Why no letter to manufacturer.
Reason no production?

January 22, 1964

RMS Electronics

Swan TV Antenna Company
626 North Union Street
Stockton, California

Attention: Mr. Oliver Swan

Re: U.S. Patent No. 3,108,280

Dear Mr. Swan:

This letter is to call your attention to the subject Letters Patent which was recently issued and assigned to the University of Illinois Foundation. According to information which we have, we believe your antennas Model DJR-4, DJR-6, DJR-8, DJR-11, DJR-15 and DJR-18, which are sold as Fringe Master Dart Antennas, come fully within the scope of the claims of this patent.

We would appreciate having you acknowledge receipt of this letter and, in so doing, advise us that you will henceforth refrain from further sales or manufacture of such antennas which we believe constitute infringements. Failure on your part to avoid the subject matter of the claims of the patent cannot help but result in litigation which we certainly hope can be avoided.

A copy of the patent is attached for your record and reference.

Sincerely,

Samuel B. Smith

SBS:jd
Enc.

A00064

January 30, 1964

Mr. Oliver Swan
Swan TV Antenna Company
626 North Union Street
Stockton, California

Re: U. S. Patent No. 3,108,280

Dear Mr. Swan:

This letter is to supplement ours of January 22, concerning the subject patent. Through inadvertence we identified your antenna models as "Fringe Master Dart Antennas." This was inadvertent.

However, we still wish to advise you that the antenna models identified by the various numbers preceded by the letters "DJR" are considered to constitute infringements to the patent.

You have not yet acknowledged the letter but we want to offer you an adequate time opportunity to do so so that we will not immediately become involved in litigation with you.

Sincerely,

Samuel B. Smith

SBS:ss

A00063

ATTORNEY AND COUNSELOR
IN PATENT AND
TRADE MARK CAUSES

WILLIAM H. ATKINSON
CENTRAL TOWER BUILDING
703 MARKET STREET, SAN FRANCISCO 3
TELEPHONE DOUGLAS 2-3302

PATENTS
TRADEMARKS, DESIGNS
AND COPYRIGHTS

January 30, 1964

2/3/64

Merriam, Smith & Marshall
Thirty West Monroe Street
Chicago, Illinois 60603

Attention: Mr. Samuel B. Smith

Re: U. S. Patent No. 3,108,280

Dear Sam:

Your letter of January 22, 1964, addressed to the Swan TV Antenna Company of Stockton, California, has been turned over to me for reply. I have noted the contents of this paper and am advised by my client that it does not manufacture any television antennas of the types listed in your letter; namely, Models DJR-4, DJR 6, DJR-8, DJR-11, DJR-15 and DJR-18, which are sold as Fringemaster Gold Dart.

I understand that these antennas are manufactured and sold by a firm in Oakland, California, and if you should want me to investigate this matter further, I shall be glad to be of assistance to you.

I am aware of the fact that the University of Illinois Foundation is assignee of a number of patents on the so-called log-periodic antennas, and from an inspection of a periodical article identifying the antennas which you have referred to, it appears that you may have a case; however, this is not based upon any examination of the patents or devices by me.

With kindest personal regards, and thanking you for your Christmas card, I remain,

Very truly yours,

William H. Atkinson

WHA:dim
cc: Mr. Oliver Swan

A00062

February 4, 1964

Mr. William H. Atkinson
Central Tower Building
703 Market Street
San Francisco 3, California

Re: U. S. Patent No. 3,108,280

Dear Bill:

Thanks for your letter of January 30th regarding the Swan antennas. It was indeed stupid of this office to mix up the antenna identifications and perhaps cause you confusion relative to model identification.

The antenna manufactured by Swan TV Antenna Company which we believe infringes the patent of the University of Illinois Foundation, above identified, is that which is known as the "Starfire" type antenna. The identified patent covers broadly a log periodic antenna. The patent is based upon investigations and antenna developments which have been under way at the University of Illinois for quite a long period of time. I have no doubt but what you will fully agree after you make an investigation of the situation that the antenna made by the Swan TV Antenna Company comes clearly within the scope of the patent claims and that you will advise your client to discontinue this infringement.

As you can appreciate, it is extremely important to the University of Illinois Foundation that its patents be respected, particularly when the development has covered such a long period of time and appears to be of an extremely fundamental nature.

I was glad to hear from you and of course want to send you at this time my best regards.

The information concerning the "Fringemaster Dart" antenna is also greatly appreciated. I believe that the

"Fringemaster Dart" antennas are manufactured in New York City by RMS Electronics Corp. That group also may have an office in Oakland, but I believe its main operation is in New York and the manufacturing is done there.

Sincerely,

Samuel B. Smith

SBS:ss

cc: Mr. Oliver Swan
Swan TV Antenna Company

Mr. James C. Colvin
University of Illinois Foundation

LAW OFFICES
MERRIAM, SMITH & MARSHALL
THIRTY WEST MONROE STREET
CHICAGO 3

TELEPHONE
FINANCIAL 6-5750

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
ALVIN D. SHULMAN

February 4, 1964

Mr. William H. Atkinson
Central Tower Building
703 Market Street
San Francisco 3, California

Re: U. S. Patent No. 3,108,280

Dear Bill:

Thanks for your letter of January 30th regarding the Swan antennas. It was indeed stupid of this office to mix up the antenna identifications and perhaps cause you confusion relative to model identification.

The antenna manufactured by Swan TV Antenna Company which we believe infringes the patent of the University of Illinois Foundation, above identified, is that which is known as the "Starfire" type antenna. The identified patent covers broadly a log periodic antenna. The patent is based upon investigations and antenna developments which have been under way at the University of Illinois for quite a long period of time. I have no doubt but what you will fully agree after you make an investigation of the situation that the antenna made by the Swan TV Antenna Company comes clearly within the scope of the patent claims and that you will advise your client to discontinue this infringement.

As you can appreciate, it is extremely important to the University of Illinois Foundation that its patents be respected, particularly when the development has covered such a long period of time and appears to be of an extremely fundamental nature.

I was glad to hear from you and of course want to send you at this time my best regards.

The information concerning the "Pringemaster Dart" antenna is also greatly appreciated. I believe that the

"Fringemaster Dart" antennas are manufactured in New York City by RMS Electronics Corp. That group also may have an office in Oakland, butI believe its main operation is in New York and the manufacturing is done there.

Sincerely,

Original signed by
Samuel B. Smith

SBS:ss

cc: Mr. Oliver Swan
Swan TV Antenna Company

Mr. James C. Colvin
University of Illinois Foundation

February 4, 1964

Mr. Oliver Swan
Swan TV Antenna Company
626 North Union Street
Stockton, California

Re: U. S. Patent No. 3,108,280

Dear Mr. Swan:

An apology is indeed due you for having committed an error in the identification of your antenna construction about which I have recently written you. Through some inadvertence in this office there was a misfiling of the antenna identifications.

I received a letter from Mr. William H. Atkinson of San Francisco, a man with whom I have been well acquainted for a good many years, and he mentioned that the matter had been turned over to him. He also called my attention to the fact that the antenna models listed were in error and I quite agree with this fact.

I believe the antenna which you were manufacturing and which we consider infringes the Mayes and Carrel patent is that which is known as the "Starfire" series. If I am correct in my understanding, these antennas are sold directly by you and not through distributors.

We believe, after having checked the matter, that the antenna which you are making infringes the Mayes and Carrel patent and we would appreciate very much having that infringement promptly discontinued.

Sincerely,

Samuel B. Smith

SBSess

cc: Mr. William H. Atkinson
Mr. James C. Colvin

A00059

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET

CHICAGO 3

TELEPHONE
FINANCIAL 6-5750

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
ALVIN D. SHULMAN
R. JONATHAN PETERS
EDWARD M. O'TOOLE
ALLEN H. GERSTEIN
OWEN J. MURRAY
DONALD H. ELLIOTT

February 4, 1964

RMS Electronics Corp.
2016 Bronxdale Avenue
Bronx 62, New York

Attention: Mr. Sidney Pariser, President

Re: U. S. Patent No. 3,108,280

Dear Mr. Pariser:

We take this occasion to advise you that we have given some considerable thought to your various antenna models which are being sold as the "Fringemaster Dart" antennas. We are particularly concerned with your model Nos. DJR-4, DJR-6, DJR-8, DJR-11, DJR-15 and DJR-18. We believe that these antennas infringe the above-identified patent granted to Mayes and Carrel and owned by the University of Illinois Foundation.

We send you herewith a copy of the patent for your information so that you will be alerted to its substance.

We would appreciate having you give prompt acknowledgment to this letter and ask that you will immediately cease infringement. Only in this way will we be able to avoid litigation which the Foundation would otherwise have to promote.

Sincerely,

Original Signed by
SAMUEL B. SMITH

Samuel B. Smith

SBS:ss
Enclosure: Copy of U. S.
Patent No. 3,108,280

cc: Mr. James C. Colvin
University of Illinois Foundation

A00086

February 12, 1964

Mr. Myron Cohen
Hubbell, Cohen & Stiefel
8 West 40th Street
New York 18, New York

Re: RMS Electronics, Inc. -
U. S. Patent No. 3,108,280

Dear Mr. Cohen:

Thank you very much for your February 10, 1964, letter relative to the subject patent and the notice previously sent to your client, RMS Electronics, Inc. We hope that you will make your investigation and then please contact us. Assuming that this can be moved along rapidly, we will be glad to abide by your request and hold the matter in abeyance to afford you investigation time.

Sincerely,

Samuel B. Smith

SMB:gam

cc: Mr. James C. Colvin
Executive Director
~~University of Illinois~~
Foundation
University of Illinois
Urbana, Illinois

A00078

April 3, 1964

Myron Cohen, Esq.
Hubbell, Cohen & Stiefel
8 West 40th Street
New York 18, New York

Re: RMS Electronics, Inc.,
U.S. Patent No. 3,108,280

Dear Mr. Cohen:

Your March 19, 1964 letter arrived in this office during my absence and I have only now returned to consider it.

The comments you have made concerning the Mayes and Carrel patent have been carefully considered as well as the type of antenna which you identified as "Fringe Master JR Series." In respect of the type of antenna which we understand you have been manufacturing recently, I would urge that you try to locate more recent promotions because I believe you will find the antenna to be of a different character than that embodied in the material you sent to me.

The antenna depicted in your promotion seems to be generally that which was once known as an economy version of the so-called "Wavebooster Series" and undoubtedly this would have been manufactured generally in accordance with the Channel Master Traveling Wave, Patent No. 2,942,259.

The type of antenna in your promotion certainly does not in any respect appear to anticipate either the structure or the claims of the University of Illinois Foundation Mayes patent above named. Further than this, you might know that in the forms in which the antenna is depicted in your promotion the feed occurs with a parallel line and is from the most rear folded dipole. This is generally like the old Yagi-type multi-driven dipole system device, but is not what is described or claimed in the Mayes, et al. patent.

