOR'S HOUSE FROM 4KV TO 13.2KV in 1978 BECAUSE THE 13.2KV POWERLINES CAN ONLY OPERATE AT HIGH ENERGY AND IMPEDANCE LEVELS WHICH ARE *ABSORBED BY THE BODY AND FAR EXCEED THE NRC CANCER ENERGY LIMITS AND THE RADIATION LIMITS* OF HUMAN BEINGS.

THIS BOOK IS INVALUABLE FOR USE IN THE PROPER MANAGEMENT AND CONDUCT OF RISK ANALYSES, BIOELECTROMAGNETIC STUDIES, POWERLINES SYSTEM DESIGN, OF EPIDEMIOLOGICAL STUDIES AND ENVIRONMENTAL IMPACT STUDIES WHERE THE HARMFUL EFFECTS OF ENVIRONMENTAL RADIATION ENERGY ON HUMAN BEINGS IS THE MAIN CONCERN. THE REPORT IS ALSO INVALUABLE FOR USE IN IMPLEMENTING MUNICIPAL ZONING ORDINANCES, BUILDING CODES AND DEVELOPMENT AND RE-DEVELOPMENT PLANS. FINALLY, THIS REPORT PROVES THAT POWERLINE DISTRIBUTING NETWORKS *CAN BE PROPERLY DESIGNED AND CONTROLLED TO OPERATE WITHIN THE NRC CANCER ENERGY LIMIT* TO PROTECT THE PUBLIC HEALTH.

THIS BOOK SOLVES THE CONTROVERSIAL POWERLINE RADIATION HAZARD PROBLEM WHICH HAS EXISTED SINCE THE DAYS OF THOMAS ALVA EDISON (1847-1931), GEORGE WESTINGHOUSE (1846-1914), SIGMUND FREUD (1856-1939), & DR. SCHREBER (1842-1911). (A GERMAN JUDGE WHO WAS AFFECTED BY HIGH VOLTAGE POWERLINES AND WAS WRONGFULLY DIAGNOSED AS PARANOID BY SIGMUND FREUD.)

NOTE: Even the World Health Organization is completely wrong about the safety of powerlines which induce harmful electrical *currents in the body, blood and nervous system of human beings! (Ref. 47)*

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United States Patent [19] [11] Patent Number: 5,350,999
Brunda [45] Date of Patent: Sept. 27, 1994

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[54] MEASUREMENT SYSTEM AND METHOD FOR DETERMINING THE AMOUNT OF ELECTROMAGNETIC RADIATION ENERGY BEING ABSORBED BY LIVING BEINGS

[76] Inventor: Daniel D. Brunda, 106 W. Upper Ferry Road,W. Trenton, N.J. 08628

[21] Appl. No.: 137,983

[22] Filed: Oct. 19, 1993

Related U.S. Application Data

[63] Continuation of Ser. No. 858,626, Mar. 27, 1992, abandoned.

[51] Int. Cl.[5] G01R 31/02
[52] U.S. Cl. 324/72; 324/457
[58] Field of Search 324/72, 457; 361/212; 307/326; 340/660

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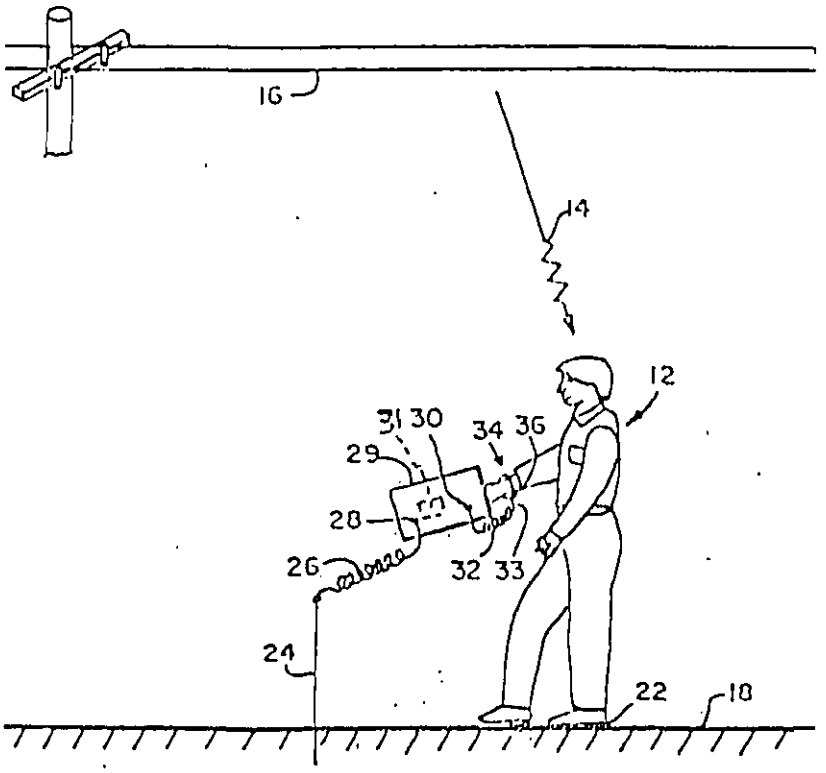
United States Patent [19] (Continued)

[57] ABSTRACT

A measurement system and method for determining the amount of radiation absorbed by living beings includes a measurement device capable of measuring the amount of radiation emanating from power lines and any other source of radiation of electromagnetic energy (non-ionizing) at a particular location and electrically conductive contact devices for connecting the measurement device to a living being and to a ground and requires that a reference reading be taken and then a second reading obtained by connecting the measurement device to an appendage on a living being with the other end of the meter being connected to ground, a subtraction device indicates the amount of radiation being absorbed by the living being.

4 Claims, 2 Drawing Sheets



INTRODUCTION

Many bad genes are now being discovered which are associated with the risk or cause of hereditary diseases in human beings. Bad genes are caused by environmental radiation in general, diseases and heredity. However, some people who have healthy genes still develop these diseases. Specifically, colon cancer, Tourettes Syndrome, and Pagets Disease are three such diseases, to name just a few. Therefore, radiation must play a role in bad genes and diseases. Radiation consists of both ionizing and non-ionizing radiation which includes powerline radiation.

The Nuclear Radiation Commission has long specified a maximum (4.39 Rems) radiation power level of 0.11 microwatts for ionizing radiation safety purposes to prevent cancer. It is the purpose of this paper to shed more light on the problem of bad genes, their causes and their associated "hereditary diseases." (The latest NRC cancer energy limit is 0.055 Rems.)

YOUR GENES AND HEREDITARY DISEASES

Bad genes are generally known to be caused by toxicity, environmental radiation in general, disease and heredity. Environmental radiation associated with bad genes and disease is not, however, limited to ionizing radiation as is implied by the NRC power limit of 0.11 microwatts for cancer. The important parameter which causes bad genes, tissue destruction and disease in human beings is the energy, which is expressed in electrical units of joules. The NRC power limit of 0.11 microwatts corresponds to 1.8333 nanojoules for power line radiation energy purposes. People are in constant close proximity to power lines of all kinds. (See Page 6 and 7). In the case of power lines, most people have been aware of the tragic consequences of coming into direct contact In the House, at Work, in Schools, on the Sidewalks and on Streets.

Consequently, it is important to relate the energy emitted by these power lines to the energy absorbed by human beings. Both of these energy magnitudes can be measured. The required relationship can be readily determined from the known energy levels that cause electrocution and the energy level that is emitted by mercury-vapor lamps that causes blindness, as reported in the Marks Engineers Handbook, Sixth Ed. 1951. The subject energy safety limit relationship is shown in Figures 1 & 3a. The energy emitted by power lines is incident on human beings. This energy is obtained from the product of the power spectral density of the electromagnetic wave and the tissue area of $0.05M^2$, which causes blindness from mercury-vapor lamps. A straight line relationship exists between these two end points, which are shown in Figures 1 & 3a. The logarithmic values of the incident energy level and the absorbed energy levels are used as the coordinates in these Figures 1 & 3a which may be mathematically represented by Equation 76.

Equation 76: $x_2 e^x = (2/A_1) \cdot (Z_1 \cdot f)^{1/2}$

where, $x_2 = (J_1/J_W)^{1/2}$ and the Absorbed Energy, $J_1 = E_1^2/Z_1 f$.

VOLTA'S Electrophonic Effect

Powerlines emit energy into the environment in the form of heat (I^2R) and electromagnetic radiation energy. The electromagnetic radiation energy is transmitted through the air to human beings by both Acoustic Transmission (both audible and inaudible) and by electromagnetic induction. Figure 1 shows that the total energy absorbed by human beings (J_1) far exceeds the incident (J_W) electromagnetic radiation energy. Assuming that this energy difference is the Acoustic energy, the Acoustic Energy transmitted to and absorbed by human beings may be calculated to be as shown in Figure 2. This figure shows that the total energy absorbed by the body at Wave Impedances less than 287 ohms consists of both Acoustic energy and Induced Electromagnetic Radiation Energy. At Wave Impedances greater than 287 ohms the total energy absorbed by the body consists of entirely Induced Electromagnetic Radiation Energy. If the body may be more easily shielded from Acoustic Energy it is important to operate the powerline system at Wave Impedances less than 287 ohms. In fact, an almost minimum energy absorbance occurs at a Wave Impedance of 177 ohms.

1. It is important to recognize that the human body is very limited in its ability to absorb environmental energy without harm regardless of whether the energy enters the body by electrocution (conduction) or by radiation, or by any other means. The average adult human being is 1.8 meters tall, weighs 77.11 kgm, has a molecular weight of 221.4 and an inductive bodily impedance of 26 ohms. Some people have been the target of stun guns, which have been justifiably outlawed in seven states including New Jersey. The stun gun energy levels are shown in Table 1 along with the energy levels that cause heart muscle destruction, deafness (electric and acoustic noise, Voltas Electrophonic Effect), and tissue damage in the inner ear (see Reference 21, Pages 67, etc. Both A.C. and D.C. electrical currents can cause tissue damage to the inner ear (see References 12, 16, 17, 18, 22 and Table 1). It is especially important to note that the eye is known to be the part of the body which is the most sensitive to destruction by radiation energy. This destructive energy level has been known since at least 1951 as reported in the Marks Mechanical Engineers Handbook, Sixth Edition, for 4 watt, mercury-vapor type, germicidal lamps which are used in hospitals for destroying bacteria. This radiation is dangerous to living organisms and causes eye destruction. This energy level is clearly the maximum energy level that should be considered safe for human beings. Table 1 lists the dangerous energy levels associated with the various sources of radiation and the maximum permissible energy levels to prevent cancer in the various organs of the body based on the NRC power limit (0.11μwatts) and Z_{I_b} =26.0 ohms:

ENERGY NO.	RADIATION SOURCE AND REFERENCE	INJURIES	JOULES INDUCED BODY ENERGY LOG J_b
1.	Electric fence at Calipatria State Prison (4.0KV)	Electrocution	1.9
2.	Electroconvulsive therapy at Carrier Clinic	Convulsions, Epilepsy, Etc.	1.0
3.	Stun Guns (to 75kv) Radio & Electronics, 1986	Convulsions, Paralysis, Etc	-0.3
4.	Merck Manual of Diagnosis and Therapy	Involuntary Muscular Contraction, Tourettes Syndrome	-0.75
5.	Merck Manual of Diagnosis and Therapy, 1992	Ventricular Fibr. Risk of Heart Attacks & Strokes	-1.95
6.	Power line Radiation in Denver at 13.2kv Dr. Sayitz & Brunda	Cancers, Leukemia	-4.65 to -5.65
7.	Power line Radiation	Hemochromatosis Type I Diabetes due to excess iron	-3.15
8.	Power line acoustic and electric noise at 80db D. Brunda & Beltone Electr	Total deafness(60 hz to 20 khz)	-4.0
9.	Arrhythmia therapy at Temple Univ. Hospital (20 watts & 500 khz).	Heart Muscle destruction FIBROMYALGIA	-4.4 -4.5
10.	Terrible electric noise by 13.2kv power line	Deafness (100hz-20khz)	-4.65
11.	Acoustic and/or electric noise by 13.2kv power line	Deafness(1000hz-20khz) (1000hz-20khz)	-5.25 -5.4(fcc)
12.		Deafness(1000hz-20khz) Deafness (2khz-20khz)	-5.5
13.	Power line radiation	Deafness (10khz-20khz)	-6.2
14.	At 13.2kv (D. Brunda)	Body disturbances, Deafness, zapps, beats, noise, insomnia, learning disability	1.9 to -8.4

FIGURE 1

ENERGY NO.	RADIATION SOURCE AND REFERENCE	INJURIES	JOULES INDUCED BODY ENERGY LOG J_b
15a.	Stun Guns at 3690v. electric shock safety criteria, Pergammon Press, Inc., 1985, "Safe" strong shocks		-6.55
15b.	Agard Lecture Series No. 138	Extra systole series	-6.66
16.	Portable appliances (0.5ma) National Electical Code		-7.2
17.	Electrical Stimulation and electropathology, J. Patrick Reilly, Cambridge Univ. Press, 1982 & Brunda	Liver diseases and cancer	-7.35
18.	Researchers in New Delhi, India	DNA damage in mice	-7.43
19.	Power line radiation at 13.2kv D. Brunda	Erythromelalgia, insomnia, etc. Neuropathy, Eczema	-7.45
		Lung Diseases	-7.5
20.		Fatty Diseases, breast cancer, prostate cancer, etc.	-7.6
21.		Bone diseases (Pagets Disease) arthritis and cancers (leukemia)	-8.35
21a.	IEEE C95.1 (1.6W/kg) Mobile phones (835MHZ)	Head diseases and brain tumors	-8.72
22.	J.P. Reilly & NRC & D. Brunda	Body cancers & blood diseases	-8.75
		Lung Cancer	-10.5
23.		Head diseases, brain tumors, Alzheimers, Downs Syndrome, Klinefelter's Syndrome, Attention Deficit Hyperkinetic Disorder (ADHD)	-9.6
24.		Heart Muscle diseases	-10.2
25.	Cellular telephones, Wall Street Journal, Technology Staff Reporter, 1993, & D. Brunda	Brain cancers and tumors	-14
26.	Germicidal lamps Mercury-vapor Marks Mechanical Engrs. Handbook, Sixth Edition 1951 & D. Brunda	Eye diseases Cataracts, Retinoblastoma Blindness, Neurofibromatosis	-14.5

TABLE I (Continued)

ENERGY NO.	RADIATION SOURCE AND REFERENCE	INJURIES	JOULES INDUCED BODY ENERGY LOG J_b
27.	Laser Diode Metrology by Kenneth Fiering, Applied Laser Systems, Vol. 14, 9/9/95		-15.68
28.	Ultraviolet light Prof. Jeffrey Bernhard	Skin cancer, aging wrinkling, tissue damage	-21.83

THE INDUCTIVE IMPEDANCE AND MOLECULAR WEIGHT OF HUMAN BEINGS

Additional research into the question of the inductive impedance of human beings indicates that the average total bodily impedance is approximately 26.0 ohms, determined as follows:

THE UNIVERSAL PLAGUE

BODY COMPOSITION BY WEIGHT	INDUCTIVE IMPEDANCE	FREQUENCY	MWT*	(concentration)	SOME DISEASES
65% Water	42.0 ohms	60 Hz	18.0	0.658	
• 9% Blood	7.20 ohms	1000 Hz	26.4	0.082	Leukemia
• 14% Bone	6.33 ohms	100 Hz	35.5	0.1346	Sarcoma & Pagets
• 12% Muscle & Tissue	0.372 ohms	100 Hz	141.5	0.1254	Muscular Dystrophy and Heart

Total = 100% + Because of low inductive impedances and frequencies; and complete ignorance of the radiation limits of human beings (USNRC).