A00073

Your dipoles do not appear to be all of the same length, but this is not in any sense significant of the fact that the structure is like that claimed in the patent above named. It is my understanding that your present antennas are what are known as the "Dart Series" where you use cross feeder harnessing and a log periodic parameter. In addition, the feed appears to be at the front end of the antenna at a take-off point of the smallest dipole elements. Under the circumstances, we again represent to you that we are still of the belief that the present RMS Electronics, Inc. structures infringe the patent and we ask that you please refrain from further acts of this nature.

Yours very truly,

SBS:mn

Samuel B. Smith

Blind copies to:

Mr. Ed Finkel
Mr. James C. Colvin
Professor Paul E. Mayes

A00074

April 6, 1964

Mr. William H. Atkinson
703 Market Street
San Francisco 3, California

Re: U.S. Patent No. 3,108,280
(Swan Antenna)

Dear Bill:

I had hoped to have further word from you at this time with regard to your investigation of the Mayes, et al. patent above named. It seems to me that the antenna structure developed by your client, Mr. Oliver Swan, is clearly within the scope of the patent. However, we have been waiting for your comments, and as yet none have been received, although we feel you should have had ample time to complete your investigation.

I was in your city a week ago and had hoped to find time to talk with you. Could you manage to find time to write me with some promptness?

Sincerely,

SBS:mn

Samuel B. Smith

A00058

ATTORNEY AND COUNSELOR
IN PATENT AND
TRADE MARK CAUSES

WILLIAM H. ATKINSON
CENTRAL TOWER BUILDING
703 MARKET STREET, SAN FRANCISCO 3
TELEPHONE DOUGLAS 2-3302

PATENTS
TRADEMARKS, DESIGNS
AND COPYRIGHTS

April 7, 1964

Merriam, Smith & Marshall
Thirty West Monroe Street
Chicago, Illinois 60603

Attention: Mr. Samuel B. Smith

Re: U. S. Patent No. 3,108,280
(Swan Antenna)

Dear Sam:

I am sorry if I seem to have been unnecessarily delayed in my answer to your charge of infringement of the above patent as covered by your letter of February 4, 1964. If you are up-to-date on the type of service now being rendered by the Patent Office in furnishing photostatic copies of filed records you will understand my position when I state that immediately upon receipt of your letter, in fact on February 7th, I wrote my Washington associate to obtain and send to me a photostatic copy of the file wrapper and contents of the above Patent. I felt that by ordering the same through my associate, the operation would somewhat be speeded up, but it was not until Thursday of last week, April 2, that I received the photostatic copies requested.

Upon receipt of this material I phoned my client, Mr. Oliver Swan, and was told that he was still in the hospital and now recovering from some major surgery which included the removal of his gall bladder. However, he had been giving some thought to your claim of infringement and, I believe, we will be able to give you a full and complete answer to your claim of infringement in about a month.

Please be assured that I intend to reply to your letter at as early a date as possible.

With kindest regards, I remain,

William H. Atkinson

WHA:mw

A00228

3(a)

At Work in the New Frontiers of Electronics

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

JFD License 4/2/64

April 13, 1964

RECEIVED
APR 14 1964
4/14/64
MERRIAM, SMITH & MARSHALL

Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois

Attention: Mr. Sam Smith

Dear Sam:

Per our conversation, I am enclosing herewith copies of the various trade ads and consumer ads that we have run on the Log Periodic antennas. In addition there are various pieces of distributor-dealer literature that we are using in our mailings.

Each of the ads are representative of the message we have been telling the trade and each of them in turn, has been running in various magazines and not only in the individual magazine enclosed.

In trade ads #1 and #2 and consumer ads #1 and #2, which were run quite early, we had not as yet changed over to the standard phrase which we have adopted in stating our licensing arrangement with the Foundation, and which you will see expressed from Trade ad #3 through Trade ad #8. The same might hold true on some of the earlier literature but as of now, any time we have occasion to use this phrase covering our licensing arrangement, it is being picked up exactly as you see it in trade ad #8.

A00071

JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada
401-144 West Hastings Street, Vancouver 3, B.C.

JFD Electronics-Southern, Inc., Oxford, North Carolina 27565
JFD International, 64-14 Woodside Ave., Woodside, New York 11377

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

Mr. Sam Smith (Cont.)

I sincerely believe that we have at all times attempted to stay within the agreed on limits of our reference to our relationship to the University of Illinois and the University of Illinois Foundation.

If there is any ambiguity, it arose in the limited space and words we had available to inform our readers of the relationship of the University of Illinois Antenna Research Laboratory to its original contribution in the basic invention of the log periodic principle and our attempt to give them full credit for this invention.

If you have any suggestions after reading this literature and giving due consideration to the fact that it is a major competitor complaining and not the University or the Foundation, we will be happy to consider incorporating these suggestions into any new material we prepare.

I am awaiting your comments.

Kindest personal regards,

Ed Finkel

Ed Finkel

EF/ss
encl.
cc-P. Mayes
J. Colvin

A00072

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN *

*VA. & D.C. BARS

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

April 14, 1964

JFD DOC.NO. 19

Mr. Edward Finkel, Vice President
JFD Electronics Corporation
1462 Sixty-Second Street
Brooklyn 19, New York

Re: License Agreement Between
University of Illinois Foundation
and JFD Electronics Corporation

Dear Ed:

A00316

From the standpoint of the University of Illinois Foundation, Mr. Colvin has directed me to advise you that Paragraph 10 of the License Agreement entered into as of May 24, 1962 between JFD Electronics Corporation and the University of Illinois Foundation is a provision of the agreement which should not be overlooked. The Foundation has not had an opportunity to review your advertising material in final form prior to publication. That provision of the agreement cannot be waived. The Foundation, of course, expects under the provision of Paragraph 2 of the License Agreement that you will, in connection with products manufactured and sold, comply fully with Section 287 of Title 35, United States Code. This can be done by merely marking the goods with an expression substantially like "Licensed under Patent No. 3,108,280 of the University of Illinois Foundation." However, as to this latter type of identification, extreme care should be taken to make certain that the product so identified actually is of such character as fully to be covered by one or more claims of the University of Illinois Foundation patents under which JFD Electronics Corporation is licensed under the agreement identified.

If you will submit your literature concerning the products to be so identified, we will indicate to you promptly whether or not we consider that the products come fully and clearly within the scope of the claims of one or more of the University of Illinois Foundation patents. We will also identify the particular patents.

In order to make such comparison and identification, we believe that you should afford us a minimum of thirty days from the time of submission. This time should be adequate for us and, because you will, of course, be well aware of any design prior to the time that you are in produc-

tion, it should be agreeable to you. If you find for some special reasons your operations cannot be carefully carried on by allowing as much as thirty days for such investigation, we will try, where possible, to give you the information sooner. Pursuing a program of this character we should then avoid any possibility of erroneous patent marking.

As to the identification of your antenna of the so-called "LPV variety" we are of the opinion that an antenna having the individual dipoles spaced by a scale factor other than that which determines the length of the various adjacent dipole sections does fall within the scope of the teachings and the claims of at least some of the patents. We recognize that there are certain conditions where the operation and antenna characteristic have to be a slight departure from that of a log periodic antenna operating at maximum efficiency. Despite this possibility, we consider that manufacturing tolerances, as well as a limited amount of design freedom, should certainly give ample justification to make the antenna in such a way that a slight departure from complete log periodic functioning at its maximum efficiency should be allowed.

Lastly, with respect to advertising copy, we ask that you will please submit any proposed copy to us, at least fifteen days prior to the time when you will want approval.

I am quite sure that the Foundation would not generally approve the publication of pictures of its staff personnel despite the fact that certain such staff personnel might serve as technical advisors to the advertising company. I would be glad to check with the Foundation to determine whether or not it would be willing to approve of publication of pictures of the staff at the University of Illinois who have contributed to the work of your company, provided the identification is limited to a mere name identification, such as "Dr. Paul E. Mayes," without tying him to the work at the Foundation.

It would make the handling of this entire situation much easier if your company, as a licensee, would comply in all respects with Paragraph 10 of the agreement now in effect. Any failure to comply with this provision of the agreement would be looked upon by the Foundation as a breach.

Sincerely yours,

Samuel B. Smith

SBS:mn

cc: Mr. James C. Colvin

3(a)

right file ?

April 15, 1964

J.F.D. License from U. of Ill. Foundation

Mr. Ed Finkel
Vice President-Sales
JFD Electronics Corporation
1462 Sixty Second Street
Brooklyn 19, New York

Dear Ed:

Thanks for your April 13 letter, with the enclosures of the numerous trade ads and consumer ads, as well as your most recent promotional pamphlets. I would like to have two additional copies of each of the recent promotional pamphlets.

Most of the problems raised by your advertising material relate to policy matters concerning the University of Illinois Foundation and the University itself. Those are matters upon which I cannot pass. I have, accordingly, sent all of your material to Mr. Colvin for his review and consideration and I should be able to advise you within the fifteen-day period concerning our views as to the propriety of all of the advertising. At the same time it will then be possible to give you a final indication of whether or not the material can be published with the understanding that you have complied with Paragraph 10 of the License, insofar as reference to the University or Foundation is concerned and with Paragraph 2, insofar as reference to the patents may be concerned.

I would like to know, however, what structures you are manufacturing or selling which you believe at the present time come within the teachings of the Dyson, Du Hamel and Isbell patents referred to, for instance, on page 4 of ELECTRONIC & APPLIANCE SPECIALIST for March, 1963. May I please have your comments at an early date.

Sincerely,

SBS:mn

Samuel B. Smith

A00070

ATTORNEY AND COUNSELOR
IN PATENT AND
TRADE MARK CAUSES

WILLIAM H. ATKINSON
CENTRAL TOWER BUILDING
703 MARKET STREET, SAN FRANCISCO 3
TELEPHONE DOUGLAS 2-3302

PATENTS
TRADEMARKS, DESIGNS
AND COPYRIGHTS

May 7, 1964

Mr. Samuel B. Smith
Merriam, Smith & Marshall
Thirty West Monroe Street
Chicago, Illinois

Re: U. S. Patent No. 3,108,280
(Swan Antenna)

Dear Sam:

I have delayed answering your letter of April 9 with the hope that I might be able to get some further material from my client by way of a further answer to the charge of infringement of the above patent. Mr. Swan is still in the hospital under the doctor's care and has been told that he should not engage in any exciting activities for at least another couple of months and therefore we will need some further time.

In the meantime, I have had some correspondence with Mr. Swan and he has furnished me with some facts upon which he is basing his claim of non-infringement. In this, however, he is generalizing rather than making specific references to any one of a number of antennas which he has manufactured and sold under the trade mark "Starfire", which as you recognize, is a trade mark and does not necessarily identify any particular structural arrangement of dipoles, either as to length, space and/or other considerations.

It will, therefore, be of great help to me if you will be a little more specific and definitely point out the particular antenna sold by Swan upon which you are basing your charge of infringement.