For an average human being weighing 160 lbs. the composition is as follows: 112 lbs. water; 14 lbs. blood; 21 lbs. muscle and tissue; and 22 lbs. of bones. If a human being were composed entirely of water the impedance would be 42 ohms. However, since water is only 0.65 of the body, the 42 ohm impedance must be reduced proportionally by weight, and by using common sense arithmetic the body impedance becomes approximately 26 ohms, calculated as follows:

$$Z_{body} = |42.0 \cdot 14.33| - (7.2 \cdot 6.42| - |0.45 \cdot 0.394| - |6.11 \cdot 5.319| =$$
$$= 27.67 - 0.58 - 0.78 - 0.06 - .79 = 25.46 \text{ ohms}$$

Therefore, $(Z_{body})_{ave} = 26.0$ ohms = in round whole numbers.

The molecular weight was calculated using measurements of the total absorbed bodily energy $(J_b)_{79}$ meas and the following equations:

$$\text{Eq. 75 } (MWT)_{78} = (J_b)_{meas} / (J_b)_{79}$$

where $(J_b)_{79} = WT\ RELn(1-x_2^2)(1x10^{-7})/MWT\ (bc)$:
for WT = MWT and c =1.0 and b= 1,803.4 Meters
and $(MWT)_{body} = 221.4$

* MWT = Molecular Weight

THE INDUCTIVE IMPEDANCE OF DNA

The dielectric constant (s) for DNA was quoted by Physics Prof. Bob Austin, of Princeton University, in Ref. 43. to be s = 2000. I have calculated the Inductive Impedance of DNA to be $(Z)_{DNA} = 6.545 \times 10^{-5}$ ohms, and an Absorbance, A = 841.5 ergs/mole/meter (at Z_w = 5169 ohms, where PSE&G Co. is operating). Prof. Austin claims the enormous value of dielectric constant makes it almost ferroelectric and permits nanofabricating which is the key to cancer's cause. My calculations of the enormous absorbance (A = 841.5) of powerline electromagnetic radiation energy together with epidemiological studies by Dr. J. Savitz, D. Bowman and my energy measurements prove this fact.

TABLE II

A RADIATION PROTECTION GUIDE FOR THE GENERAL PUBLIC

REFERENCE 6	BODILY INJURY	LOG MOL WT	JOULES INDUCED BODY ENERGY LOG J_b	MOL WT
Handbook of Environmental Engineering, by Robert A. Corbit, McGraw Hill, 1990	Whole Body	2.345	- 9.69	221.4
	Gonads		- 8.69	
	Thyroid		- 9.21	
	Bone Marrow		- 9.69	
	Bone	1.55	- 9.21	35.5
	Eye		-14.50	
	Lung		-13.48	
	Fetus	1.30	- 8.09	20
	Lethal	2.345	- 6.69	221.4

TABLE III lists the molecular weight of substances relevant to the electromagnetic radiation health of HUMAN BEINGS.

TABLE III

Substances relevant to electromagnetic radiation health of *HUMAN BEINGS*

REFERENCE	SUBSTANCE	MOLECULAR WEIGHT		LOG Jb
Handbook of Chemistry and Physics The Chemical Rubber Co. *Pharmacies and* others	Hydrogen	2		
	Helium	4		
	Ammonia, NH_3	17		
	Water	18		
	Water & Blood	19		
	Fetus	20		-8.09
	Sodium	23		
	Magnesium	24.3		
	Blood	26.4		
	Aluminum Al.	26.98	CHELATION	
	Air	29		
	Methyl Alcohol (CH_3OH)	32		
	Bone	35.5		
	Potassium	39		
	Argon	39.94		
	Calcium	40	CHELATION	
	Ethyl Alcohol (C_2H_5OH)	46		
	Iron	55.85	CHELATION	
	Sodium Chloride	58		
	Copper	63.57		
		65.37		
	Amyl Alcohol	88		
	Silicone (PolyDimethySiloxane)C_2H_6SiO	160		
	Arsenic	75		
	PhenylEphrine Tannate ($C_3H_9O_2$)	91		
	TriotannChlorphenirAmine Tannate ($C_5H_{11}ClN$)	120.5		
	Niacin ($C_6H_5NO_2$)	123.1		
	PyrilAmine Tannate ($C_6H_{15}N_3O$)	145		
	Nicotine ($C_{10}H_{14}N_2$)	162.4		
	Lead	170	CHELATION	
	Silicone Breast Implants			
	Glucose, Fructose	180		
	Aspirin	181		
	Mercury	200.61	CHELATION	
	(Latex Allergies) Natural Rubbers ($C_{15}H_{24}$)	204		
	Human Beings	221.4		-9.69
	Substitute Blood	226.335		
	Sulfamethoxazole	253.28		
	Ritalin ($C_{14}H_{20}ClNO_2$)	269.77		
	Pertussin	271.4		
	Trimethoprim	290.32		
	Inderal	295.81		
	Xanax ($C_{17}H_{13}C_7N_4$)	308.8		
	Viox	314.36		
	Sucrose	342		
	Maltose	360		
	Cholesterol ($C_{26}H_{47}O$)	375		
	Claritin	382		
	Thimerosal ($C_9H_9HgNaO_2S$)	404. 81	Vaccine cause autism	
	Zocor ($C_{25}H_{38}O_5$)	418. 57		
	Rezulin	441. 55		
	Pravacol ($C_{23}H_{35}NaO_7$)	446. 52		
	Zyrtec (Cetirizine HCl) ($C_{21}H_{25}ClN_2O_{3.2}HCl$)	461.82		
	Seldane	471		
	Baycol ($C_{26}H_{33}FNO$)	481. 5		
	Allegra	588		
	Lead Cerotate	1000		
	Crestor ($C_{22}H_{27}FN_3O_6S)_2Ca$	1001.14		
	Lipitor ($C_{13}H_{34}FN_{205})_2$ $Ca.3H_{20}$	1209.42		
	Cadmium	6600		
	Borotungstate			
	Insulin ($C_6H_{10}O_5$)	7000		

MORE HARMFUL

The terrible health hazards posed by power line radiation and its genetic effects are seen to be mind boggling in the succeeding two pages from the Fortune Magazine, (Page 21). These pages list the biotech companies that have staked claims on the various chromosomes in genes and are looking for defects, which cause various diseases. Arthritis is conspicuously absent because it is a disease of the joints, that are lubricated by synovial fluid, which are susceptible to synovial sarcoma.

VOLTA'S ELECTROPHONIC EFFECT (Continued)

Volta's Electrophonic Effect (Figure 2) has been known, but unexplained, since 1800 A.D. This effect is explained by Eqs. 98 and 78 where:

Eq. 98: $(J_A/J_b) = 1 - (1/x_2)^2 = Y$;
where Y is shown as a function of the LOG $(Z_w)_{78}$ and
Eq. 78: $2x_2 + LN\ (J_b) = 2LN\ (2Z_b/Z_w) - LN\ (Z_b,f)$;
where $x_2 = C\ (J_b/J_w)^{1/2}$

Figures 3 & 4 clearly show the cancer limit boundary for human beings and the lung cancer death rate at $1x10^{-5}$ joules in my neighborhood, the lung cancer energy limit at $3.98\ x10^{-8}$ joules, the skin cancer energy limit at $7.94x10^{-9}$ joules and the USNRC cancer energy limit for human beings (MWT = 221) at $3.26x10^{-9}$ joules. These figures also show the epidemiological cancer data of Dr. Savitz from Denver Colorado and the cancer data point of J.D. Bowman (OSHA) from Los Angeles, California. (Ref. 42)

THE RADIATION LIMITS OF HUMAN BEINGS

Figure 4 shows the radiation limits of the various body parts of human beings.

Figure 5 shows the operating hyperbolas for powerlines at 132KV 13.2 kv, 4.5 kv and 120 volts. It also shows the permissible operating regions for an average adult human being. This region is bounded by the cancer absorbance limit (3.32 ergs/mole/meter) and the USNRC cancer energy limit of $3.26x10^{-9}$ joules. The cancer (FIG. 6) absorbance limit curve was calculated using Brunda's Absorbance Law given by Eq. 84b:

Eq. 84b: Absorbance, $A = (x_2 Z_w f)^2/669.1$

This equation was derived by using the preceeding equations and Lambert's Law (1728-1777 A.D.) and Beer's Law (1852 A.D.);.where (Ref. 19) Lambert's Law, $(I_b/I_o) = e^{-kxl}$, k = Absorption Coefficient and Beer's Law, $LN\ (I_b/I_o) = A$, Absorbance

THE TRANSMITTED CANCER POWER DENSITY LIMIT

Figure 7 clearly shows that the electric and magnetic fields and energy measured in the Author's house far exceed the NRC cancer energy limit line (286HP). They are putting the author at extremely high risk for contracting cancer and have been the cause of his many physical complaints. This Figure 7 also shows that the cancer data points obtained from epidemiological studies in Denver, Colorado have occurred because the power (6000HP) and voltage (13.2KV) far exceeded the cancer power of 286 HP and voltage (6145volts) as determined in this report.

Figure 8 shows that the USNRC Cancer Energy limits for Human Beings occurs at E_c =6139 VOLTS, for Z_w = 177 ohms.

Figure 9 shows that the transmission line energy for all of the Author's house data points, which are at 13.2KV far exceed the limits for Human Beings as established in Figure 6.

Figure 10 shows that for all of the data points shown the line voltage, magnetic flux density and horsepower far exceed the limits for Human Beings as established in Figure 6.

Figure 11 shows that for all of the data points included in this figure, the incident wave energy and the wave impedance, Z_w, far exceed the U.S.E.P.A. limit of ONE OHM.

FIGURE 12. shows that for all of the data points both the HUMAN BEING AND DNA ABSORBANCE far exceed the Human Being Limit and the USNRC CANCER LIMIT. IN ADDITION, THE DNA ABSORBANCE FAR EXCEEDS THE ABSORBANCE OF HUMAN BEINGS FOR ALL VALUES OF THE INCIDENT WAVE IMPEDANCE.

THE CASE OF GEORGIA VS. THE JORDAN FAMILY

The 23 April 1994 article in the Atlantic Journal concerning the Jordan family illustrates the ability of power line radiation to cause abnormality and disease in the bodies of both children and adults. (Pg. 12)
Nancy Jordan a 41 year old woman whose bedroom was less than 50 feet from a 230,000 volt line, and her husband, Larry, are suing Georgia Power and Oglethorpe Power, saying their lines gave her a "fatal case" of non-Hodgkins Lymphoma. It's the third suit targeting power lines to come to trial.

A 1992 Swedish study of all residents living near power lines showed that leukemia rates among children exposed to the stronger fields were four time above normal.

A 1990 U.S. Environmental Protection Agency review of all studies wrongfully said that in spite of associations between magnetic field exposure and cancer, "there is no convincing mechanism by which these effects could lead to the induction of cancer".

STAKED CLAIMS ON GENES

The terrible health hazards posed by power line radiation and its genetic effects are seen to be mind boggling in the succeeding two pages from the Fortune Magazine. These pages list the Biotech companies which have staked claims on the various chromosomes in genes and are looking for defects which cause various diseases. Arthritis is conspicuously *absent because it is a disease of the joints, which are lubricated by sinovial fluid.* (Mr. Urich, OF TV FAME IS BEING TREATED FOR SINOVIAL SARCOMA). Lung Fibrosis is also conspicuously absent. (Page 21)

ACKNOWLEDGEMENTS OF THE BEMS

The harmful effect of powerline radiation on biological systems in the living body are now officially recognized by the Bioelectromagnetic Society as follows (REF 21):

1. Altering the function of nerve cells.
2. Changing the density and healing rate of bone.
3. Disturbing the balance of important hormones.
4. Changing the growth rate and drug sensitivity of cancer cells.
5. Modifying the immune system's ability to fight disease.
6. Altering the heart rate (arythmia).

The nation is also now faced with an epidemic of macular degeneration in the eyes (REF 23), arthritis and diabetes.