My client has had many years of experience in the radio and television fields and in fact, has taught the subject in a number of our local tehcnical schools, and has in fact, lectured at the College of the Pacific in Stockton on the subject of antennas.

I appreciate your promise to recommend to the University of Illinois Foundation, that we be given a little more time to formulate a formal reply to your charge of infringement which, as I have stated above, will require at least another two months

and if within that time you will furnish me with a more definite identification of the item upon which you are basing your charge of infringement, I feel sure we can come to an understanding. Reflecting on the trade mark aspect, I am enclosing a fly sheet circulated by my client on his Starfire 27 antenna, the showing of which you will understand, is purely ornamental.

With kindest regards, I beg to remain,

Very truly yours,

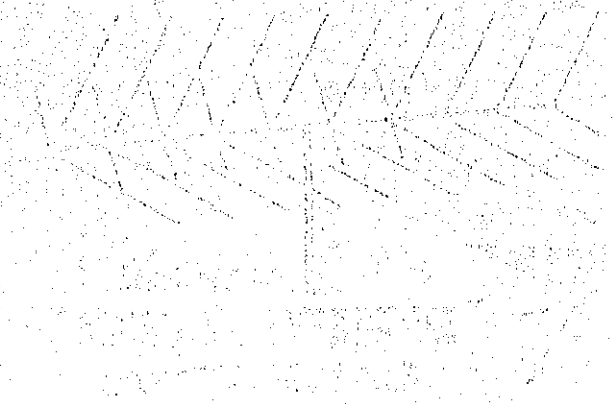
Bill

William H. Atkinson

WHA:ejb
Encl.

A00056

for COLOR TELEVISION
and BLACK and WHITE



DESIGNED and MANUFACTURED in STOCKTON by---

SWAN'S ANTENNAS

For Clear Bright Pictures the "STAR-FIRE 27"

With new lead in installed on your mast only $59.90

The "STAR-FIRE 27" with Automatic Rotor

and lead in installed on your mast only $124.90

The "STAR-FIRE 27" with 40 ft. Mast

automatic Rotor and lead in complete installed only $149.90

The Finer the TV Antenna
the Better the TV Picture

A00057

May 12, 1964

William H. Atkinson, Esq.
703 Market Street
San Francisco 3, California

Re: U. S. Patent No. 3,108,280

Dear Bill:

Thank you for your May 7 letter concerning the Swan antenna and your follow-ups with Mr. Swan.

I am trying to obtain more information for you, but it is my understanding that the "Starfire" antenna follows completely the log periodic type of operation which has been so fully investigated by Professor Mayes and Dr. Carrel at the University of Illinois. The patent above identified is one of the earlier ones to issue, but more patents should issue from applications now pending.

Because of Mr. Swan's illness, we of course will not push you too hard in this matter but will count on having you keep in touch with us. As soon as Mr. Swan is able to meet with you for discussion, please follow up on the matter. In the meantime, as soon as I have anything further to add, I shall write you.

Best personal regards to you.

Sincerely yours,

SBS:mn

Samuel B. Smith

Blind copy to:
Mr. James C. Colvin

A00053

July 15, 1964

Mr. Ed Finkel
Vice President-Sales
JFD Electronics Corporation
1462 Sixty Second Street
Brooklyn 19, New York

Dear Ed:

This is to remind you that we have no information of any kind with respect to any of your advertising material since receiving your letter of April 13, 1964, with the attachments sent therewith. That was more than three months ago, so that we are concerned lest there be other advertising distributed that has not been checked which in any way mentions either the University of Illinois or the University of Illinois Foundation.

Paragraph 10 of the granted license requires that written authorized be obtained from the Executive Secretary of the University of Illinois Foundation. Mr. Colvin says that nothing has been received by him and, therefore, will you please see to it that all advertising material which has been used since April 13, 1964 be submitted to Mr. Colvin, as well as any advertising material contemplated. I am sure that unless this is done the Foundation will cancel your license.

Next, we have had no information from you as to the specifications of any antennas which you are now selling which would be marked with the University of Illinois Foundation patents. So that there can be no problems about this situation, we will expect that you will promptly advise us on this matter. Matters of this nature require careful consideration, and therefore the Foundation should be given ample time within which to make its review and advise you on the particular markings that are desirable. Thus, we would like to have information from you at an early date.

You did state to me that you had told Professor Mayes that all antennas were to be designed to come within the patents. Despite the fact that Professor Mayes is quite familiar with the antenna patents owned by the Foundation, I must remind you that notice to Professor Mayes of structures would not comply with the marking provisions nor would notice to Professor Mayes concerning advertising material comply with the provisions of the license. I hope that this matter can be made on a more stabilized basis in the future.

I have your note and, accordingly, will be glad to deal with matters of this nature through our joint friend, Sid Faber. It will be a pleasure to work with him and I am sure things will run smoothly.

Sincerely,

SBS:mn

Samuel B. Smith

cc: Mr. James C. Colvin
Mr. Sidney G. Faber

3(6)

July 17, 1964

Mr. Ed Finkel, Vice President-Sales
JFD Electronics Corporation
1462 Sixty Second Street
Brooklyn, New York 11219

Re: JFD "ZIG-A-LOG" Antenna

Dear Ed:

It is practically at the close of business today and I have just had the opportunity to look quickly at some of the promotions you sent me with your July 15 letter. Immediately my attention was directed to this type of antenna and the prominently displayed statement "brings the acknowledged Log-Periodic design of the Antenna Research Laboratories of the University of Illinois to a new peak of performance!"

This material was never submitted to the Foundation nor to this office prior to its publication. It just happens that I was able today to see Mr. Colvin, and just a moment or two before dictating this letter. I am directed to state that this is not the type of publicity that can be approved by the Foundation or the University, and you have not complied with the provisions of paragraph 10 of the license. I can assure that if this policy and action on your part continues, the Foundation will cancel your license forthwith. This type of publicity does not appear to be anything except to use the University really as a gimmick, which cannot be sanctioned.

Sincerely,

SBS:mn

Samuel B. Smith

cc: Mr. James C. Colvin
Mr. Sidney G. Faber

A00044

3(6)

July 27, 1964

Mr. Ed Finkel, Vice President-Sales
JFD Electronics Corporation
1462 Sixty Second Street
Brooklyn, New York 11219

Re: JFD License Agreement

Dear Ed:

To comply with the provisions of Paragraph 10 of the license agreement which your company holds with the University of Illinois Foundation, Mr. Colvin has directed me to advise you that from here on it will be necessary for you to submit your material to clear through his office. If you wish to expedite things, you can also send a copy to this office. From the standpoint of prosecuting patent applications, it would be helpful if we had a copy of your promotion material, but compliance with the provisions of the license agreement do not dictate that this is essential.

Will you please be kind enough to acknowledge receipt of this information to Mr. Colvin and advise me by a copy of the letter that you have done so.

Sincerely,

SBS:mn

Samuel B. Smith

cc: Mr. James C. Colvin
Sidney G. Faber, Esq.

A00043

At Work in the New Frontiers of Electronics

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

July 27, 1964

RECEIVED
JUL 28 1964
7/28/64
MERRIAM, SMITH & MARSHALL

Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois

Attention: Mr. Sam Smith

Re: University of Illinois Foundation
and JFD Electronics Corp. License

Dear Sam:

In checking my files on the above licensing agreement, I find that I do not have any record of my having answered your letters of April 14th and April 20th. Although I know that I have discussed the contents of your two letters with you orally, I feel that it is necessary to make a formal record of our understanding and compliance of Paragraph #10 of our agreement.

Since the time of your letters and our oral understanding with you, no material pertinent to the log-periodic antenna advertising has been put together which can be construed as violating Paragraph #10 of our agreement.

JFD is well aware of its responsibility to comply with the requirements of the entire licensing agreement, including Paragraph #10, and we agree that we have and will continue to submit material for your approval.

Respectfully yours,

Edward Finkel

Edward Finkel

EF/ss
cc-S. Faber
J. Colvin

A00042

Mailed - corrected date
Mailed Finkel letter
July 30, 1964 -
7/31/64

JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada

JFD Electronics-Southern, Inc., Oxford, North Carolina 27565
JFD International, 64-14 Woodside Ave., Woodside, New York 11377

July 28, 1964

Mr. Edward Finkel
JFD Electronics Corporation
15th Avenue at 62nd Street
Brooklyn, New York 11219

Re: University of Illinois Foundation and
JFD Electronics Corporation License

Dear Ed:

Your letter of July 27, 1964, concerning the acknowledgment of the provisions of paragraph 10 of the license as we feel the paragraph must be applied, is appreciated. It had been overlooked here also that we had not had a formal reply to my letters, although you and I had discussed the substance of the letters several times and the matter had been presented also to Mr. Faber.

However, in checking my files to determine the dates of my letters to you which had gone unanswered, I find them to be April 14 and April 29. I believe that the April 20 mentioned in your letter might have been a typographical error and should have been April 29, as I do not have a letter dated April 20 to you in my files. If I am correct, will you please confirm this?

So that matters relating to approval of proposals can be expedited, I have already transmitted to Mr. Colvin the promotions which you recently submitted. You should hear from him without delay.

Sincerely,

SSS:mn

Samuel S. Smith

cc: Mr. James C. Colvin
Sidney G. Faber, Esq.

A00041

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

RECEIVED
JUL 31 1964
MERRIAM, SMITH & MARSHALL

July 30, 1964

Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois

Attention: Mr. Sam Smith

Re: University of Illinois Foundation and
JFD Electronics Corporation License

Dear Sam:

I am in receipt of your letter of July 28th, and wish to confirm the typographical error.

The letter that we mentioned had gone unanswered should have been April 29th, instead of April 20th.

Thank you for calling this to my attention.

Sincerely,

Ed Finkel

Ed Finkel

EF/ss
cc-J. Colvin
S. Faber

This corrects date in Finkel letter of July 27, 1964.

A00040

CONFIDENTIAL

Mr. James C. Colvin

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN

LAW OFFICES
MERRIAM, SMITH & MARSHALL
THIRTY WEST MONROE STREET
CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

January 7, 1965

Mr. Alex Brodsky
Vice President in Charge
of Merchandising
Allied Radio Corporation
100 North Western Avenue
Chicago, Illinois 60612

Dear Mr. Brodsky:

Our attention has been directed to the fact that you are marketing certain antenna products identified as MK-12, MK-18, and MK-24. On behalf of our client, the University of Illinois Foundation, we are at this time advising you of United States Letters Patent No. 3,150,376 and are enclosing a copy thereof for your record and reference. The antennas herein identified appear to infringe one or more claims of the subject patent. Our client has asked us to advise you to please promptly discontinue the manufacture of such antennas, the sale of such antennas, or the use of such antennas, whichever is applicable.

Please advise us of the discontinuance in order that it may not be necessary to proceed legally with the matter in the nature of an action against you for patent infringement.

Sincerely,

Samuel B. Smith

SBS/dlj

A00353

LAW OFFICES

AXEL A. HOFGREN
ERNEST A. WEGNER
JOHN REX ALLEN
WILLIAM J. STELLMAN
JOHN B. McCORD
BRADFORD WILES
JAMES C. WOOD
STANLEY C. DALTON
RICHARD S. PHILLIPS
LLOYD W. MASON
TED E. KILLINGSWORTH
CHARLES L. ROWE
JAMES R. SWEENEY

THOMAS A. STANSBURY
J. R. STAPLETON
WILLIAM R. McNAIR
JOHN P. MILNAMOW
DILLIS V. ALLEN

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

20 NORTH WACKER DRIVE
CHICAGO 60606

TELEPHONE
FINANCIAL 6-1630
AREA CODE 312

January 13, 1965

Mr. Samuel B. Smith
Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois 60603

Dear Sammy:

Your letter regarding patent 3,150,376 to Allied Radio has been referred to us. The antenna products identified as MK-12, MK-18 and MK-24 are manufactured for Allied by the Finney Company. They have agreed to hold Allied harmless and I understand are presently investigating the Carrel et al patent. I suggest that you take this matter up directly with them.

Incidentally, I note that you have made no objection to the JFD antennas shown in the Allied catalog. I assume from that that JFD is a licensee.

The textual material describing this antenna refers to its use by the Air Force in satellite telemetry. Were there any Air Force or NASA funds used in the development of the antenna? If there were, what interest does the government have in the patent?

Very truly yours,

HOFGREN, WEGNER, ALLEN, STELLMAN & McCORD

Dick

Richard S. Phillips

RSP:iag

February 4, 1965

Mr. L. Finnenberg, President
Finney Company
Bedford, Ohio

Dear Mr. Finnenberg:

The attorneys representing Allied Radio Corporation of this city recently advised us that the MK-12, MK-18 and MK-24 antennas which it is currently offering for sale are manufactured by your company, although they are sold by Allied under its designations. These attorneys also advised us that an agreement exists between your company and Allied Radio whereby you are committed to hold Allied harmless for possible infringement of the patents of others in connection with its marketing of these antennas.

No doubt Allied Radio has already advised you that we recently notified it that the University of Illinois Foundation considered the above-identified antennas infringed upon its Carrel et al. Patent No. 3,150,376.

The attention of the University of Illinois Foundation has also been directed to antenna Models VL 5, VL 10, VL 15 and VL 18 which, it is believed, are presently manufactured by your company and marketed under the Finney name. Careful consideration of these latter antennas has led our client, the University of Illinois Foundation, to believe that these latter antennas infringe both the Carrel et al. patent above identified and the Mayes et al. Patent No. 3,108,280, also owned by the University of Illinois Foundation. A copy of each patent is enclosed.

On behalf of the University of Illinois Foundation we ask that you make careful review of each of these patents. After so doing, you are asked to promptly cease any further infringement of either or both of these patents by discontinuing the manufacture, use and sale of all antennas herein specified, as well as any other antennas of similar type.

If you fail to cease infringing upon these patents in the making and selling of such antennas, either directly or through others, such acts, of course, will furnish adequate grounds for instituting legal proceedings against you.

Very truly yours,

Samuel B. Smith

SBS:mn
Enclosures:
Patent No. 3,150,376
Patent No. 3,108,280

Blind copy to:

Mr. James C. Colvin

JFD 81

At Work in the New Frontiers of Electronics

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

RECEIVED
MAR 31 1965
MERRIAM, SMITH & MARSHALL

March 30, 1965

Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois

Attention: Mr. William Marshall

Re: Infringers of Log Periodic Antennas

Dear Mr. Marshall:

Referencing our telephone conversation, I have checked my files and have determined that in almost all cases, except for the most recent information, I had already notified Mr. Sam Smith of the extent of the infringers of the various Log Periodic Patents already issued and the pending Isbel patent owned by the University of Illinois Foundation.

However, considering the possibility that Mr. Smith's files are possibly not up to date, I am reviewing for you, per the attached information, the complete status of the present industry situation on what I consider to be infringers and pending infringers.

I believe if you will carefully check Mr. Smith's files, you will find a number of letters pertinent to the attached information, that had been sent over a period of the last two years. I have an extensive file on the subject matter, but before I am asked to reproduce it, I would appreciate your checking Mr. Smith's records.

While the above information is fairly complete, it does not necessarily cover the full extent of infringers and it is anticipated that a few new ones would conceivably show up at the forthcoming Electronic Parts Show in New York this week. We will be making a very careful survey of the antenna manufacturers and fill you in should there be any new information.

A00205

JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada
JFD Electronics-Southern, Inc., Oxford, North Carolina 27565
JFD International, 64-14 Woodside Ave., Woodside, New York 11377

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn N. Y. 11219 • Phone 212 DE 1-1000 • TWX-NY25040

Mr. William Marshall (Cont.)

In the meantime, I would appreciate your reviewing the enclosed and preparing yourself for my visit next week when I hope to be able to review further actions to be taken against the above infringers.

While the action against Finney had some momentary effect, it did very little to halt their activities and certainly scared nobody else. I firmly believe you must be prepared to take a more aggressive attitude towards many of the other infringers on the already issued patents and to the distributor trade in general, so as to have the desired effect of creating an awareness at the distributor level that the Foundation owns these patents and intends to exercise their rights under the patent law to protect its licensee.

Kindest personal regards.

Sincerely,

Ed Finkel

Ed Finkel

EF/ss
encl.

A00206

Mayes & Carrel Patent #3,108,280
Mayes & Carrel Patent #25,740

The above patent is at present being infringed on by:

Finney Company, 34 W. Interstate, Bedford, Ohio - Literature enclosed.

Carrel & Mayes Patent #3,150,376

This patent is being infringed on by:

Finney Company, 34 W. Interstate, Bedford, Ohio - Suit started, under their model numbers UVF-24, UVF-18, UVF-16, UVF-10.

Allied Radio Corporation, 111 North Campbell Avenue, Chicago, Illinois under their private brand being manufactured for them by Finney Company, their model No. MK-24, MK-18, MK-12, for which you already have literature.

Isbel - Patent Pending Application - Straight Dipole Log Periodic Antenna

The above patent pending application is being infringed on by:

Blonder-Tongue Labs., Inc., 9 Alling Street, Newark 2, New Jersey
under the models, Golden Arrow- UHF indoor antenna.
Golden Dart - UHF outdoor antenna - literature enclosed.

Jerold Electronics Corp., 15th & Lehigh Avenue, Philadelphia 32, Pennsylvania
under their model Nos. JTP-40, JTP-60, JTP-100, JTP-130, JTP-160, JTP-190, JTP-220, JTP-130S, JTP-160S, JTP-190S and JTP-220S.
Also model Nos. FMP-8, FMP-10, FMP-16, and J55-LO and J105-HI
Literature enclosed.

Channel Master Corp., Ellenville, New York
Model Nos. 3600, 3601, 3602, 3603, 3604, 3605, 3606, 3607
Literature enclosed.

A00207

Isbel - Patent Pending Application (Cont.)

FROM PUBLIC INFORMATION OFFICE
University of Illinois

JFD

Immediate Release
Mailed 2/12/65

URBANA, Ill.--The University of Illinois Foundation today instituted suits in United States District Court in Chicago against the Finney Manufacturing Co. and the Finney Co., both of Bedford, Ohio, and the Allied Radio Corp., Chicago, for infringement of a patent owned by the Foundation.

The patent (U.S. No. 3150376) covers radio and television antennas of the log periodic type. It is alleged that this patent is being infringed by certain antennas manufactured by Finney Manufacturing Co. and sold by Allied Radio Corp.

Exclusive manufacturing rights under the patent in suit are held by the JFD Electronics Corp. of New York.

-cef-

51/smk

A00343

(4/16/54)

ARTICLES OF INCORPORATION OF

UNIVERSITY OF ILLINOIS FOUNDATION

Certificate # 40443
STATE OF ILLINOIS
Office of the Secretary of State

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

I, Richard Yates Rowe, Secretary of State of the State of Illinois, do hereby certify that the following and hereto attached is a true photostatic copy of the Articles of Incorporation and all Amendments thereto, including the Certificate of Designation of Registered Office and Registered Agent, of THE UNIVERSITY OF ILLINOIS FOUNDATION, the original of which is now on file and a matter of record in this office.

IN TESTIMONY WHEREOF, I HERETO SET MY HAND AND CAUSE TO BE AFFIXED THE
(SEAL) GREAT SEAL OF THE STATE OF ILLINOIS, DONE AT THE CITY OF SPRINGFIELD THIS 29th DAY OF SEPTEMBER A.D. 1944.

(signed) Richard Yates Rowe
Secretary of State

Certificate No. 3341
*** *** *** ***

WHEREAS, a certificate, duly signed and acknowledged has been filed in the Office of the Secretary of State, on the 27th day of August A.D. 1935 for the organization of The University of Illinois Foundation under and in accordance with the provisions of "An Act Concerning Corporations" approved, April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached;

NOW THEREFORE, I, EDWARD J. HUGHES, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said THE UNIVERSITY OF ILLINOIS FOUNDATION is a legally organized Corporation under the laws of this State.

In testimony whereof, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois. Done at the City of Springfield this 27th day of August, A.D. 1935, and of the Independence of the United States the one hundred and 60th.

(Signed) EDWARD J. HUGHES
Secretary of State

STATE OF ILLINOIS) ss
Cook County)

TO EDWARD J. HUGHES, Secretary of State:

We, the undersigned, Karl J. T. Ekblaw, Ralph Chapman and Edward E. Barrett, citizens of the United States, propose to form a corporation under an Act of the General Assembly of the State of Illinois, entitled, "An Act

Concerning Corporations," approved April 18, 1872, and all Acts amendatory thereof; and for the purpose of such organization we hereby state as follows, to-wit:

1. The name of such corporation is THE UNIVERSITY OF ILLINOIS FOUNDATION.

2. The object for which it is formed is

(a) To assist in developing and increasing the facilities of the University of Illinois for broader educational opportunities for and services to its students and alumni and to the citizens of the State of Illinois, by encouraging gifts of money, property, works of art, historical papers and documents, museum specimens and other material having educational, artistic or historical value, and by such other proper means as may seem advisable.

(b) To receive, hold and administer such gifts with the primary object of serving purposes other than those for which the State of Illinois ordinarily makes sufficient appropriations; except where the terms and conditions imposed by the donors of any forms of gifts or bequests make immediate transfer to the University of Illinois right and proper, in which cases the Foundation shall transfer absolutely and in full right, title to and interest in such property, real and personal, transferred, assigned or conveyed by any and all persons whatsoever, whether such property be in the form of money, manuscripts, works of art, or otherwise, for the use and benefit of the University of Illinois, subject to said terms and conditions of said donors and subject also to the right of the Board of Trustees of the University of Illinois to refuse such proffered gifts, if conditions attached thereto be deemed unsatisfactory or unacceptable.