PHYSICIAN COUNTERING HARDENED ARTERIES (Page 20) (REF 22)

A cardiologist, W. Robert Taylor MD, PhD and assistant professor of medicine at the Emory University School of Medicine in Atlanta, Ga. received the New Clinical Investigation Award from the Society for Physic Regulation in Biology and Medicine (SPRBM) at their 15th Annual Meeting in October 1995. This was reported by the BEMS in February 1996 (Ref. 24). His research work indicates that mechanical deformation of the vascular wall at a frequency of 1HZ is largely responsible for vascular hypertrophy and an inflammatory response which leads to hypertension and arteriosclerosis. Physicians at Stanford (Calif) University Medical Center (415-725-5374) have further verified Dr. Taylor's work by conducting studies which suggested that wrapping arteries in waterproof Gore-tex may prevent plaque formation or atherosclerosis, even when the arteries are severely constricted. These findings may mean that mechanical/ physical forces on arteries are as important as metabolic factors like cholesterol consumption (R & D Magazine, Feb. 1997) (Ref. 24 & 25). Public Service Electric and Gas Company is deliberately operating their experimental 13.2KV, 50Megawatt powerline in front of the author's house at 1HZ harmonic frequency energy level which is thus known to cause hypertension, arteriosclerosis, insomnia, electric noise, zapping, erythromelalgia, etc.

The nation is also reported to be suffering from an epidemic of Diabetes and Heart Disease caused by Iron Overload in the human body by Cheryl Banks on NBC TV 10 News Program of 14 March 1996 (Ref. 26).

REFERENCE 28 BOOM BOX (Continued)

Up from Waterbeds

In Woody Allen's futuristic 1973 film Sleeper, the hapless hero steps into a box in his living room, clicks the "on" button, and emerges a few moments later tussled and smiling. The name of this 22nd-century laborsaving machine: the orgasmatron.

John Alton, 43, a former rock music roadie and audio specialist for the U.S. Army Corps of Engineers, may have turned Allen's fantasy into reality.

Alton has invented what he calls the Interactive Bass Speaker, a high-powered, high-priced subwoofer that uses a sound chamber filled with water--28 gallons in its largest form--to reproduce the ultra-low frequencies that often get passed over in dry speaker systems. He developed the system when he was laid up with a herniated disc and discovered that when he leaned against a speaker and played deep bass notes, his back felt better. He put four large subwoofers beneath a water bed mattress. He was on his feet in six weeks.

Because the body is made up largely of water, this water-based system--even when located across the room--can convey vibrations so low they are not heard, but felt, creating shock waves that resonate in water-based mass. Various frequencies can be used to affect different parts of the body, depending on their muscle masses and bone formations. It was by tweaking the system that Alton discovered it could induce orgasms--or so he claims.

An Alton system is now in operation in a hotel room in Virginia Beach, Va. where it is hooked up to a water bed and programmed with five disks--each affecting separate areas of the body.

Alton has a patent on the system and has installed self-contained versions of the subwoofer in 28 theaters around the country. He is now applying to Lucasfilm's THX division for certification.

Weird? "If a styrofoam box with two bananas and a strawberry made the right sound, we'd certify it," says THX's Anthony Grimani. "Psychoacoustics is not a predictable field."-R.F.I.

TABLE IV

Too-Strong Medicine

If the University of Toronto study is right, bad reactions to prescription drugs were the U.S.'s fourth leading killer in 1994.

	1994 DEATHS
1 Heart disease	734,000
2 Cancer	538,300
3 Stroke	154,350
4 Adverse drug reactions	106,000
5 Chronic obstructive lung disease	101,870
6 Accidents	90,140
7 Pneumonia/influenza	82,000
8 Diabetes	55,390
9 HIV/AIDS	41,930
10 Suicide	32,410

TABLE IV LISTS PRESCRIPTION DRUGS AS THE FOURTH LEADING KILLER IN THE U.S.A. IN 1994. (page 18) (REF33)

THE BOOM BOX (PAGE 24) (REF 28)

Because the body is made up largely of water, it is sensitive to both electric and acoustic energy at low inaudible frequencies which can be felt by the body. Various frequencies affect different parts of the body depending upon their muscle masses, bone formation and inductive impedance. Consequently, operation of a powerline system or an acoustic system (powerlines also produce acoustic noise) at various absorbed energy and impedance levels causes disease in the various parts of the body. In fact both medical doctors and audio specialists use both (REF28) electric systems and low frequency acoustic systems to induce orgasms and to heal herniated discs in the spine. The automotive industry has also been utilizing this knowledge to make automobiles more comfortable (Ford Motor Co.). Thus, powerline radiation is the long sought cause of Peyronies Disease, Erectile Dysfunction, and SILENT HEART ATTACK because of nerve damage to the autonomic nervous system (REF. 44)VEINS AND ARTERIES. The use of rubber (which is a high molecular weight compound) in t gloves, and its adverse interaction with environmental powerline radiation may be an important cause of the terrible latex allergy present in some people. The latex would be an especially hazardous material if small particles of latex (rubber) managed to enter and lodge in the lung. The lungs in their natural state are especially vulnerable to powerline radiation as can be seen from Table I, Energy No. 24 and 19.

AUTHOR'S ATTEMPTS TO SHIELD HIMSELF

Figure 7 shows the Transmission Line Energy versus Total Absorbed Energy for various designs of Powerlines at 27μG which was obtained using the Author's energy measurements and data presented in the Ref. 29 report. This Figure 7 also shows the minimum absorbed energy locus for human beings which occurs at a wave impedance of Z_W =177 ohms and three cancer data points obtained from Ref. 16. This minimum absorbed energy locus was obtained from three troughs of all three voltage curves shown in Figure 5 and the three cancer data points from Ref. 16. Since 1978 the author has attempted to shield himself from the harmful, debilitating, disturbing effects of the powerline radiation in his house by using shielding which included the construction of a shielded shelter around his bed. This shelter is constructed of wood 2x3's, plywood and various composites layers of shielding materials such as tin, steel, aluminum and lead. The bed has a foam rubber mattress. This shielded shelter is needed by the author to try to reduce the electromagnetic radiation sufficiently to permit sleep. Data measurements were made by the author inside the shelter and outside the shelter. Figure 7 shows that the shielding reduced the absorbed energy level to almost the NRC Cancer Energy Limit. However, Insomnia and erythromelalgia still occurred and the Wave Impedance, Transmission Line Energy, Magnetic Flux Density and Volt all exceed the minimum energy locus for Human Beings which occurs at Z_W = 177 ohms. Thus, Figure 8 shows that the PSE&G Co. experimental 13.2KV, 50 megawatt power line is clearly improperly, designed, operated, controlled and located *entirely too close to human beings. (The authors bed is located 40 M from the Transmission Line).* The author's house is located 30M from the Transmission Line. The data points shown in figure 9 were obtained in the author's bedroom and demonstrate that the Transmission Line Energy far exceeds the Design Transmission Line Energy as determined using REF. 29.

SLEEP DISORDERS (Page 28) (REF 36)

There are 84 sleep diagnosed disorders among 70 million people in the U.S.A. alone. Twenty million of these people suffer from sleep apnea which has been the most studied sleep disorder in Sleep Disorder Clinics throughout the country. Sleep apnea accounts for $42M in hospital bills in the U.S.A. By 2000 A.D. the diagnosis and treatment of sleep apnea alone could reach $60B. (Ref. 30). The remaining 50 million sufferers of sleep disorders undoubtedly include Powerline Radiation Induced INSOMNIA which appears to have remained undiagnosed except by the efforts of this author. However, some of the terrible health hazards of environment powerline radiation have been recognized and researched in Sweden by the FEB (Ref. 31).

In addition, it was recently reported in REF. 36 that brain frequencies of zero to 12HZ occur during restful sleep. Hence, this requires wave impoedance, Z, less than one ohm to prevent insomnia.

BULLETIN

REFERENCE 22, R&D Magazine - February 1997

Technique for faster welds A new form of welding that uses highly reactive metallic film for making quick repairs has been developed at Johns Hopkins Univ., Baltimore (410-516-7907). The weld is accomplished by applying a match flame or 9-V battery spark to the foil, which has alternating rows of reactive metals 50 to 100 atoms deep. A brief but powerful exothermic reaction results. Bonding occurs at the surfaces--without damage to the rest of the material.

Instrument group holds elections Maurice "Skipp" Knapp, president of Mettler-Toledo, has been named chairman of the Analytical Instrument Assn., Alexandria, Va. Also elected were Douglas Berthiaume, president and CEO of Waters Corp., as vice chairman and chairman-elect; and the association's 12-member board.

Virtual objects in the round A young Mountain View, Calif., company is at work on laser creation of 3-D virtual objects you can walk around, view from any angle, and share with a group--all without benefit of VR eyewear. Though its current imagery is no bigger than 1.5 cm^3, 3D Technology Labs (415-964-4410) expects to achieve images in the 30-cm^3 range within the next three or four years.

Groupe Schneider to boost U.S. efforts Paris-based Groupe Schneider will increase R&D efforts in North America and Asia to reach about 40% of the multinational's total R&D spending by 2000. In an exclusive interview with R&D Magazine, Schneider's chairman and CEO, Didier Pineau-Valencienne, said the company, which markets systems that distribute electrical power and control industrial processes, would increase efforts and spending in the U.S., where it owns Square D Co., Palatine, Ill. (847-397-2600).

Microchip brings world into view A team of researchers from North Carolina State Univ. in Raleigh (919-515-7347) and two other schools is working on an implantable artificial-retina component chip that could restore sight to people with retinitis pigmentosa and macular degeneration. The chip, embedded with photosensor cells and electrodes, converts light and images into electric impulses that stimulate ganglia behind the retina, partially recreating sight.

Supercomputer benefits from new platform Researchers at Virginia Tech, Blacksburg (540-231-5646), have developed a supercomputer capable of processing complex data in real time faster and more cheaply than current technology. The new hardware has a computer platform that uses Wormhold Run-time Reconfiguration, which allows data streams to be programmed for self-navigation.

Eliminating unwanted genes Researchers at Purdue Univ., West Lafayette, Ind. (317-494-2096), have developed a technique for getting rid of unwanted genes from genetic transfers in crops. The excision method uses a yeast gene that produces an enzyme forcing a chromosomal break that results in gene disposal without chromosomal damage.

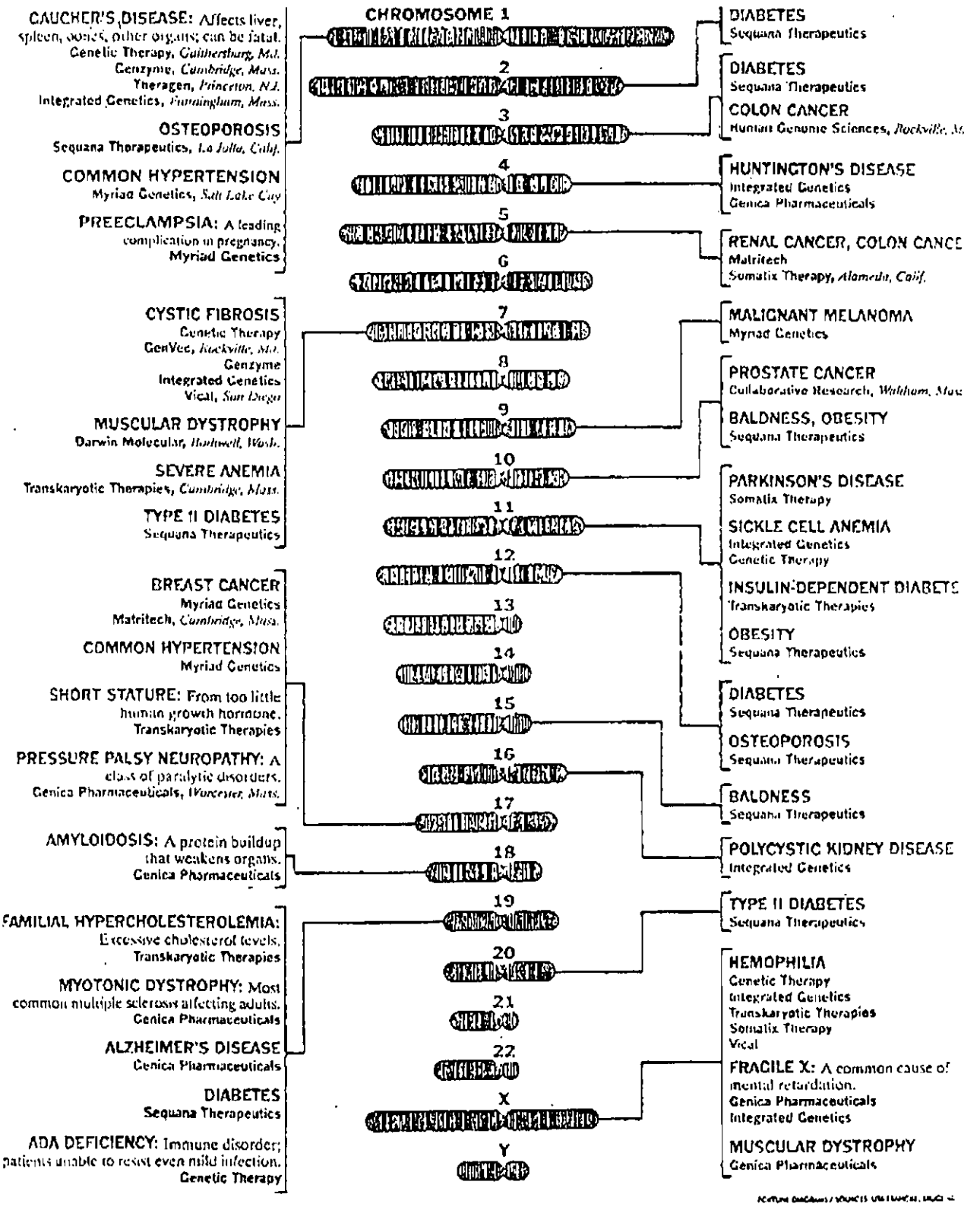
Countering hardened arteries Physicians at Stanford (Calif.) Univ. Medical Center (415-725-5374) have conducted studies suggesting that wrapping arteries in waterproof Gore-tex may prevent plaque formation, or atherosclerosis, even when the arteries are severely constricted. The findings may mean that mechanical/physical forces on arteries are as important as metabolic factors like cholesterol consumption.