(c) To deposit forthwith in the archives or library of the University whatever articles or manuscripts, having scientific or educational value, which may be loaned the Foundation by the owners or by persons in legal custody thereof, subject to the approval of the Board of Trustees.

(d) To act as the business agent of the Board of Trustees of the University of Illinois in performing any other services for the Board of Trustees, not herein specifically mentioned; if said Board of Trustees so desires and so specifies.

(e) To do such other acts and undertake such other enterprises as in the judgment of the Board of Directors shall tend to promote the interests and welfare of the University of Illinois.

3. The management of the aforesaid THE UNIVERSITY OF ILLINOIS FOUNDATION shall be vested in a board of twelve directors. The Board of Directors may appoint from their own number an Executive Committee and delegate to this committee power to transact corporate business in accordance with the objects as above outlined.

4. The following persons are hereby selected as the Directors to control and manage said corporation for the first year of its corporate existence, viz.:

Arthur C. Willard, Walter W. Williams, Karl J. T. Ekblaw, George A. Barr, Edward E. Barrett, Harold Pogue, Robert F. Carr, John Chester, Glenn M. Hobbs, David Kinley, Ralph Chapman, Charles S. Pillsbury (addresses to be found on original copy of Articles.)

5. The location is in the City of Champaign in the County of Champaign in the State of Illinois, and the post office address of its business office is at No. 725 South Wright Street in the said City of Champaign.

(signed) K. J. T. Ekblaw
Ralph Chapman
Edward E. Barrett

*** *** *** *** ***

March 6, 1946

I hereby certify that at a special meeting of the members of the Board of Directors of The University of Illinois Foundation held on February 18, 1936, at 10 o'clock A.M., pursuant to the rules of said corporation, the following resolution was adopted, in accordance with the By-laws of said corporation:

I, K. J. T. Ekblaw hereby certify that I am the duly qualified and acting President of the University of Illinois Foundation, a corporation not for pecuniary profit, organized under the laws of the State of Illinois; that a meeting of the Board of Directors of the said corporation was duly called in accordance with the constitution and by-laws thereof on the 18th day of February, 1936, in its offices at 725 South Wright Street, Champaign, Illinois, at the hour of 10 o'clock A.M.; that on such day and date, and at the place above described the Directors met and by the unanimous vote of those present, to wit, eleven Directors out of the total number of twelve took the following action:

1. Amended Articles of Incorporation of the said corporation so that Article 2, paragraph b, as amended reads as follows:

To receive, hold and administer such gifts with the primary object of serving purposes other than those for which the State of Illinois ordinarily makes sufficient appropriations; to act without profit as trustee of educational, or charitable trusts; to administer gifts, grants or loans of money or property, real or personal, whether made by or for the benefit of public governmental bodies, state or national, or by or for the benefit of corporations or natural persons, and whether in the form of conventional express trusts or otherwise; to become a party to contracts, trust instruments and agreements of any type or description, and to execute negotiable obligations, as trustee or otherwise; to become a party to contracts, trust instruments and agreements of any type or description, and to execute negotiable obligations, as trustee or otherwise, in order to effectuate either the creation or organization of trusts, or the execution of the purposes thereof. Where the terms and conditions imposed by the donors of any forms of gifts or bequests make immediate transfer to the University of Illinois right and proper, the Foundation shall transfer absolutely and in full right, title to and interest in such property, real and personal, transferred, assigned or conveyed by any and all persons whatsoever, whether such property be in the form of money, manuscripts, works of art, or otherwise, for the use and benefit of the University of Illinois, subject to said terms and conditions of said donors and subject also to the

right of the Board of Trustees of the University of Illinois to refuse such proffered gifts, if conditions attached thereto be deemed unsatisfactory or unacceptable. Whenever such gifts or bequest, when made as memorials, involve maintenance, provision for such maintenance shall be included in the gift unless this requirement is waived by the University Board of Trustees.

2. Amended the Articles of Incorporation of the said corporation so that Article 3 of such Articles of Incorporation as amended read as follows:

The management of the aforesaid University of Illinois Foundation shall be vested in a Board of twelve Directors. The Board of Directors may appoint from their own number an Executive Committee and delegate to this Committee power to transact corporate business in accordance with the objects as above outlined. Until otherwise provided by the constitution or the by-laws of the University of Illinois Foundation, an Executive Committee of three Directors may be appointed by the Board of Directors, which Committee shall have all the powers of the Board of Directors except that such Executive Committee shall have no power to encumber or convey the real property of the University of Illinois Foundation otherwise than by lease, unless expressly authorized by such Board of Directors.

I further certify that the foregoing amendments to the Articles of Incorporation of the University of Illinois Foundation were adopted at a meeting called in conformity with the Articles of Incorporation, the constitution, and the by-laws of said corporation; and that such action was taken and such amendments were made in conformity with the provisions of the constitution and the by-laws of the said corporation, duly adopted and in force on the 18th day of February, 1936; and that such amendments were in all things regularly and legally approved by the Directors of the corporation, and, upon being filed in the Office of the Secretary of State and recorded in the Recorder's Office of Champaign County, are and become a part of the Articles of the said corporation.

Witness my hand and the seal of this corporation this 19th day of February, 1936.

(signed) K. J. T. Ekblaw
President of The University of Illinois Foundation

(CORPORATION SEAL)

K. J. T. Ekblaw, being first duly sworn, deposes and says that he is and at all times mentioned in the within and foregoing certificate was the duly elected, qualified, and acting President of The University of Illinois Foundation; that he has read the within and foregoing certificate of amendment of the Articles of Incorporation of The University of Illinois Foundation, a corporation not for pecuniary profit in the State of Illinois, and that the facts stated in the within and foregoing certificate are true of his own knowledge. Subscribed and sworn to before me this 19th day of February, 1936.

W. E. Seacole, Notary Public
State of Florida at Large
My commission expires Jan. 5, 1938

(NOTARIAL SEAL)

****

Amendment (#187359)

I hereby certify that at a special meeting of the Members of the Board of Directors of The University of Illinois Foundation held on July 23, 1937, at 1:15 o'clock P.M., pursuant to the rules of said corporation, the following resolution was adopted in accordance with the By-laws of said corporation:

RESOLVED, that the Articles of Incorporation of The University of Illinois Foundation be amended so that Article 3 of said Articles of Incorporation as amended shall read as follows:

> The management of the aforesaid University of Illinois Foundation shall be vested in a Board of 18 Directors. The Board of Directors may appoint from their own number an Executive Committee and delegate to this Committee power to transact corporate business in accordance with the objects as above outlined. Until otherwise provided by the constitution or the by-laws of The University of Illinois Foundation, an Executive Committee of three Directors may be appointed by the Board of Directors, which Committee shall have all the powers of the Board of Directors except that such Executive Committee shall have no power to encumber or convey the real property of The University of Illinois Foundation otherwise than by lease, unless expressly authorized by such Board of Directors.

(CORPORATION SEAL) James C. Colvin, Secretary

State of Illinois) ss
County of Cook)

I, Ralph Chapman, being duly sworn, declare on oath that I am President of the Corporation mentioned in the foregoing certificate, and that the statements therein are true in substance and in fact.

> In witness whereof, I have hereunto set my hand and caused the seal of the said Corporation to be affixed, this 11th day of August, A. D. 1938.

Ralph Chapman, President

(CORPORATE SEAL)

Subscribed and sworn to before me this 11th day of August, A.D. 1938.

Martha O'Leary, Notary Public
(NOTARIAL SEAL) My Commission expires Sept. 22, 1941

(filed August 18, 1938)

CERTIFICATE OF DESIGNATION OF REGISTERED OFFICE AND REGISTERED AGENT BY CORPORATIONS UNDER THE GENERAL NOT FOR PROFIT CORPORATION ACT.

307 37

To Edward J. Hughes, Secretary of State, Springfield, Illinois:

The undersigned corporation, organized and existing under the laws of the State of Illinois for the purpose of designating a registered office and registered agent, as required by the provisions of the "General Not for Profit Corporation Act," of Illinois, represents that:

1. The name of the corporation is UNIVERSITY OF ILLINOIS FOUNDATION.
2. Its registered office is 227 Illini Union, Urbana, Illinois, Champaign County.
3. The name of its registered agent whose address is the same as that of its registered office is James C. Colvin.
4. Such designation was authorized by resolution duly adopted by the Board of Directors.

IN WITNESS WHEREOF, the undersigned corporation has caused this report to be executed in its name by its President and its Secretary, this 24th day of January, A.D. 1944.

THE UNIVERSITY OF ILLINOIS
FOUNDATION

by *Charles S. Pillsbury*
(its President)

James C. Colvin
(its Secretary)

(CORPORATE SEAL)

State of Illinois)
County of Champaign) ss

I, Anna L. Neuber, A Notary Public, do hereby certify that on the 24th day of January, A.D., 1944, James C. Colvin personally appeared before me, and being first duly sworn by me, acknowledged that he signed the foregoing document in the capacity therein set forth and declared that the statements therein contained are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year before written.

Anna L. Neuber, Notary Public

(NOTARIAL SEAL)

(Filed February 29, 1944)

Book 6 Page 210 Certificate Number 828

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WHEREAS, Articles of Amendment to the Articles of Incorporation duly signed and verified of THE UNIVERSITY OF ILLINOIS FOUNDATION have been filed in the Office of the Secretary of State on the 12th day of July, A.D. 1950, as provided by the "General Not for Profit Corporation Act" of Illinois, approved July 17, 1943, in force January A.D., 1944:

NOW THEREFORE, I, Edward J. Barrett, Secretary of State of the State of Illinois, by virtue of the powers vested in me by law, do hereby issue this Certificate of Amendment and attach thereto a copy of the Articles of Amendment to the Articles of Incorporation of the aforesaid corporation:

IN TESTIMONY WHEREOF, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois, done at the City of Springfield this 12th day of July A. D., 1950, and of the Independence of the United States the one hundred and seventy-fifth.

(signed) Edward J. Barrett
Secretary of State

Book 6 page 211
Date 7-12-50
Filing Fee $5.00
ARTICLES OF AMENDMENT
to the Articles of Incorporation
under the General Not for Profit
Corporation Act

To Edward J. Barrett, Secretary of State, Springfield, Illinois.

The undersigned corporation, for the purpose of amending its Articles of Incorporation and pursuant to the provisions of Section 35 of the "General Not for Profit Corporation Act" of the State of Illinois, hereby executes the following Articles of Amendment:

1. The name of the corporation is THE UNIVERSITY OF ILLINOIS FOUNDATION

2. There are no members, having voting rights with respect to amendments;

3. At a meeting of directors (members having no voting rights with respect to amendments) held on June 17, 1950, same receiving the votes of a majority of the directors then in office, the following amendment or amendments were adopted in the manner prescribed by the "General Not for Profit Corporation Act" of the State of Illinois:

That the name of this corporation be changed from "The University of Illinois Foundation" to "University of Illinois Foundation."

IN WITNESS WHEREOF, the undersigned corporation has caused these Articles of Amendment to be executed in its name by its President, and its Secretary, this 6th day of July, 1950.

THE UNIVERSITY OF ILLINOIS
FOUNDATION

(signed)
By John H. Armstrong
(Its President)

(CORPORATE SEAL)

James C. Colvin
(Its Secretary)

A00326

State of Illinois)
County of Champaign) ss.

I, Dorothy Gates, a Notary Public, do hereby certify that on the 6th day of July, 1950, John H. Armstrong, President, personally appeared before me and, being first duly sworn by me, acknowledged that he signed the foregoing document in the capacity therein set forth and declared that the statements therein contained are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year before written.

(signed) Dorothy Gates,
Notary Public

(NOTARIAL SEAL)

(Filed July 12, 1950)

Certificate Number 1129

STATE OF ILLINOIS

OFFICE OF

THE SECRETARY OF STATE

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WHEREAS, Articles of Amendment to the Articles of Incorporation duly signed and verified of UNIVERSITY OF ILLINOIS FOUNDATION have been filed in the Office of the Secretary of State on the 22nd day of October, A. D. 1958, as provided by the "General Not For Profit Corporation Act" of Illinois, approved July 17, 1943, ~~in force January 1, A. D. 1944~~:

NOW THEREFORE, I, Charles F. Carpentier, Secretary of State of the State of Illinois, by virtue of the powers vested in me by law, do hereby issue this Certificate of Amendment and attach thereto a copy of the Articles of Amendment to the Articles of Incorporation of the aforesaid corporation.

IN TESTIMONY WHEREOF, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois, done at the City of Springfield this 22nd day of October A. D., 1958, and of the Independence of the United States the one hundred and eighty-third.

(signed) Charles F. Carpentier
Secretary of State

Date 10-22-58
Filing Fee $5.00
ARTICLES OF AMENDMENT
to the Articles of Incorporation
under the General Not for Profit
Corporation Act

To Charles F. Carpentier, Secretary of State, Springfield, Illinois.

The undersigned corporation, for the purpose of amending its Articles of Incorporation and pursuant to the provisions of Section 35 of the "General Not For Profit Corporation Act" of the State of Illinois, hereby executes the following Articles of Amendment:

1. The name of the corporation is UNIVERSITY OF ILLINOIS FOUNDATION

2. There are no members, having voting rights with respect to amendments;

3. At a meeting of directors (members having no voting rights with respect to amendments) held in October, 1958, same receiving the votes of a majority of the directors then in office, the following amendment or amendments were adopted in the manner prescribed by the "General Not For Profit Corporation Act" of the State of Illinois:

> That Article 3 of said Articles of Incorporation be amended as follows:
> Strike only the first sentence of Article 3 and insert in lieu thereof the following:
>
> "The management of University of Illinois Foundation shall be vested in a Board of Directors, the number thereof to be fixed from time to time by the by-laws."

IN WITNESS WHEREOF, the undersigned corporation has caused these Articles of Amendment to be executed in its name by its President, and its Secretary, this 13th day of October, 1958.

UNIVERSITY OF ILLINOIS FOUNDATION

(signed)
By Amos H. Watts
(Its President)

James C. Colvin
(Its Secretary)

(CORPORATE SEAL)

State of Illinois)
County of Champaign) ss

I, Rosalya F. Schmidt, a Notary Public, do hereby certify that on the 13th day of October, 1958, James C. Colvin personally appeared before me and, being first duly sworn by me, acknowledged that he signed the foregoing document in the capacity therein set forth and declared that the statements therein contained are true.

A0C328

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year before written.

(signed) Rosalya F. Schmidt,
Notary Public

(Notarial Seal)

(Filed October 22, 1958)

Certificate Number 1357

STATE OF ILLINOIS

OFFICE OF

THE SECRETARY OF STATE

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

WHEREAS, Articles of Amendment to the Articles of Incorporation duly signed and verified of UNIVERSITY OF ILLINOIS FOUNDATION have been filed in the Office of the Secretary of State on the 5th day of October A. D., 1959, as provided by the "General Not For Profit Corporation Act" of Illinois, approved July 17, 1943, in force January 1, A. D. 1944:

NOW THEREFORE, I, Charles F. Carpentier, Secretary of State of the State of Illinois, by virtue of the powers vested in me by law, do hereby issue this Certificate of Amendment and attach thereto a copy of the Articles of Amendment to the Articles of Incorporation of the aforesaid corporation.

IN TESTIMONY WHEREOF, I hereto set my hand and cause to be affixed the Great Seal of the State of Illinois, done at the City of Springfield this 5th day of October A.D., 1959, and of the Independence of the United States the one hundred and eighty-fourth.

(signed) Charles F. Carpentier
Secretary of State

Date 10-5-59
Filing Fee $10.00
ARTICLES OF AMENDMENT
to the Articles of Incorporation
under the General Not for Profit
Corporation Act

To Charles F. Carpentier, Secretary of State, Springfield, Illinois.

The undersigned corporation, for the purpose of amending its Articles of Incorporation and pursuant to the provisions of Section 35 of the "General Not For Profit Corporation Act" of the State of Illinois, hereby executes the following Articles of Amendment:

1. The name of the corporation is: UNIVERSITY OF ILLINOIS FOUNDATION

2. There are no members, having voting rights with respect to amendments;

3. At a meeting of directors (members having no voting rights with respect to amendments) held on October 3, 1959, same receiving the votes of a majority of the directors then in office, the following amendment or amendments were adopted in the manner prescribed by the "General Not For Profit Corporation Act" of the State of Illinois:

> That there be added to Article 2 of the Articles of Incorporation as amended, immediately subsequent to paragraph e. of said Article, the following:
>
> f. In the event of dissolution, the assets of the corporation shall be transferred or conveyed to the Board of Trustees of the University of Illinois to be held in trust and said property, or the income therefrom, used to advance the educational purposes of the University of Illinois, unless such distribution of particular property is prohibited by the terms of the gift thereof or the deed of trust to the corporation, in which event said property, so restricted, shall be distributed to a corporation, society or organization engaged in substantially similar activities, to be used for the purposes specified in the original gift or deed of trust.

IN WITNESS WHEREOF, the undersigned corporation has caused these Articles of Amendment to be executed in its name by its President, and its Secretary, this 3rd day of October, 1959.

UNIVERSITY OF ILLINOIS FOUNDATION

(signed)
By Amos H. Watts
(Its President)

Charles E.Warwick
(Its Secretary)

(CORPORATE SEAL)

State of Illinois)
County of Champaign) ss.

I, Roma L. Reinhardt, a Notary Public, do hereby certify that on the 3rd day of October, 1959, Charles E. Warwick personally appeared before me and, being first duly sworn by me, acknowledged that he signed the foregoing document in the capacity therein set forth and declared that the statements therein contained are true.

IN WITNESS WHEREOF, I have hereunto set my hand and seal the day and year before written.

(signed) Roma L. Reinhardt,
Notary Public

(NOTARIAL SEAL)

(Filed Oct. 5, 1959)

A00330

BY-LAWS

OF THE

UNIVERSITY OF ILLINOIS FOUNDATION

ARTICLE I

NAME AND INCORPORATION

Section 1. Name. The name of this organization shall be "University of Illinois Foundation." It is hereinafter referred to as the "Foundation."

Section 2. Nature. The Foundation shall be a non-profit corporation organized under the laws of the State of Illinois, and its purposes shall be charitable and educational.

Section 3. Location. The Principal offices of the Foundation shall be on the main campus of the University of Illinois in Champaign-Urbana.

Section 4. Objects. The objects of the Foundation as stated in its Certificate of Incorporation, as amended, are:

(a) To assist in developing and increasing the facilities of the University of Illinois for broader educational opportunities for and services to its students and alumni and to the citizens of the State of Illinois, by encouraging gifts of money, property, works of art, historical papers and documents, museum specimens and other material having educational, artistic or historical value, and by such other proper means as may seem advisable.

(b) To receive, hold and administer such gifts with the primary object of serving purposes other than those for which the State of Illinois ordinarily makes sufficient appropriations; to act without profit as trustee of educational, or charitable trusts; to administer gifts, grants or loans of money or property, real or personal, whether made by or for the benefit of public governmental bodies, state or national, or by or for the benefit of corporations or natural persons, and whether in the form of conventional express trusts or otherwise; to become a party to contracts, trust instruments and agreements of any type or description, and to execute negotiable obligations, as trustee or otherwise; in order to effectuate either the creation or organization of trusts, or the execution of the purposes thereof. Where the terms and conditions imposed by the donors of any forms of gifts or bequests make immediate transfer to the University of Illinois right and proper, the Foundation shall transfer absolutely and in full right, title to and interest in such property, real and personal, transferred, assigned

or conveyed by any and all persons whatsoever, whether such property be in the form of money, manuscripts, works of art, or otherwise, for the use and benefit of the University of Illinois, subject to said terms and conditions of said donors and subject also to the right of the Board of Trustees of the University of Illinois to refuse such proffered gifts, if conditions attached thereto be deemed unsatisfactory or unacceptable. Whenever such gifts or bequests, when made as memorials, involve maintenance, provision for such maintenance shall be included in the gift unless this requirement is waived by the University Board of Trustees.

(c) To deposit forthwith in the archives or library of the University articles or manuscripts, having scientific or educational value, which may be loaned the Foundation by the owners or by persons in legal custody thereof, subject to the approval of the Board of Trustees.

(d) To act as the business agent of the Board of Trustees of the University of Illinois in performing any other services for the Board of Trustees, not herein specifically mentioned; if said Board of Trustees so desires and so specifies.

(e) To do such other acts and undertake such other enterprises as in the judgment of the Board of Directors shall tend to promote the interests and welfare of the University of Illinois.

ARTICLE II

MEMBERS

Section 1. Classes of Members. There shall be two classes of members; honorary members consisting of the persons from time to time acting as President of the University of Illinois, President of the Board of Trustees of the University of Illinois, and President of the University of Illinois Alumni Association; and regular members who shall be selected from persons who have attended the University of Illinois for one or more years, or persons approved by a majority of the whole Board of Directors of the Foundation who have evidenced a continuing interest in the University.

Section 2. Election of Members. Honorary members shall become and remain members ex officio when and so long as they are incumbents of the offices mentioned in Section 1 of this Article.

Regular members, not to exceed three hundred (300) in number, shall be elected as herinafter provided to serve for a term beginning at the annual meeting subsequent to their election and until the second annual meeting subsequent thereto.

Commencing with the first election subsequent to the adoption of this section, and at each election thereafter, such number of regular members shall be elected as the nominating committee shall determine, not exceeding, however, a number that would cause the total regular membership to exceed three hundred (300 in number.

At each Annual Meeting of the members of the Foundation or with thirty (30) days thereafter, the President shall appoint a committee of five (5) to serve as a Nominating Committee of new members to succeed those whose term of membership will expire during the ensuing year.

The Nominating Committee, not later than six months after its appointment, shall report to the President of the Foundation the names of its nominees for regular membership.