SEMI warns against complacency As semiconductor manufacturers move to chip production on 300-mm silicon wafers--a retooling effort likely to cost in the billions--government agencies must reverse a tendency to retreat from R&D partnerships, according to a recent white paper from the trade association Semiconductor Equipment and Materials Intl., Mountain View, Calif. For a copy, call 415-940-7988.

They're in the money Recent engineering grads are earning more than their counterparts in science fields, according to the National Science Foundation's biennial National Survey of Recent College Graduates (see graph at left for a salary comparison). For more information, call the NSF at 703-306-1773.

Correction
The NSF's Engineering Research Center for Integrated Media Systems mentioned in the November Bulletin is located at the Univ. of Southern California, Los Angeles.

TABLE V
STAKED CLAIMS ON GENES



18.

TABLE V LISTS CHROMOSOMES AND THEIR DESEASE CAUSING DEFECTS

POWERLINE SYSTEMS DESIGN POINTS

The following Table VI shows that properly matched powerline systems can be designed to operate at the safe NRC Cancer Poiwer Limit of 286HP and at 6000HP by the use of various wire-line configurations. The required distance

TABLE VI -HIGH HP SYSTEM DESIGN POINTS

HORSEPOWER HIGH	AVOIDANCE DISTANCE r_m, METERS	IMPEDANCE OHMS	LINE VOLTAGE, E_C	MAGNETIC FLUX DENSITY, H_ϕ MICROGAUSS	WIRE-LINE CONGIGUR-ATION
NRC CANCER LIMIT 286.	56.2	Z_W, Z_C, Z_O 2.66	762.	14.1	RECTANGULAR FOUR-WIRE LINE.
6000.	83.2	3.94	4167.	34.67	
100.	30.0	1.42	1733.0	14.1	RECTANGULAR FIVE-WIRE LINE.
286.	30.	4.42	13,250.	10.0max.	THIN-WIRE CIRCULAR LINE.

* REF. 41

to avoid radiation, r_m, can be further reduced by reducing the power and/or by using shielded aerial cables and shielded underground cables. The Author's house is located 30 meters from the power lines.

NOTE: 286 HP is adequate power for 286 residences in a residential zone, or for 143 two-HP residences in a residential zone. Hence, proper zoning ordinances are extremely important to ensure a safe low radiation environment in a community. The avoidance distance, r_m, and the environmental safety can be further improved by limiting the number of two=HP residences in a residential zone to 71.

There are forty single-family residences located in the River-side Residential tract where this author resides. Consequently, there is no reason whatsoever for P.S.E.&Gas Co. to be experimenting with a 13.2KV, 50 Megawatt powerline in this Residential Neighborhood since 1978 where only 100HP is required for a land area of 31.ACRES

This author did not experience any physical or mental problems due to electromagnetic radiation from powerlines in his house prior to 1978 when the powerline voltage was a nominal 4000 VOLTS at a distance of 30 meters.

The High HP System Design Points Voltages shown in Table VI are also consistent with the line voltage range of 2300-4160 VOLTS shown for a typical residential power-distribution network (Figure 1.17-Simplified Power-Distribution System) *in REF.* 32. *Therefore, this rreport proves that* Powerline-Distribution Networks can be properly designed and controlled to operate within the NRC Cancer Energy Limit to protect the PUBLIC HEALTH, in accordance with REF 41.

TABLE 7

LOW FREQUENCY EFFECTS ON THE HEALTH OF HUMAN BEINGS

REF. (36).

THE HUMAN BRAIN IS MEASURED BY THE FOLLOWING BRAIN FREQUENCIES:

DELTA	4HZ	SLEEP
THETA	4 TO 8 HZ	RELAXED
ALPHA	8 TO 13 HZ	LESS RELAXED, TIRED, DEPRESSION, ADHD, MILD DISSOCIATIVE DISORDER
BETA	12 TO 15 AND 19 HZ	ALERT NEED VALIUM TO UNWIND OR ALCOHOL
HIGH BETA	19 TO 35 HZ AND GREATER	EXCITED HYPERSTATE ANXIETY ATTACKS *HYPER VIGILANCE, STRESS*

		REF.
33HZ (115-125Lb) >33HZ<125Lb	CLITORIL EXCITATION	(PLAYBOY MAGAZINE, MARCH 2005, PAGE 51)

REF 45 clearly shows the low frequencies contained in environmental ELF as determined by SPECTRAL ANALYSIS (*4HZ, 16HZ, 50HZ AND 150HZ*). *THE MEASURED MAGNETIC FIELDS FAR EXCEED THE RADIATION* LIMITS OF HUMAN BEINGS AND RANGE FROM, 15000μG at 4HZ, 10000μG at 16HZ, 4500μG at 50HZ and 1500μG at 150HZ.

THEREFORE, THESE FACTS CLEARLY INDICATE THE HARMFUL NATURE OF POWERLINE RADIATION TO THE BRAIN AND TO THE HEALTH OF HUMAN BEINGS.

THE AUTHORS SLEEP EXPERIENCES INDICATE THAT INSOMNIA OCCURS AT POWERLINE FREQUENCIES EQUAL TO OR GREATER THAN 1.0HZ BECAUSE THESE FREQUENCIES ARE DANGEROUS *EXTERNAL FORCING FUNCTIONS ON THE HUMAN HEART. IN FACT IT CAN BE ~~CALCULATED FROM THE~~* THRESHOLD OF PERCEPTION (EOM) SHOWN IN FIGURE 6a, PAGE 36, THAT THE POWERLINE FREQUENCY MUST BE LESS THAN 0.86HZ FOR RESTFUL SLEEP AT 1.5 MICROGAUSS. IN ADDITION DANGEROUS ZAPS OCCUR AT 4.0HZ.

REFERENCE 28

Digital video is only as good as it sounds.
Now you can listen to it with your gut.

BOOM BOX

By Robert La Franco

REFERENCE 28 BOOM BOX (Continued)

DTS William Neighbors and our top-line speakers. Hold on to your teacups. Home entertainment never sounded like this before.

"WAIT UNTIL YOU FEEL THIS," says William Neighbors, as he loads a digital video disk version of the film Apollo 13 *into $7,000 worth of electronics and flicks the power button. Flame and smoke from the movie's famous moon rocket hit* the 50-inch screen, and a wall of sound issues from six large speakers scattered through Neighbors' living-room-size office. At liftoff, the pulsing bursts rumble shirts and shake rib cages.

"This is the greatest advancement in sound since the change from mono to stereo," gloats Neighbors, 37, president of Westlake Village, Calif.-based DTS. Founded in 1993 by Steven Spielberg and sound scientist Terry Beard, with financial help from Universal Studios, DTS aims to take on Dolby Laboratories (FORBES, Aug. 3, 1992) in the market for high fidelity sound.

Over the past four years the souped-up sound offered by Dolby, DTS and Sony's Cinema Products division has sparked a building spree among movie distributors, who must upgrade their theaters or die (FORBES, Feb. 24). The sound scientists, for their part, don't have to make money from sales to theaters, since that market provides a handy showcase for brands whose payoff comes in sales of home stereos. Unlike Sony, DTS and Dolby aren't in the business of manufacturing electronic gear. Rather, they design circuits that can reproduce sound faithfully and then license the designs to manufacturers.

"A few years ago, theaters only had mono sound or regular Dolby stereo available to them," says Anthony *Grimani, director of consumer technologies for THX, George Lucas' Lucas-film Ltd.'s sound division.* "And that was like putting AM radio into the expensive sound systems we require."

Just how bad was that signal? The analog mono sound systems common in theaters through much of the 1980s could produce undistorted sounds no louder than 90 decibels in the center of the theater. That's only as loud as a car horn. The old systems could handle a range of frequencies no broader than 6,000 hertz, hardly a third of the human ear's natural range of 20 to 20,000 hertz.

Dolby advanced the ball with its Dolby Stereo format (c. 1975) and later the SR format, both analog reproduction formats with four channels of sound. It raised the stakes again in 1992, when Warner Bros. released Batman in six-channel Dolby Digital.

Only now, says Dolby, do soundtracks serve the full range of human hearing (and more--see box). Last year Sony upped even further by introducing an eight-channel version of its Sony Dynamic Digital Sound for theaters. Digital technology makes it possible to squeeze four or more channels of sound onto a movie soundtrack or a home DVD or CD.

So with the rerelease of the Lucas Star Wars trilogy, Chewbacca's moan will rumble in your chest, the concussion *of the exploding Death Star will resonate through your body and the intergalactic dogfight scenes will pepper you with* shooting sounds coming at you in three dimensions.

But while it is easy to justify spending $7 for a movie, how many thousands of dollars do you need to spend to reproduce the experience at home? "It depends how far out on the lunatic fringe you are," says Harry Somerfield, cofounder of E/Town, a consumer electronics Web site. "The Sultan of Brunei just spent more than $1 million on his system."

The more budget-conscious consumer can get a six-channel receiver with Dolby enhancement and six speakers for $2,500 and up. DTS has licensed products coming out from some 20 manufacturers, such as Sherwood, which sells a $1,300 receiver able to reproduce the DTS format.

Once you have the equipment, you'll still need video and music recordings that take full advantage of the new technology. By this month, movies with DTS and the new Dolby surround-sound will be available on DVD disks. DTS has also offered music CDs on the new format. Within a year or so, TV broadcasters, cable networks and satellite providers will also offer video with enhanced sound.

"For a lot of people this equipment is still just bragging rights," says Marc Finer, a consumer electronics consultant in Pittsburgh. "But without great sound, the great picture is only half complete."

THE CASE OF DR. SCHREBER VS. DR. FREUD

Dr. DAniel Paul Schreber was a GErman Judge in Dresden, Germany. IN his memoirs(REF.37) he wrote that he suffered from INSOMNIA, and had great sensitivity to light, rays, noise and was affected by waves in the ether(environment). He had two bouts of illness in 1884 and from 1893-1891. These symptoms are all caused by electromagnetic radiation from powerlines and other causes. Since there were high voltage power-lines in operation in German at that time it is now known that the power lines were certainly causing a part of his "Paranoia" and he may have been wrongfully diagnosed as Paranoid by Sigmund Freud(Ref. 38,39, and 40). Dr Schreber was never a patient of Sigmund Freud who wrote his Case Study of Dr. Schreber by referring to Dr. Schreber's published MEMOIRES OF A NEUROTIC, 1903.

ELF MAGNETIC FIELDS IN EXTREMADURA (SPAIN) (Table 7)

Ref. 45 clearly shows the low frequencies contained in environmental elf as determined by spectral analysis. (4HZ, 16HZ, 50HZ and 150HZ.) The measured magentic fields far exceed the radiation limits of human beings and range from 4500μG (50HZ) to 1500μG at 150HZ.

TERRIBLE DISEASES AND RADIATION EFFECTS ON DNA

Ref. 46 clearly indicates the terrible diseases which result from the terrible radiation effects on DNA; such as wrinkles, hairloss, alzheimers, colds, flu, pain, osteoporosis, etc. THESE DISEASES MAY BE TREATED WITH A PILL.

REFERENCE 36

Psychology Today-May/June, 1998 Page 43.
WIRED FOR Miracles?

Epilepsy. ADD. Depression. PMS. Insomnia. What do all these conditions have in common? They're being treated with a new form of high-tech brain biofeedback. So open your radical science horizons. Here, a report on the cresting edge of the brainwave. By Jim Robbins

NOTE: 1. POWERLINE RADIATION IS A CAUSE OF ALL OF THESE CONDITIONS!

2. BRAIN FREQUENCIES DURING RESTFUL SLEEP (0-12HZ) REQUIRE A WAVE IMPEDANCE, Z_W, LESS THAN ONE OHM TO PREVENT INSOMNIA.

WIRED
FOR Miracles?

JAKE'S BIRTH WAS A LONG SHOT. Three months premature, he weighed just a pound, and his early birth took a heavy neurological toll. When he was four, he entered his parents' room one evening, drooling and unable to speak. As they watched, horrified, one side of his body went into seizure and he lost consciousness. Jake's seizures often happened at night, and his parents kept an overnight bag packed for trips to the hospital emergency room, where he received injections of Valium. He often had petit mal seizures during the day. He was also diagnosed with cerebral palsy, which diminished his fine and gross motor skills. His learning disabilities included attention

When I started work on this article, I also started a class of training sessions. The results were surprising. But first, a look at just what neurofeedback is--a potential method for changing what drugs and therapy sometimes can't--and at the window it may provide on the greatest mystery of all, the human brain.

MUSIC of the Brain

Neurofeedback is part hero and part orphan these days. Despite some powerful research that testifies to its impact, it is only peripherally concerned with what has become the hot topic in neuroscience: neurotransmitters. Far less fashionable than Prozac or Paxil, neurofeedback seems to work by intervening in the realm of frequency. Frequency is the rate at which electrical charges move through brain cells. The human brain is measured by four basic frequency ranges. In delta, the sleep state, signals are moving through clusters of neurons very slowly, just 4 cycles per second, or hertz (Hz). *Just above that is theta, around 4 to 8 Hz, a deeply relaxed state. Next is alpha, a slightly less relaxed state, at 8 to 13 Hz.* The most rapid brain waves are beta, and they reflect normal waking consciousness. However, there's a range of beta, from low beta, which is a relaxed but alert state of 12 to 15 Hz, to mid-range beta, around 15 to 19 Hz, up to an excited, hyper state of high-beta--as high as 35 Hz.

Researchers believe that
neurofeedback modulates
levels of arousal in the brain-
which may alleviate the
symptoms of an astonishing
range of disorders.