The names of all nominees shall be mailed to the membership within thirty (30) days after the receipt by the President of the report of the Nominating Committee.

Within thirty (30) days after the mailing of the names of the nominees to the membership, any ten (10) members may propose the names of other nominees and the nominating petition forwarded to the Secretary of the Foundation. If such additional nominations are made before the expiration of the thirty (30) day period, the Secretary shall send to the membership a ballot containing the names of all nominees, and all ballots, to be effective, must be received by the Secretary within thirty (30) days from the date of such mailing. The Secretary shall certify the result of such balloting to the members at the next annual meeting.

If, at the expiration of the thirty (30) day period, no additional nominations have been received, the Secretary of the Foundation shall cast a unanimous ballot for those selected by the Nominating Committee.

Section 3. Voting Rights. Each member shall be entitled to one vote on each matter submitted to a vote of the members.

Section 4. Termination of Membership. The Board of Directors by affirmative vote of two-thirds of all of the members of the Board may suspend or expel a member for cause after an appropriate hearing.

Section 5. Resignation. Any member may resign by filing a written resignation with the Secretary.

Section 6. Transfer of Membership. Membership in the Foundation is not transferable or assignable.

ARTICLE III

MEETINGS OF MEMBERS

Section 1. Annual Meetings. The regular annual meeting of the members of the Foundation shall be held at a time and place to be designated by the President of the Foundation, such meeting to be held for the purpose of electing directors and for the transaction of such other business as may come before the meeting.

Section 2. Special Meetings. Special meetings of the members may be called at any time by the President of the Foundation, by resolution adopted by the Board of Directors, or by not less than one-tenth of the members, and should be held at the place within or without the State of Illinois designated in any such call.

Section 3. Notice of Meetings. Written or printed notice stating the place, day and hour of any meeting of members shall be delivered, either personally or by mail, to each member entitled to vote at such meeting, not less than ten (10) days nor more than thirty (30) days before the date of any special meeting and not less than thirty (30) days before the date of the annual meeting, by or at the direction of the President, or the Secretary, or the directors or members calling the meeting. In case of a special meeting or when required by statute or by these bylaws, the purpose for which the meeting is called shall be stated in the notice. If mailed, the notice of a meeting shall be deemed delivered when deposited in the United States mail addressed to the member at his address as it appears on the records of the Foundation, with postage thereon prepaid.

Section 4. Quorum. Ten (10) members of the Foundation represented in person or by proxy shall constitute a quorum at any meeting of the members; provided that if less than ten (10) members are present in person or by proxy, a majority of the members present may adjourn the meeting from time to time without further notice.

Section 5. Proxies. At all meetings of members, a member entitled to vote may vote either in person or by proxy executed in writing by the member or by his duly authorized attorney in fact. Any proxy shall be filed with the Secretary before or at the time of the meeting. No proxy shall be valid after eleven (11) months from the date of its execution unless otherwise provided in the proxy.

ARTICLE IV

BOARD OF DIRECTORS

Section 1. A. Regular Directors. The regular membership of the

Board of Directors shall consist of twelve persons elected by the members of the Foundation as hereinafter provided, the immediate past president of the University of Illinois Foundation, the President of the University of Illinois, the President of the Board of Trustees of the University of Illinois (or such other member of the Board of Trustees as he may designate in writing), and the President of the University of Illinois Alumni Association.

B. Honorary Directors. All past Presidents of the University of Illinois Foundation and all members of the Board of Directors of the Foundation whose terms have expired shall be and become honorary directors during such periods as they are not serving as regular directors. Honorary directors shall have no voting power, nor shall they be considered in determining a quorum. Honorary directors shall be entitled to attend all meetings of the Board of Directors but the provisions of Section 8 of this Article IV pertaining to notices shall not apply to them.

Section 2. Election of Directors. At each annual meeting of the members of the Foundation there shall be elected from the membership of the Foundation four directors, each of whom shall serve as a regular director for a term of three years.

No director elected by the members of the Foundation shall serve more than two consecutive three-year terms as an elected regular director.

Section 3. Powers and Duties. The Board of Directors shall manage the affairs of the Foundation and shall exclusively exercise all of its powers, except the election of members and of directors at the annual meeting and such other matters as shall be submitted by the Board of Directors to the members or shall be required by statute to be submitted to the members.

Section 4. Removal of Directors. Any elected director may be removed for cause by a majority vote of the members of the Board of Directors, upon notice of charges against him given in writing by the President or Secretary, at least twenty (20) days before action on his removal is taken. The resignation of a director for any cause may be accepted by a majority vote of the Board of Directors.

Section 5. Vacancies. Any vacancy occurring in the Board of Directors or any directorship to be filled by reason of an increase in the number of directors, shall be filled by appointment by the Board of Directors. A director so appointed to fill a vacancy shall be appointed for the unexpired term of his predecessor in office.

Section 6. Regular Meetings. There shall be one regular meeting of the Board of Directors annually, at the time and place of the regular annual meeting of the members of the Foundation. The Board of Directors may

provide by resolution the time and place for the holding of additional regular meetings of the Board without other notice than such resolution.

Section 7. Special Meetings. Special meetings of the Board of Directors may be called by the President at his discretion, and must be called by him on the written request of three (3) or more members of the Board of Directors. Special meetings shall be called at any reasonable time and place determined by the President, but not later than two (2) weeks after such request for a meeting has been received by him or within such time as is necessary for him to receive approval of the date of meeting from the directors.

Section 8. Notice. Notice of any special meeting of the Board of Directors shall be given by written notice delivered personally or sent by mail or telegram to each director at his address as shown by the records of the Foundation not later than three (3) days prior to the date of any such meeting. If mailed, such notice shall be deemed to be delivered when deposited in the United States mail in a sealed envelope so addressed, with postage thereon prepaid. If notice be given by telegram, such notice shall be deemed to be delivered when the telegram is delivered to the telegraph company. Any director may waive notice of any meeting. In so far as practicable the subject or subjects to be considered at any special meeting shall be specified in the notice, but subjects not so specified may nevertheless be considered and acted upon at such meeting.

Section 9. Quorum. Except as otherwise provided by the bylaws, all actions of the Board of Directors shall be determined by a majority vote. A majority vote is defined as a majority of the quorum. Five (5) members of the Board shall constitute a quorum. In the absence of a quorum no legal action can be taken unless such action later is approved by letter or other vote of record by sufficient additional members of the Board to constitute a quorum.

Section 10. Executive Committee. The Board of Directors shall elect from its own body an Executive Committee of three (3) which shall have and exercise all of the powers of the Board of Directors while the Board of Directors is not in meeting, except that the Executive Committee, unless expressly authorized by the Board of Directors, shall have no power to encumber or convey the real property of the Foundation otherwise than by lease. At least one member of the Executive Committee shall be a member of the Board of Trustees of the University. Unless otherwise provided by resolution of the Board of Directors, a majority of the whole Executive Committee shall constitute a quorum and the act of a majority of the members of the Executive Committee present at a meeting at which a quorum is present shall be the act of the Committee. Each member of the Executive Committee shall continue as such until the next annual meeting of the members of the Foundation and until his successor is appointed, unless such member shall be sooner removed from such Executive Committee, or unless such member shall cease to qualify as a member thereof.

Action taken by the Executive Committee shall be made a matter of record and the Secretary of the Foundation shall serve ex officio as Secretary of the Executive Committee. A written report of the action taken by the Executive Committee shall be made at the next meeting of the Board of Directors.

ARTICLE V

OFFICERS

Section 1. Officers. The Officers of the Foundation shall consist of a President and a Vice President, each elected annually by and from the regular members of the Board of Directors; a Treasurer, who shall be the Comptroller of the University of Illinois, a Secretary and an Executive Director, who shall be elected annually by the Board of Directors from without the Board. The Board of Directors may employ such additional officers for the Foundation as it may deem advisable and such officers shall be given such titles and shall perform such duties as may be determined by the Board of Directors. The elected officers shall assume office at the time of their election. Each officer shall hold office until his successor shall have been duly elected and shall have qualified.

Section 2. Executive Director. The management of the affairs of the Foundation shall be vested in an Executive Director, who shall be elected by the Board of Directors after consultation with the President of the University and the Board of Trustees. He shall be under the guidance of the Board of Directors and shall carry out all their actions and all the actions of the Board of Trustees affecting the Foundation. He shall manage all the affairs and operations of the Foundation not specifically assigned to other officers. He shall be in charge of the work of all persons employed by the Foundation. He shall submit recommendations to the Board of Directors for programs and activities of the Foundation.

It shall be the duty of the Executive Director to confer from time to time with, and to seek the guidance and advice of, the President of the University with reference to the affairs of the Foundation.

Section 3. Vacancies. In the event of the death, disability, resignation, removal or disqualification of any officer of the Foundation, the Board of Directors shall by majority vote elect his successor to serve out the unexpired term.

Section 4. Powers and Duties. Except as otherwise provided by these bylaws, the officers shall have such powers and duties as usually devolve upon

such officers. The President shall appoint such committees as he may deem necessary or desirable, and those appointed to such committees shall serve at his pleasure during his term of office. All committees shall report to the Board of Directors.

All contracts and leases to which the Foundation is a party shall be executed by the President, the Vice President, or the Treasurer and attested by the Secretary or the Assistant Secretary.

Section 5. Removal. Any officer may be removed for cause by a majority vote of the Board of Directors, provided that such officer shall have been notified in writing by the President or Secretary not less than twenty (20) days before such meeting of such charges as may be preferred against him by the majority of the Board of Directors.

Section 6. Surety Bonds. All officers and employees of the Foundation who handle Foundation funds shall furnish adequate surety bonds to be approved by the Board of Directors of the Foundation.

The Treasurer shall furnish a surety bond in favor of the Foundation for an amount approved by the Board of Directors. It shall be renewable from year to year on July 1. The cost of all surety bonds shall be paid by the Foundation.

Section 7. Expenses of Executive Director. A working fund may be advanced to the Executive Director out of which payment may be made by him for routine and emergency expenses. The amount of this fund shall not exceed $500 unless authorization for a larger amount is given by the Board of Directors or by the Executive Committee. This fund shall be reimbursed from time to time by a regular check of the Foundation on the presentation of itemized, receipted bills for expenses paid from it by the Executive Director.

ARTICLE VI

FINANCES

Section 1. Funds and Securities. The funds of the Foundation shall be deposited in a bank under State or national supervision having a capital, surplus and undivided profits of not less than $5,000,000 except as hereinafter provided. The securities of the Foundation shall be deposited under an Agency Agreement with the Trust Department of any institution of equal financial strength. The Board of Directors or the Executive Committee may, by appropriate resolution, authorize the registration of securities in the name of the nominee to be designated by said resolution. If, in the judgment of the Board of Directors, funds of the Foundation should be deposited in banks

outside the continental United States, funds so to be deposited may be deposited in such banks, irrespective of financial size, as may be approved by the Board of Directors or by the Executive Committee.