Even though our measures of frequency (through EEG) are relatively crude, they seem to provide a window into excitability within the brain. Researchers believe that problems crop up when the operating speed of someone's brain is either too low (underarousal) or too high (overarousal). As Othmer puts it, "some people can't find the gas pedal while some people can't take their foot off it." *There is speculation that arousal levels may be a major component in a whole* host of disorders--and their prevalence may be the key to neurofeedback's sometimes miraculous effect. The goal? To stabilize the brain, to render it more robust, so that it does not tip easily into overarousal or underarousal.

REFERENCE 36 (Continued)

Viewing the human mind this way, through the prism of neurofeedback, harkens back to a theory of arousal that was popular in the 1950s. This approach essentially cuts across the spectrum of psychological diagnostic categories with just two physiological measures: stability and arousal. According to this theory, optimal idling speed for the human brain is about 14 Hz. If the brain's major activity is a speed lower than that--8 to 13 Hz--a person can feel tired and might seek stimulation through coffee or stimulating behavior. They might suffer from depression, ADD, and mild dissociative disorder. Overarousal, on the other hand, means a person has trouble unwinding and might seek out several glasses of wine at the end of the day to modulate their arousal level. Or they might need Valium. Anxiety attacks, hypervigilance, stress, and obsessive behavior are all symptoms of overarousal.

HOOKED UP to Happiness

Neurofeedback sessions are surprisingly fun and simple: they're like playing computer games where every move is made by the mind. The technology utilized in neurofeedback, however, is fairly sophisticated, and unit prices can run from $3,000 to $9,000. Brain waves must be mapped and analyzed for deviations from the norm.

If REFERENCE 36 (continued)

there is, for instance, too much theta--which often occurs in brain trauma, as well as in depression--and not enough beta, the practitioner will set parameters for a slightly healthier brain wave map. A session may consist of playing some kind of computer game--in which a smiling Pacman gobbles up enemy blobs or a balloon tries to float up to the sky--while the patients brain waves are continuously monitored. Each time the brain waves find their way into the optimal state set by the practitioner, the patient is rewarded with positive feedback: Pacman eats his enemy or a pleasant tone sounds. After anywhere from five to fifty sessions, the brain seems able to find the optimal state on its own.

One of the ingenious aspects of neurofeedback is that it is perfectly tailored to each individual. Training is always set to be challenging and exciting but not too difficult, so that patients can move slowly and steadily into their optimal brain states.

BIOFEEDBACK'S Bold Beginnings

In the 1960s, neurofeedback was a revolutionary way to look at the mind and its capabilities, and it coincided with other, more dubiously regarded revolutions. Neurofeedback was adopted by people interested in mind expansion, often in the forms of LSD and meditation, and its association with Eastern mystics and parapsychology earned it a crackpot reputation with the mainstream scientific community. But when I actually went and looked at the early research, I was astonished at some of the remarkable studies. One of the crucial pioneers of neurofeedback was Barry Sterman, Ph.D., professor of neurobiology and biobehavioral psychiatry at the UCLA School of Medicine, who was the first to experiment with a kind of beta wave called sensory motor rhythm (SMR), in the 12 to 15 Hz range of beta, and was able to actually treat epilepsy.

Sterman's original work in the 1970s was on cats. Using implants and EEG equipment in a study funded by the National Institutes of Health, he found that cats could be trained to control their brain waves. He then discovered that.....

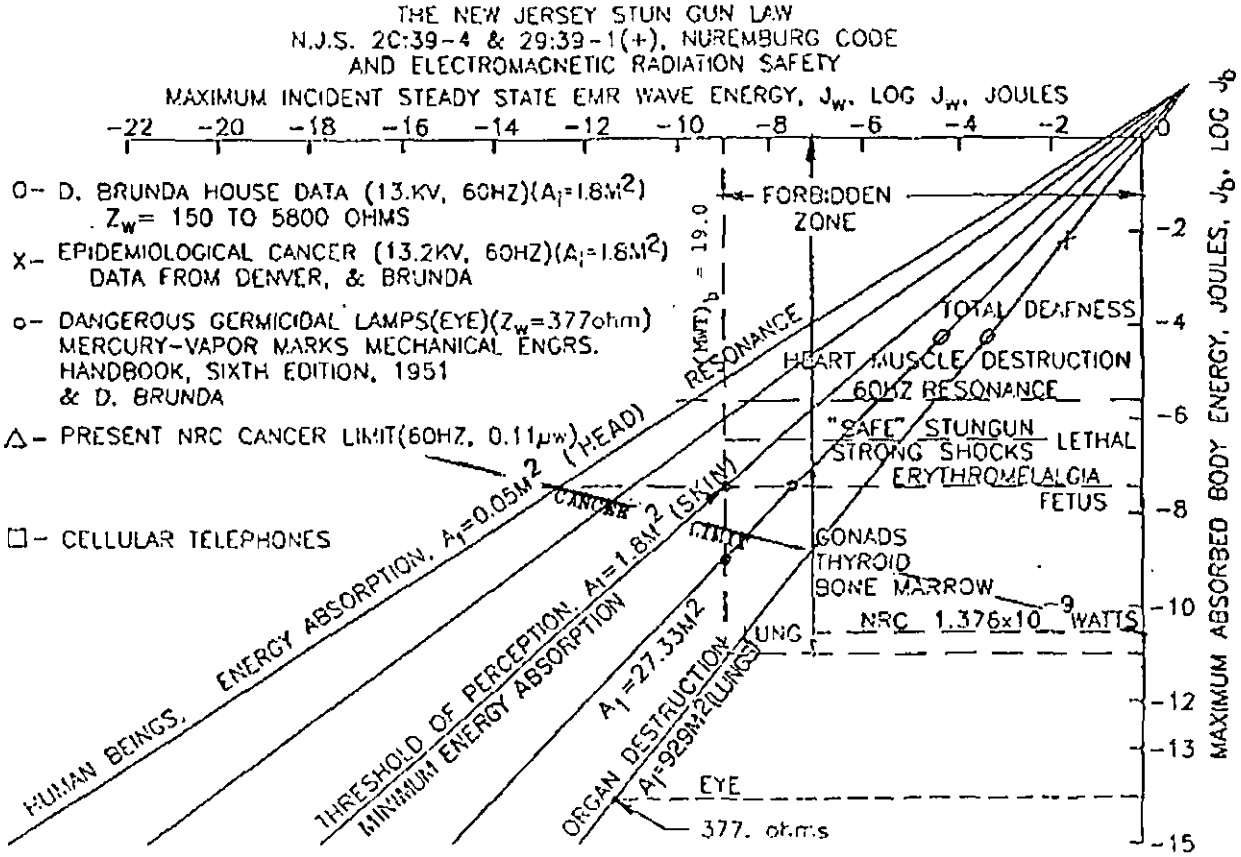
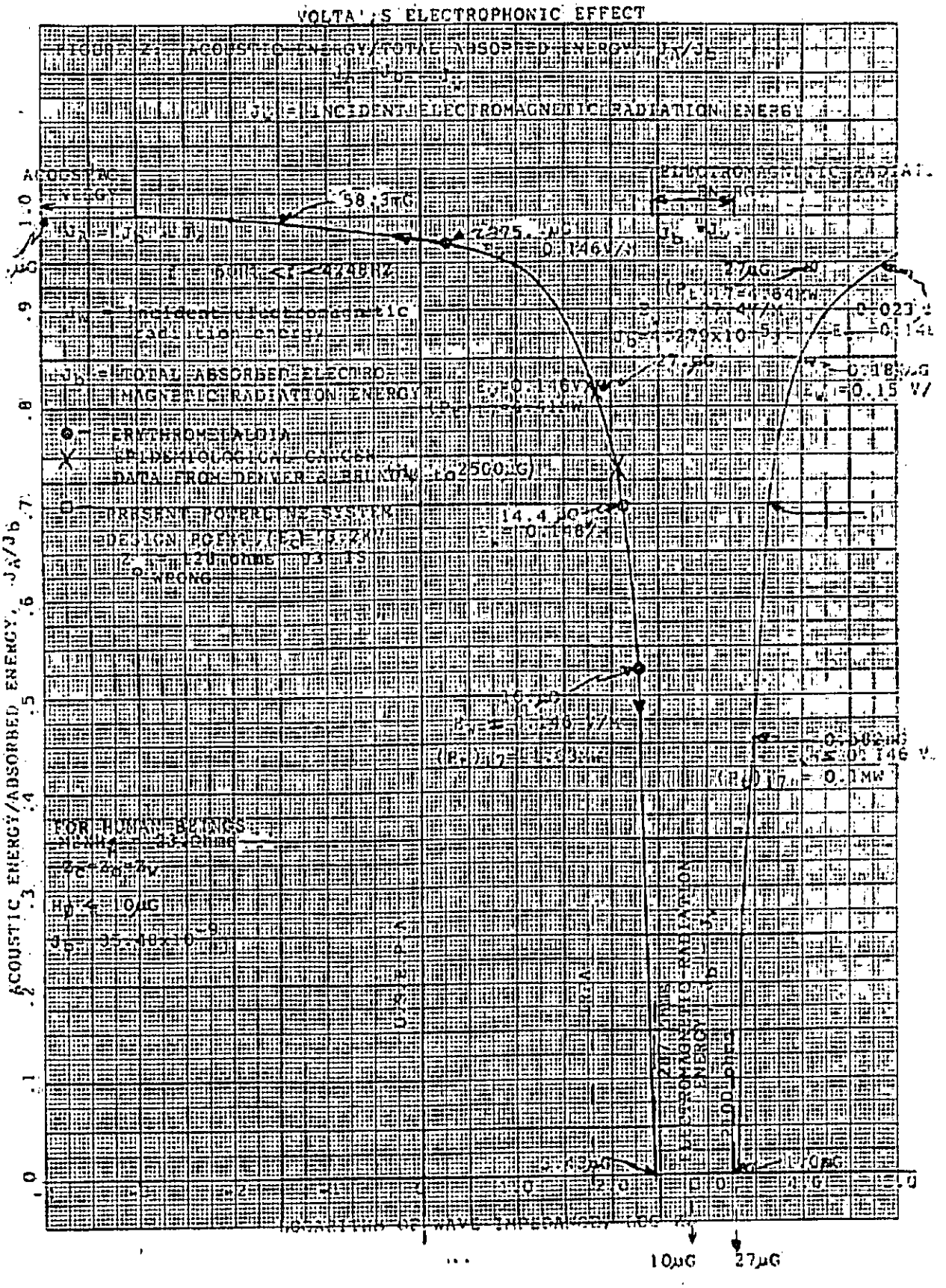
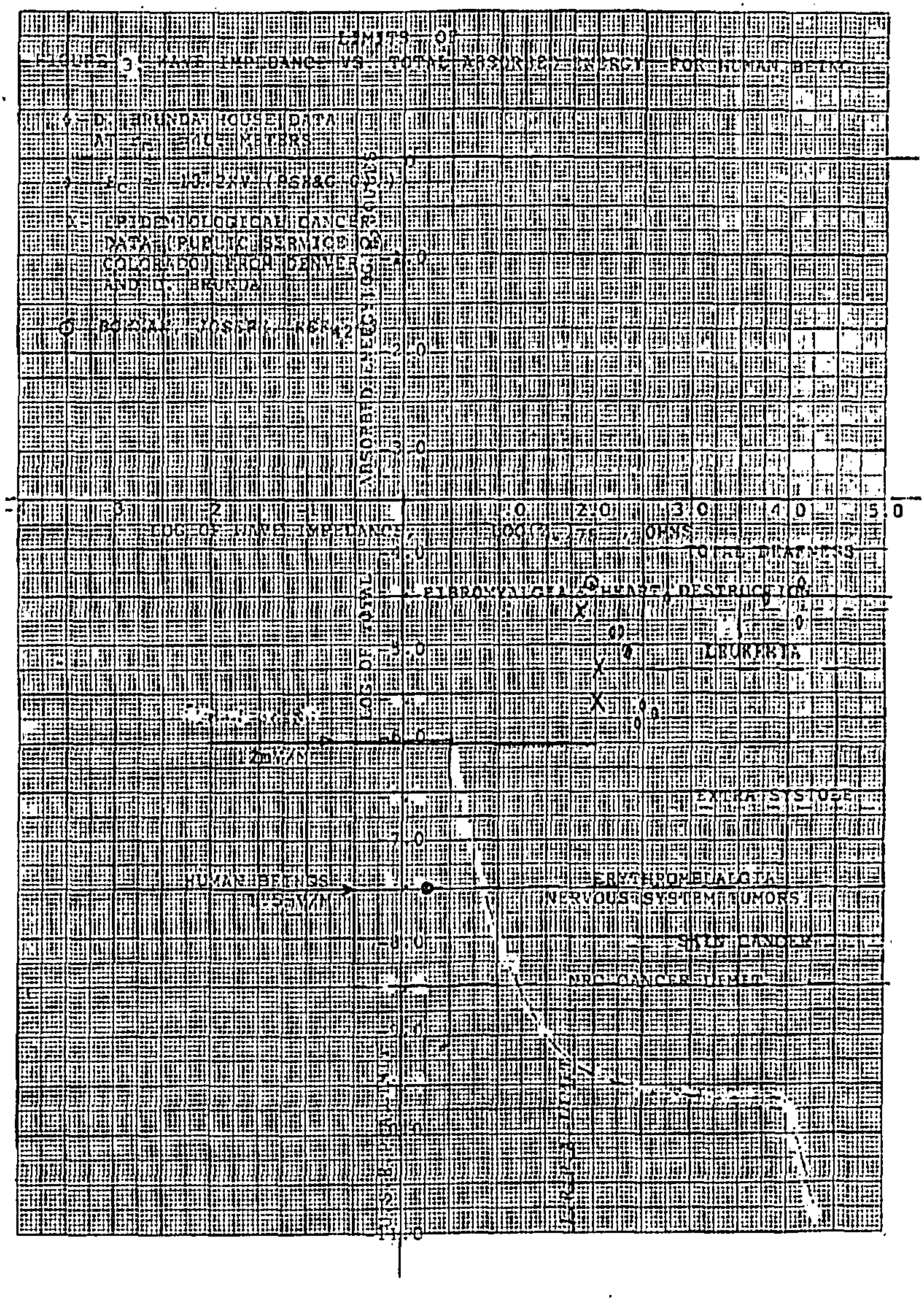
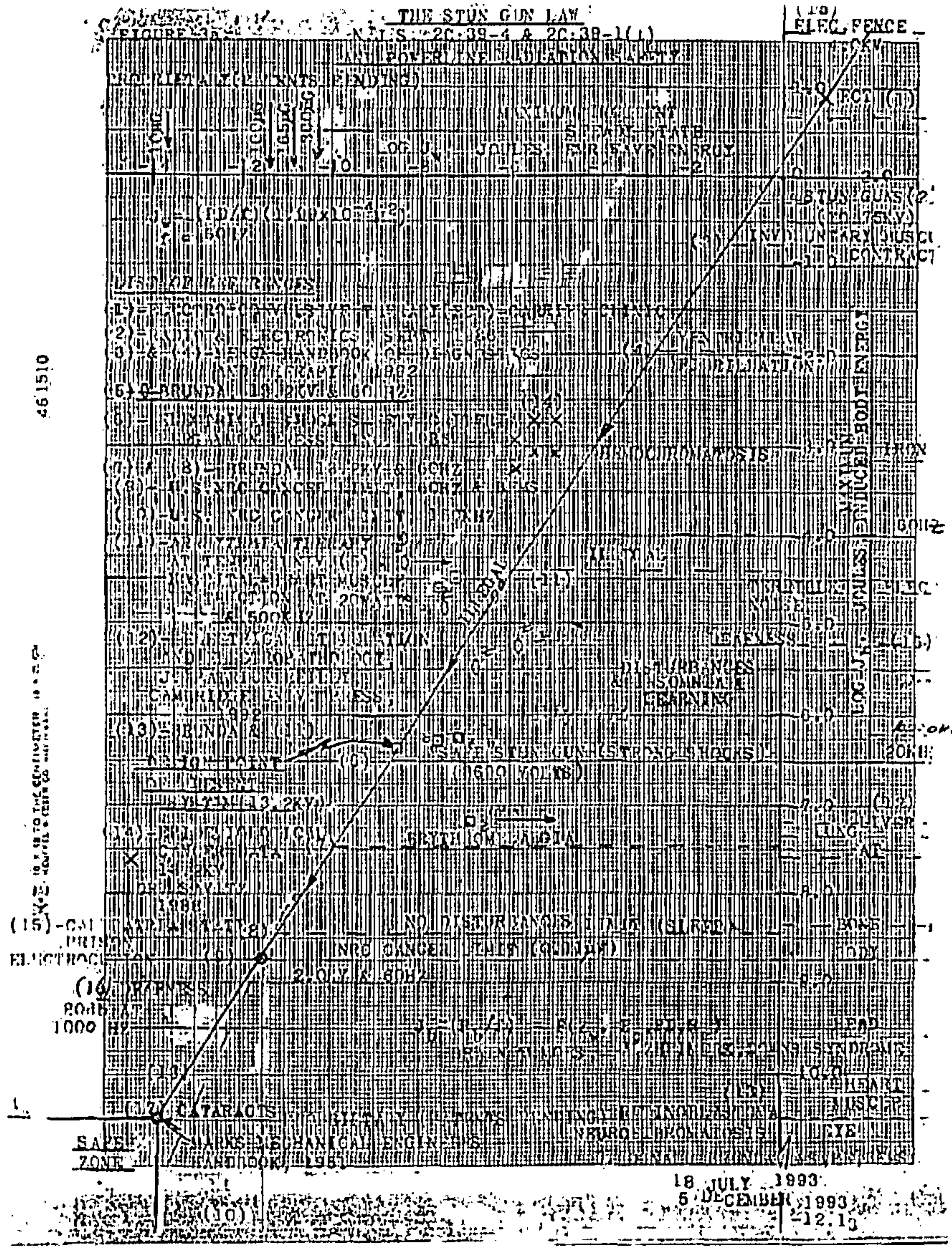


FIGURE 1- INCIDENT WAVE ENERGY VS. TOTAL ABSORBED BODY ENERGY, J_w VS J_b, JOULES

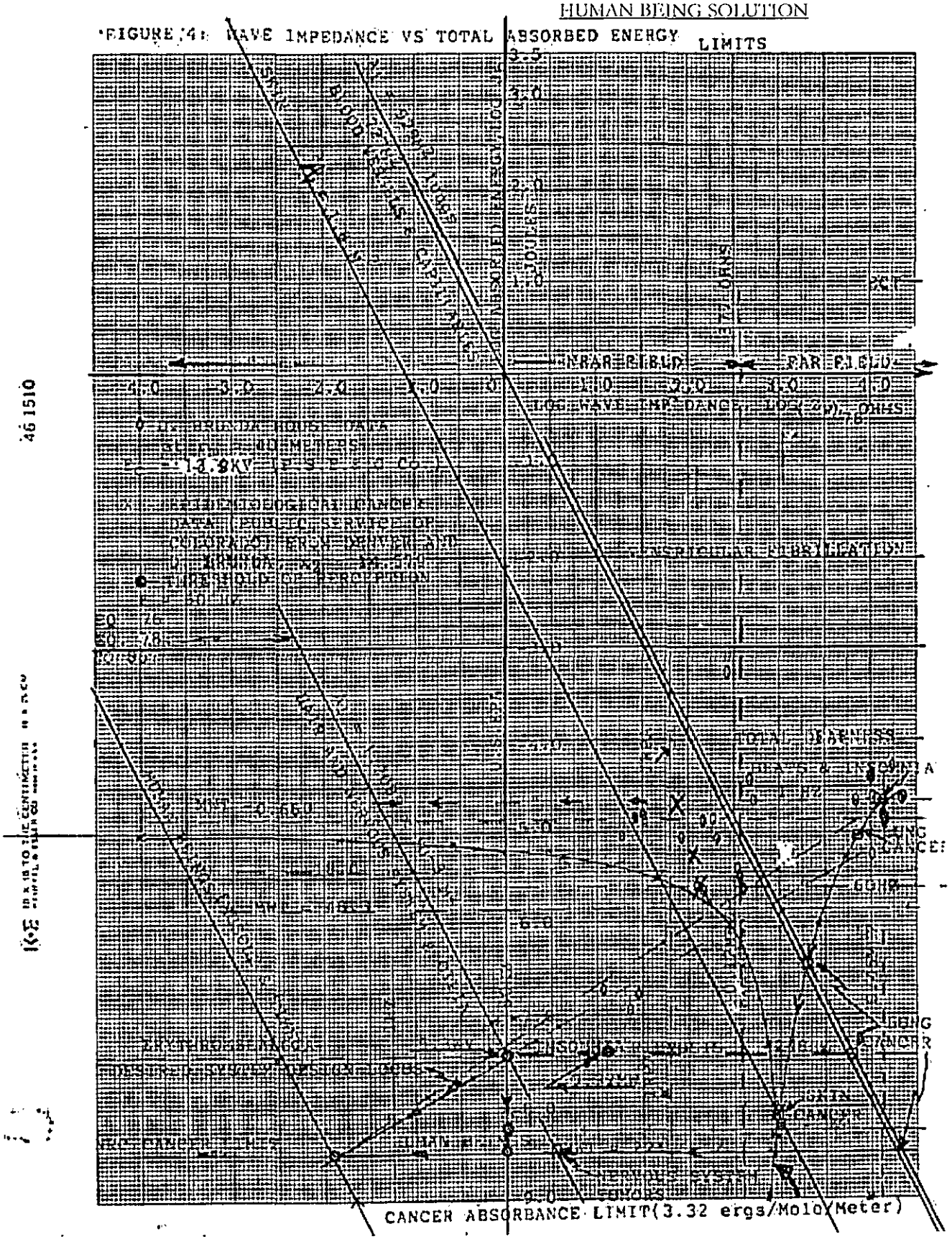

VOLTA'S ELECTROPHONIC EFFECT
FIGURE 2: ACOUSTIC ENERGY/TOTAL ABSORBED ENERGY, JA/Jb
Ja = INCIDENT ELECTROMAGNETIC RADIATION ENERGY
Jb = TOTAL ABSORBED ELECTROMAGNETIC RADIATION ENERGY
ERYTHROMELALGIA
CEREBRAL VASCULAR CANCER
DATA FROM DENVER & BRUSSELS
PRESENT POTOMAC SYSTEM
DESIGN POINT (P) = 6.7KW
FOR HUMAN BEINGS
ACOUSTIC ENERGY/ABSORBED ENERGY, JA/Jb
10μG
27μG



LIMITS OF
FIGURE 3. WAVE IMPEDANCE VS. TOTAL ABSORBED ENERGY FOR HUMAN BEING
LOG OF WAVE IMPEDANCE
OHMS
LOG OF TOTAL ABSORBED ENERGY
FIBROMYALGIA
HEART DESTRUCTION
LEUKEMIA
EXTRA SYSTOLE
HUMAN BEINGS
ERYTHROMELALGIA
NERVOUS SYSTEM TUMORS
SKIN CANCER


THE STUN GUN LAW
ELEC. FENCE
STUN GUNS
CATARACTS
SAFE ZONE
18 JULY 1993
5 DECEMBER 1993

HUMAN BEING SOLUTION



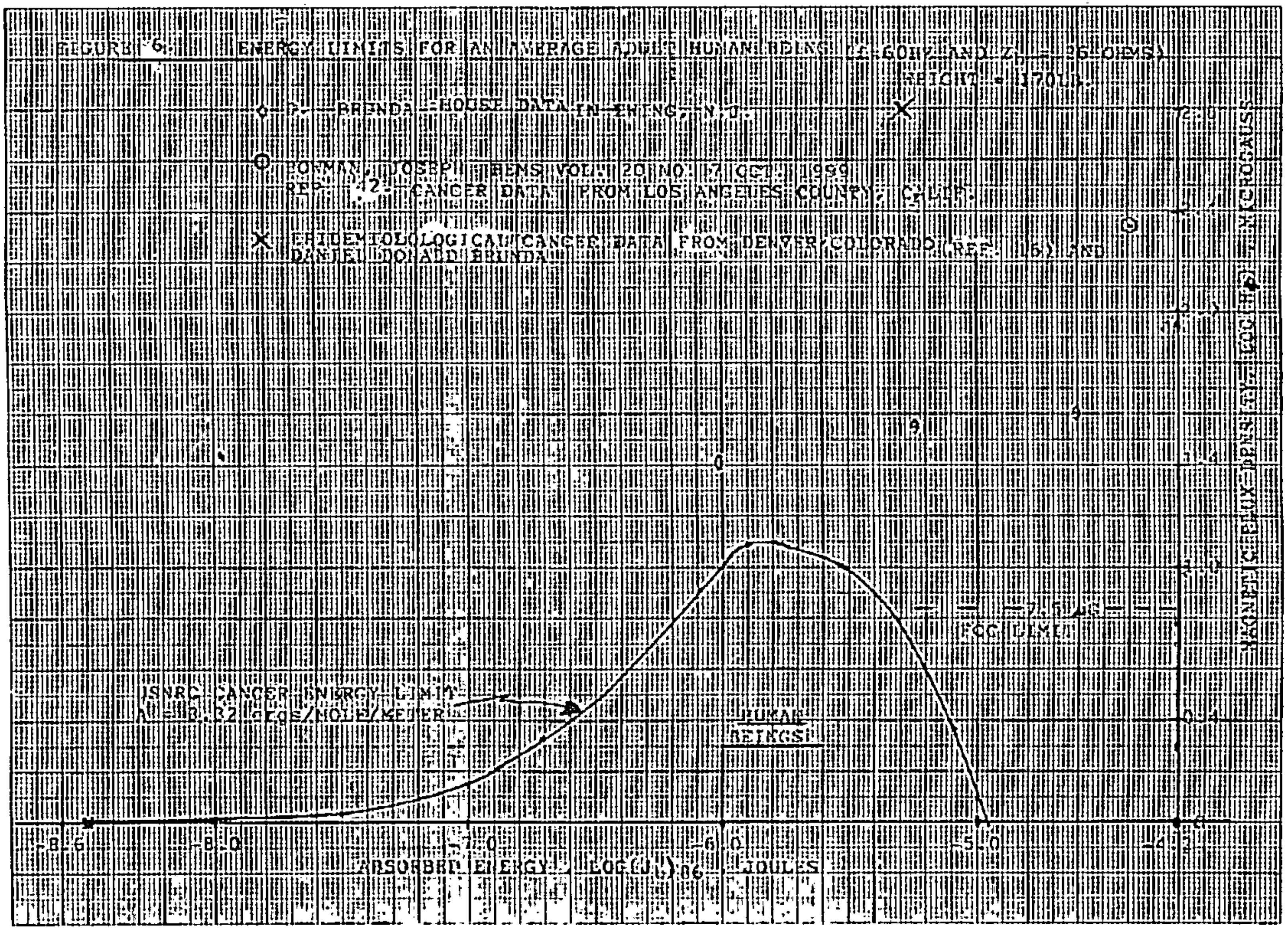
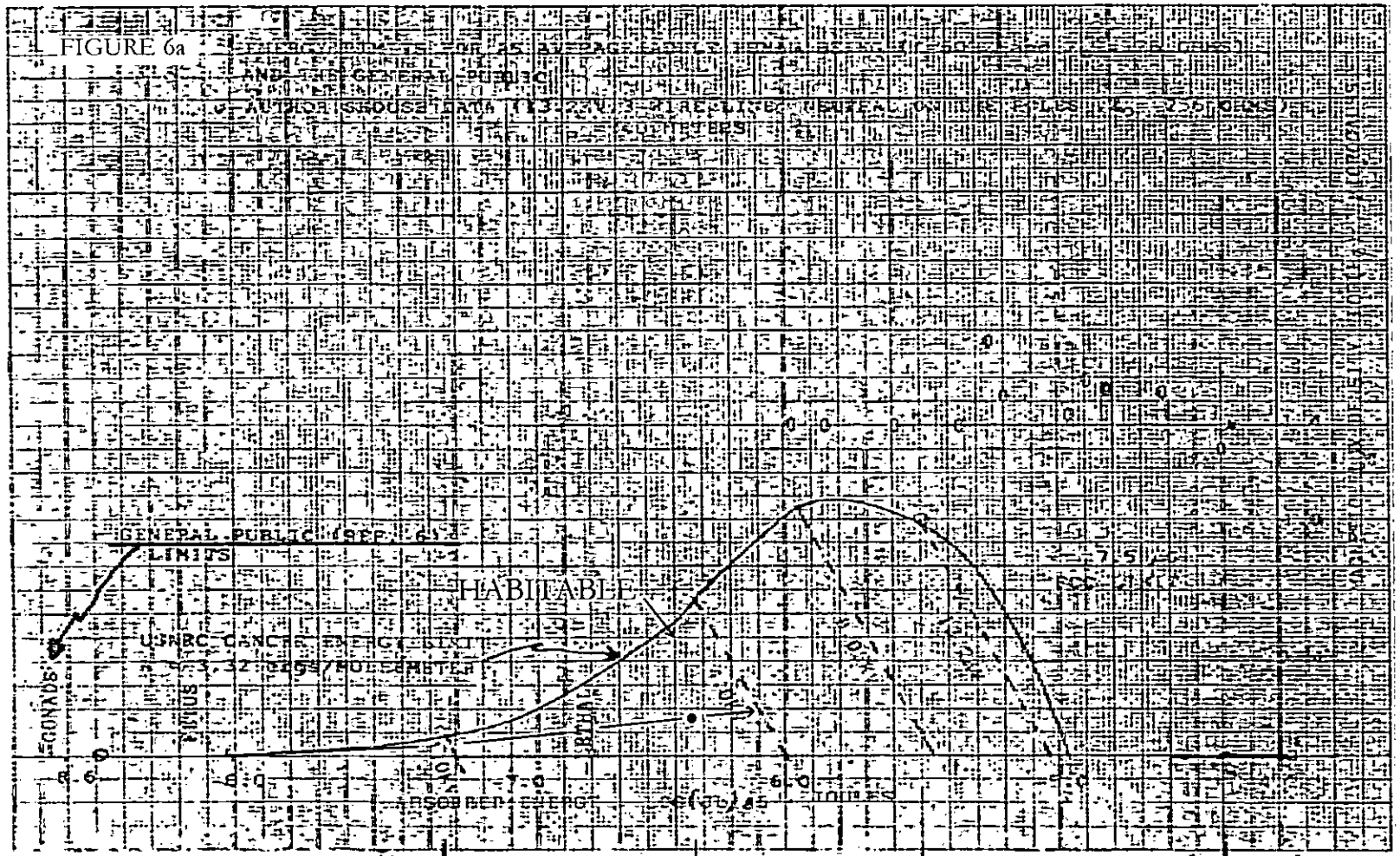


FIGURE 6
ENERGY LIMITS FOR AN AVERAGE ADULT HUMAN BEING
WEIGHT = 170LB.
BRENDA HOUSE DATA
CANCER DATA FROM LOS ANGELES COUNTY, CALIF.
EPIDEMIOLOGICAL CANCER DATA FROM DENVER, COLORADO
USNRC CANCER ENERGY LIMIT
HUMAN BEINGS
LOG LIMIT
-8.0
-7.0
-6.0
-5.0
ABSORBED ENERGY
JOULES

FIGURE 6a



AMPS, INDUCED BODY CURRENT. I_b

UL, EOM & JEOM – • – THRESHOLD OF PERCEPTION (REF. 32, 51 & 52)

K+E 46 1510

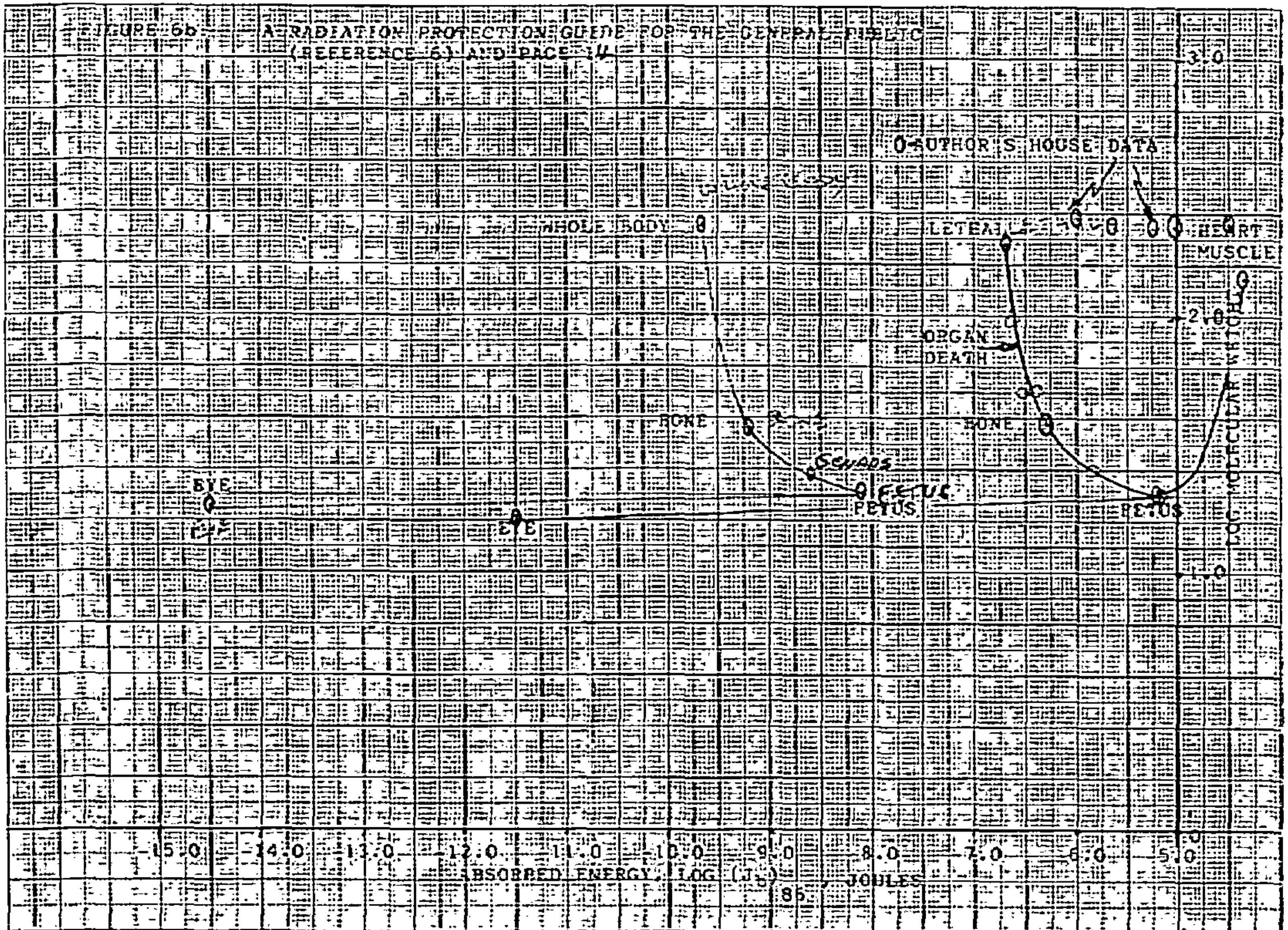


FIGURE 6b — A RADIATION PROTECTION GUIDE FOR THE GENERAL PUBLIC (REFERENCE 6) AND PAGE 14

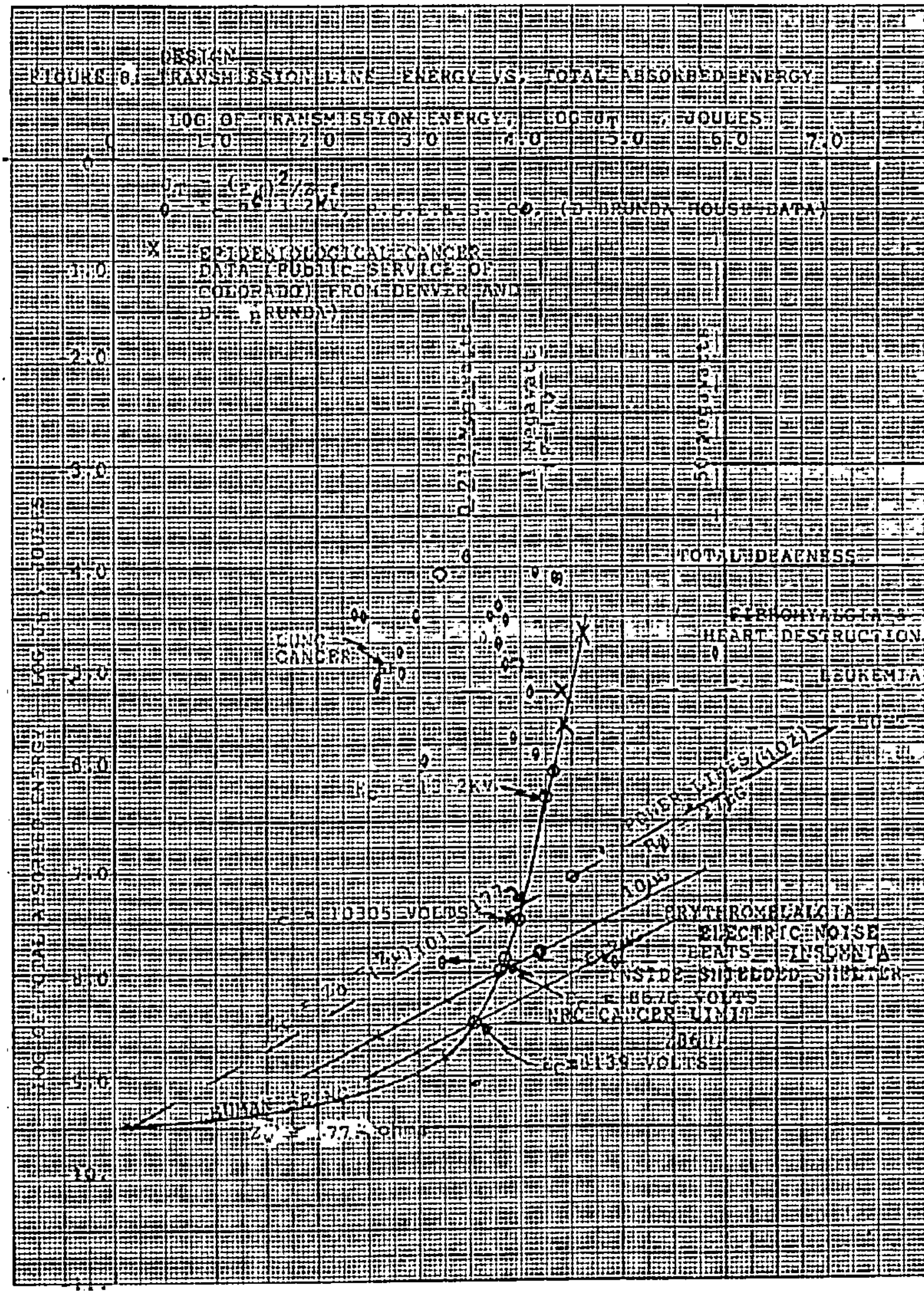

LOG OF TRANSMISSION ENERGY, JOULES
1.0 2.0 3.0 4.0 5.0 6.0 7.0
EPIDEMIOLOGICAL CANCER
DATA (PUBLIC SERVICE OF
COLORADO) FROM DENVER AND
TOTAL DEAFNESS
HEART DESTRUCTION
LEUKEMIA
LUNG
CANCER
ERYTHROMELALGIA
ELECTRIC NOISE
INSIDE SHIELDED SHELTER
NRC CANCER LIMIT
10305 VOLTS
139 VOLTS
LOG OF TOTAL ABSORBED ENERGY

FIGURE 6 TRANSMISSION LINE ENERGY VS. DESIGN TRANSMISSION LINE ENERGY

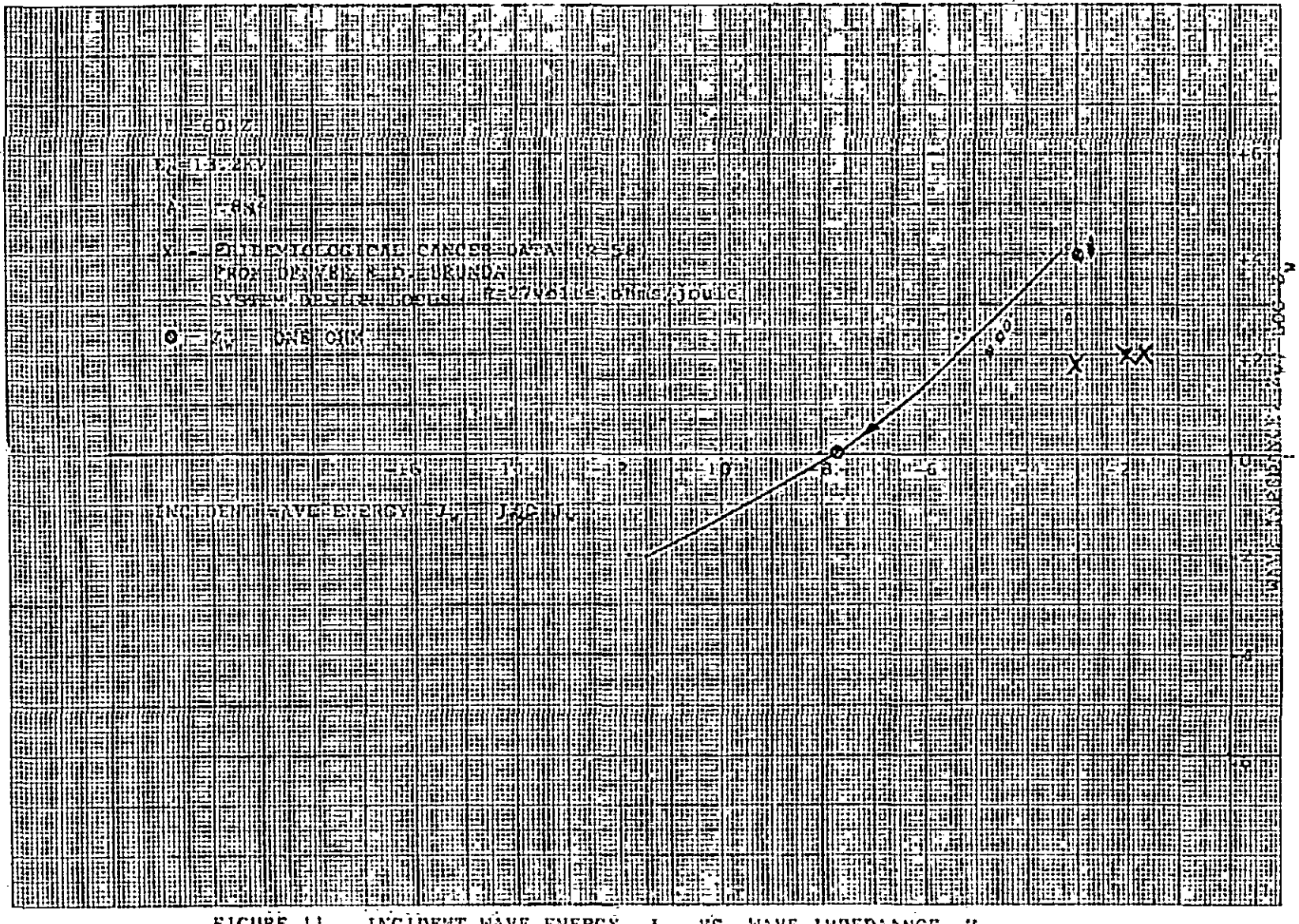
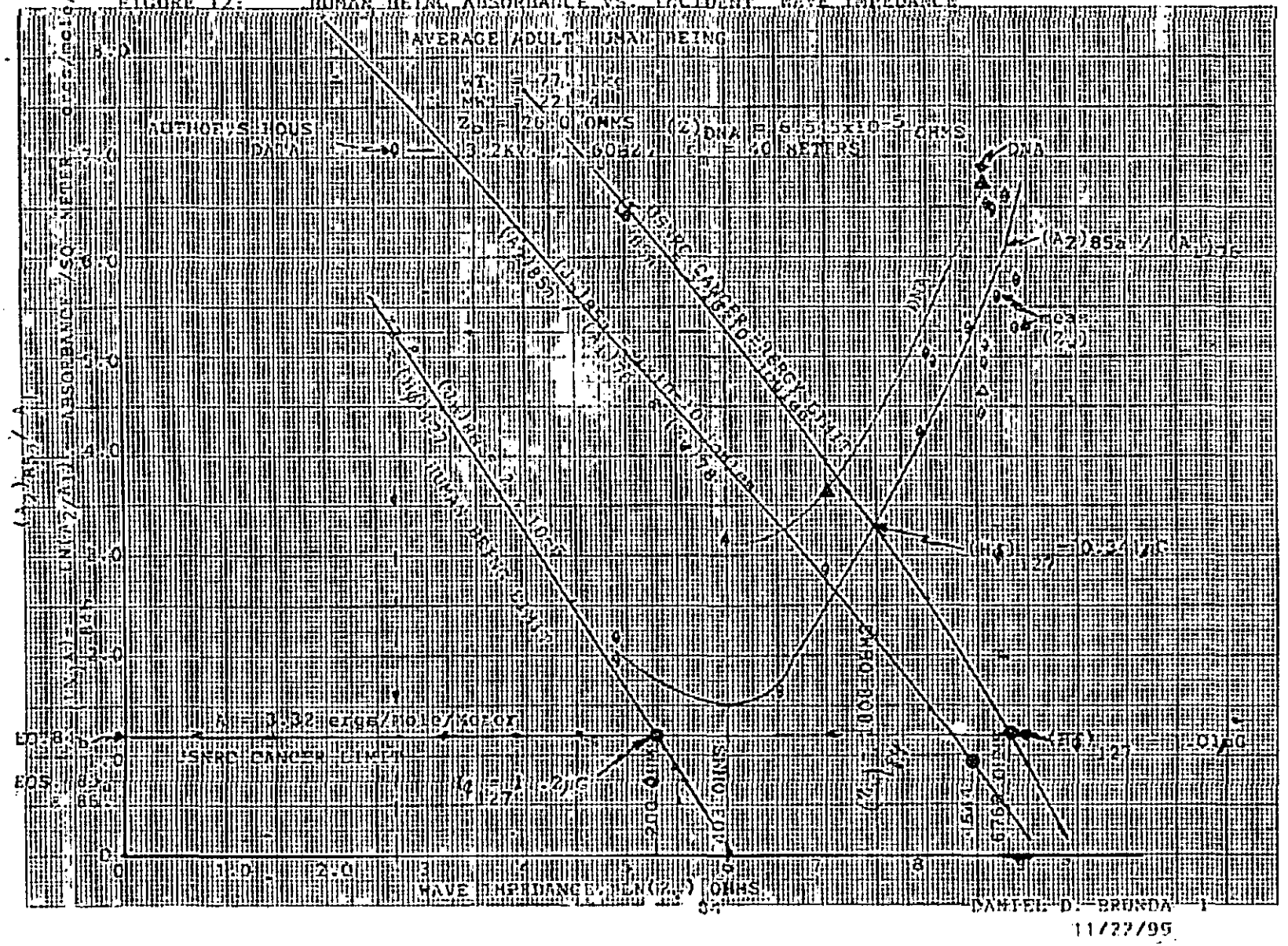


FIGURE 11. INCIDENT WAVE ENERGY, J_w, VS. WAVE IMPEDANCE, Z_w

FIGURE 12: HUMAN BEING ABSORBANCE VS. INCIDENT WAVE IMPEDANCE



CONCLUSIONS

1. HUMAN BEINGS ARE SENSITIVE TO ENERGY, VOLTS, IMPEDANCE, FREQUENCY, MAGNETICFLUX DENSITY, TRANSMITTED POWER DENSITY AND RADIATED POWER DENSITY.

2. Minimum Energy Absorbance occurs at a wave impedance of 177 ohms and 5.62×10^{-7} joules total absorbed energy, at 13.2KV. (FIG. 4)

3. ERYTHROMELALGIA occurs at 1.89 ohms and 35.48 nanojoules. (FIG 3, 4, & 5).

4. Radiation levels being generated by P.S.E.& Gas Co. have been far exceeding all known guidelines recommended throughout the world including the U.S. Nuclear Regulatory Commission (USNRC), the USEPA, and the International Commission on Non-Ionizing Radiation Protection (IRPA). (FIG. 3, 4, & 5).

5. P.S.E.& Gas Co has made an egregious error by increasing the voltage of powerlines in front of the author's house from 4KV to 13.2KV in 1978 because the 13.2KV powerlines can only operate at high energy and impedance levels which are absorbed by human beings and far exceed the NRC cancer Energy Limit. (FIG. 5) The powerline is an experimental 50 megawatt system.

6. Shielding of all powerlines which are in close proximity to human beings is unquestionably required to protect the health and quality of life of the public. Proper system design, operation and control is also required. (FIG 4, FIG. 6 and FIG. 5)

7. Electromagnetic radiation energy emitted by powerlines is an important cause of air pollution which has been previously overlooked by air pollution experts, (FIG. 2) and noise experts.

8. The harmful effect known as tingling (erythromelalgia), insomnia, arythmia, electric noise, zapping, etc. have long been experienced by human beings but ignored by engineers and scientists who design and build powerlines systems. Twenty percent of the U.S. Population is afflicted with tinnitus.

9. Power Line Radiation Experimentation on the author & public by P.S.E.&G. Company since 1978 is very harmful, illegal, and in violation of the N.J. Stun Gun Laws, the Nuremburg Code, and the U.S. Energy Policy Act of 1992. (FIG. 1)

10. Superconducting materials may not be the panacea for the electric transmission industry as has been expected because low magnetic fields imply extremely high wave impedances which are very harmful to human beings especially at low power levels. (FIG. 4)

11. The use and/or ingestion of high molecular weight products and/or substances by human beings greatly increases their susceptibility to the dangerous health effects posed by environmental electromagnetic radiation energy, especially powerlines. (TABLE 3 & FIG. 4.)

12. Engineers and Scientists have been perpetuating the harm being caused by Powerline Radiation by ignoring the definitive data which has existed in the literature regarding the harmful effects of non-ionizing radiation in human beings. (REF. 28) and (REF. 22).

13. The harmful combined bodily reaction of nicotine, contained in tobacco products, and environmental powerline radiation is implied in Table 3.

14. In radiation and health, an ounce of prevention is worth far more than a pound of cure!!

15. Powerline systems can and should be designed to operate safely within the NRC cancer power limit (286HP, TABLE VII and FIGURE 6).

16. In his book entitled, "The Psychotic Dr. Schreber (1911)", Sigmund Freud wrongfully diagnosed Dr. Schreber (a German Judge who was affected adversely by High Voltage Powerlines in Germany).

17. Neither the PA. PUC nor the NJBPU have promulgated regulations regarding the unsafe electromagnetic radiation emissions from aerial powerlines!

RECOMMENDATIONS

1. Proper methods of system design, operation, control and avoidance (including zoning) must be used to protect the public from harmful environmental power line radiation energy and radiation from all sources.

2. Power Line Radiation Experimentation on this author and the public by P.S.E. & G. Co. and all power line utilities in the Nation must stop immediately.

3. Power Line Radiation Experimentation by all utilities must be confined to their laboratories.

4. The generation of power line radiation energy in the environment in the FORBIDDEN ZONE of this paper absolutely must be prohibited by all levels of the government.

5. A power line system should be designed, controlled and operated at a wave impedance equal to 1.89 ohm (Z_w = 1.89 ohms) where r_m = 30 Meters and J_b = 35.48 nanojoules.

NOTE: There are 900,000 miles of buried gas pipelines in this NATION! (BOOK; THE EMF CANCER SCARE - The Need for Prudent Avoidance at Home, Work and Play - by Donald R.J. White, PE, Carl Stratford Harbour, Montross, VA 22520 USA

(See Page 12.12)

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6. The government should take a hard look at the direction of sponsored superconducting research with the objective of determining the means to protect the public from high energy and high impedance fields which are extremely harmful to human beings, especially at low power levels.

7. Additional research is required to determine the inductive impedance of human blood, bone, muscle and tissue at frequencies of 400, 60, 25, 10, and 1 HZ, and 98.6°F. Frequencies of 400HZ are used by the U.S. Armed Forces. 25HZ are used by railroads. Telephone companies use 1HZ to 7000HZ and up to 500 VOLTS.

8. The occurrence of both eye cancers and skin cancers by ultraviolet light in human beings indicates that the NRC cancer energy limit should be substantially decreased.

9. Pharmaceutical research should be conducted to develop skin products which prevent the aging, wrinkling and serious damage to the skin which may be caused by exposure to powerline radiation which is now present everywhere in the environment. An effort should be made to develop lower molecular weight medications.

10. The use and/or ingestion of high molecular weight products and/or substances by human beings should be avoided *to maintain health.*

11. Helium should be considered for use in such applications as underground rigid conduit for electrical cables; helium inflated pillows, mattresses, sleeping bags and helium inflated garments; and helium encapsulated insulation for houses and all structures intended for human habitation to protect the public health. (Helium Dendrimers) (Invented by DR. TOMALIA OF DENDRITECH, INC.)

12. The utilities should be experimenting with different design powerline systems at a maximum Absorbed Body Energy of 35.48 nanojoules in the laboratory.

13. Shielding of all powerlines which are in close proximity to human beings is unquestionably required to protect the health and quality of life of the public.

14. All real estate properties being sold to the public should be required to report the environmental radiation energy and magnetic flux density present at the site to protect the public health (SEE FIGURE 6).

15. The diagnosis of paranoia caused by electromagnetic powerline radiation in the environment absolutely must be prohibited by the U.S. Courts, Medical, Psychiatric and Psychological communities.

16. The US Navy must make restitution for their wrongfull Dismissal of the Author from the USNAPC ON 15 July 1983 because he was wrongfully diagnosed by a Psychiatrist as Being Paranoid.

17. Epidemiological studies which seek to prove powerline radiation as a cause of various diseases in human beings should utilize measurements of the absorbed body energy and the wave impedance as shown in this report, especially in Figure 4, Figure 5, and FIGURE 6.

18. The information shown in Figure 6a should be utilized in the design of new powerline systems to protect the public health and quality of life.

19. This report should be used in the proper management and conduct of Epidemiological Studies and Environmental Impact Studies where the harmful effects of environmental radiation energy on human beings is the main concern.

20.The PSE&G Co. absolutely must redesign their distribution system in front of my house immediately!! in accordance with Ref. 41.

21. JOHNSON & JOHNSON Co. AND BOSTON SCIENTIFIC CO. SHOULD TRY NON CONDUCTING COATINGS ON THEIR STENTS IN AN ATTEMPT TO PREVENT RESTENOSIS WHICH MAY BE CAUSED BY ELECTRICAL CURRENTS IN THE BLOOD (REF 47)

22. BOTH PENNSYLVANIA AND THE NEW JERSEY COMMISSIONS SHOULD PROMULGATE REGULATIONS FOR AERIAL POWERLINES WHICH INCLUDE, AT THE BARE MINIMUM, THE FIGURE 6a, ON PAGE 36 AND CALIFORNIA PUC COMMISSION GENERAL ORDER NO. 95, RESOLUTION SU-25, 19 JANUARY 1994.

23. THE RADIATION LIMIT FOR HUMAN BEINGS IS 0.05 REMS. (XLIBRIS #19787 - YR. 2003)

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