Section 2. Auditing of Accounts. To audit accounts of the Foundation the Executive Committee shall appoint Certified Public Accountants engaged by the Board of Trustees of the University to audit the accounts of the University.

Section 3. Annual Report. The Treasurer shall keep, or supervise the the keeping of, the accounts of the Foundation in such form as shall be deemed advisable by him, and shall submit an annual report to the members at the annual meeting, as well as such other reports as may be required of him by the Board of Directors or Executive Committee from time to time.

Section 4. Operating Finances. An annual budget shall be prepared by the Executive Director, approved by the Board of Directors, and transmitted through the President of the University to the Board of Trustees. The Executive Director shall make all purchases and contractual expenditures for the Foundation, except as otherwise specifically directed by the Board of Directors. When practicable and reasonable under the circumstances, the Executive Director shall make such purchases and expenditures after considering competitive prices, by bid or otherwise, in thelight of quality, suitability and other relevant factors. Proposed purchases and contractual expenditures in excess of $2, 500 shall be submitted to the Board of Directors or Executive Committee for approval prior to being made.

ARTICLE VII

AMENDMENTS AND BYLAWS

Section 1. Amendments. The bylaws of the Foundation may be amended by a majority vote of all Directors of the Foundation at any regular or special meeting of the Board, provided notice of the character of the proposed amendment shall have been given to the Directors at least twenty (20) days before such amendment is voted upon.

Section 2. Copy of Bylaws. The Secretary of the Foundation shall at all times keep in the office of the Foundation a true and correct copy of the bylaws.

ARTICLE VIII

FUNDS AND INVESTMENTS

Section 1. Savings and Checking Accounts. The Treasurer shall deposit all funds belonging to the Foundation as received in the name of the Foundation. Deposits may be made in either savings or checking accounts, as the Treasurer may consider advisable. Deposits may be made only in banks that have been approved previously by the Board of Directors. Checks shall be drawn by the Treasurer and signed by him and by the Secretary or Executive Director or by authorized deputies.

Section 2. Purchase or Sale of Securities. The Treasurer, when directed by the Executive Committee, shall sell securities owned by the Foundation and deposit the proceeds as provided in Section I next above. Available amounts in the checking and savings accounts shall be invested from time to time by the Treasurer as directed by the Executive Committee.

Section 3. Safekeeping of Securities. All securities owned by the Foundation or held under its control shall be deposited with one bank, or trust company, under a safekeeping agreement. The form of agreement shall provide that the bank will remit the current income to the Treasurer and the securities may be withdrawn or the proceeds from the payment or sale of securities may be withdrawn only as provided by Section 4 of this article.

Section 4. Withdrawal of Securities. The Secretary shall notify the Treasurer and the depository of all actions of the Board of Directors or of the Executive Committee of the Board which involve the withdrawal of securities from safekeeping. The depository shall be authorized upon receipt of such advice from the Secretary to deliver to the Treasurer or to his order securities covered by such action. The President or the chairman of the Executive Committee is authorized to act for either the Secretary or the Treasurer provided that the same officer may not act in both capacities in connection with the same transaction.

ARTICLE IX

INDEMNIFICATION OF DIRECTORS AND OFFICERS

Each Director and Officer, whether or not then in office, and his heirs, executors, administrators and assigns, shall be indemnified by the Foundation against all costs and expenses reasonably incurred by or imposed upon him or his estate in connection with or resulting from any action, suit or proceedings, civil or criminal, to which he or his estate shall or may be

made a party, or with which he or it shall or may be threatened by reason, directly or indirectly, of his being or having been a Director or Officer of the Foundation, except in relation to matters as to which he shall be finally adjudged in such action, suit or proceeding to be liable for dereliction or negligence in the performance of his duty as such Director or Officer, and shall also be indemnified against any costs or expenses reasonably incurred by or imposed upon him or his estate in connection with or resulting from the settlement of any such action, suit or proceeding in which such Director or Officer was not derelict or negligent in the performance of his duty as a Director or Officer. The costs and expenses against which any such Director or Officer shall be so indemnified shall be those actually paid or for which liability is actually incurred, irrespective of whether such costs or expenses are taxable costs as defined or allowed by statute or rule of court. A Director or Officer shall not be deemed to have been derelict or nigligent in the performance of his duty as a Director or Officer as to any matter wherein he relied upon the opinion or advice of legal counsel selected by the Board of Directors or acting in any such matter for the Foundation. Said rights of indemnification shall be in addition to any other rights with respect to any such costs and expenses to which such Director or Officer may otherwise be entitled against the Foundation or any other person.

gd: April 8, 1965

CHANNEL MASTER CORPORATION
Ellenville, N York

July 8, 1964

CM re JFD

President David D. Henry
University of Illinois
Urbana, Illinois

Dear Sir:

We write to you of a matter that has caused us great concern.

Channel Master Corporation is the leading manufacturer of television antennas in this country. The firm known as JFD Electronics Corporation is a competitor and for some time prior to April 10th has indicated that its JFD Log-Periodic LPV Antenna was licensed and produced by JFD under exclusive license from the University of Illinois Foundation. It has also advertised and represented that its JFD LPV Antenna incorporates the new Log-Periodic LPV Formula patented by the Antenna Research Laboratories of the University of Illinois in the name of Dr. Paul Mayes.

It is our firm position, supported by opinion from our Patent Counsel, Darby & Darby of New York City, that the JFD LPV Antenna as represented in its advertising literature, is neither log-periodic nor is it covered by the Mayes Patent and such misrepresentations by a competitor, under the celebrated name of your University, have caused substantial commercial injury to us.

On April 8th our Executive Vice President, Mr. Harold Harris, telephoned Dr. Jordan and made known to him at that time our complaints concerning this JFD LPV Antenna and pointed out that their misrepresentations and untruths involved the University of Illinois as well as the University of Illinois Foundation, by direct and constant reference throughout their advertising literature.

As a result of that telephone conversation, it was suggested that we meet at the University on April 10th for a discussion. It is significant to note, that, during that telephone conversation between Dr. Jordan and Mr. Harris,

Dr. Jordan confessed that his Department was well aware of the problem and that it had given him and the Department great concern.

On April 10th Mr. Harris and the writer had a conference with Dr. Jordan together with Professor Paul Mayes. We were also able to spend a few minutes with Mr. James C. Colvin, Director of the Foundation. At that time we submitted many copies of the JFD advertising literature as Dr. Jordan requested.

We pointed out to both Dr. Jordan and Professor Mayes that the JFD Electronics Corporation was guilty of misrepresentation of the deepest nature and that this practice was both known to and allowed on the part of the University of Illinois and the University of Illinois Foundation. At the conclusion of our two hour meeting, we requested a written confirmation from both the University of Illinois as well as from the University of Illinois Foundation disassociating both of them from the misrepresentations and practices of JFD, and a statement that the configurations of the JFD LPV Antennas as set forth in the submitted literature advertising material, actually did not include the patented new Log-Periodic Formula of the Antenna Research Laboratories of the University of Illinois or of the Foundation, and that the same JFD LPV Antennas were not patented under the Mayes Patent.

Dr. Jordan assured us that we would have written word from the University within the next ten days following our conference. We have had no such written reply as of now. In fairness to Dr. Jordan, I have discussed this matter with him on the telephone on two occasions when he has assured me that he has recommended that the University take a very strong and firm position with JFD.

It has not been our desire to litigate our position with the University or with the Foundation or to involve you unnecessarily in resolving our competitive differences with the JFD Electronics Corporation. However, we contend that the highly respected name of the University of Illinois has been used as nothing more than a merchandising "gimmick" to our great damage and we would hope that you would be most interested in seeing that equity and truth prevail.

Unless we have written assurances from you by return mail along the lines of our request to Dr. Jordan, we feel that we would have no alternative but to press for all available redress by legal action.

Very truly yours,

CHANNEL MASTER CORPORATION

By _____
Louis Berger
General Counsel

LB:sb
cc: Morris Kelsox, Esq.

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN *

*VA. & D.C. BARS

LAW OFFICES
MERRIAM, SMITH & MARSHALL
THIRTY WEST MONROE STREET
CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

July 16, 1964

Mr. Louis Berger, General Counsel
Channel Master Corporation
Ellenville, New York 12428

Dear Mr. Berger:

This will confirm our telephone conversation today and state that I am planning to meet with you in the offices of Messrs. Darby & Darby, Chrysler Building, New York City, on Thursday morning, July 23, 1964, to discuss matters concerning which you wrote President Henry of the University of Illinois. The 11:00 a.m. hour suggested by you will be satisfactory to me.

Since I believe that Mr. Keegan will want to be present, and perhaps also Mr. Fletcher, I have advised Mr. Keegan by telephone of this change in date, but nevertheless send him a copy of this letter. I have also advised Mr. Colvin, Director of the University of Illinois Foundation, that this meeting is planned.

Sincerely yours,

Original Signed by
SAMUEL B. SMITH

SBS:mn

Samuel B. Smith

cc: Mr. Robert R. Keegan
Darby & Darby
Chrysler Building
New York 17, New York

Mr. James C. Colvin, Executive Director
University of Illinois Foundation
224 Illini Union
Urbana, Illinois 61803

UNIVERSITY OF ILLINOIS

OFFICE OF THE PRESIDENT
URBANA, ILLINOIS 61803

July 20, 1964

Mr. Louis Berger
General Counsel
Channel Master Corporation
Ellenville, New York

Dear Mr. Berger:

I have your July 8, 1964, letter in which you refer to certain advertising practices of one of your competitors, JFD Electronics Corporation, in connection with its commercial exploitation of antennas developed at the University of Illinois. As you are aware, the University's rights in the antennas have been released to the University of Illinois Foundation, a separate corporation and the licensor of your competitor.

Whether or not JFD Electronics Corporation's advertising program has correctly represented the devices, or the involvement of both the University and the University of Illinois Foundation in their development, are complex and technical questions which require careful and deliberate consideration of the patent and advertising claims. Accordingly, I am referring your July 8 letter to the Foundation with the request that the Foundation or its patent attorneys communicate directly with you.

I share your stated concern "in seeing that equity and truth prevail" and, therefore, am asking the Foundation and Dr. Jordan to report to me for appropriate disposition their views as to the propriety of any use made of the University's name in these circumstances.

Very truly yours,

David D. Henry

David D. Henry
President

July 27, 1964

Merriam, Smith & Marshall
Thirty West Monroe Street
Chicago, Illinois 60603

Att: Samuel D. Smith, Esq.

Gentlemen:

This will confirm our understanding following our meeting on Thursday morning, July 23rd, at Darby & Darby in New York City.

It was agreed that I was to have your reply in behalf of the University of Illinois and the University of Illinois Foundation relative to my letter of July [illegible], 1964, to Dr. David D. Henry, no later than Friday, July 31st, 1964.

Very truly yours,

CHANNEL MASTER CORPORATION

By _____
Louis Berger
General Counsel

LB:sb

cc: ✓ Darby & Darby
405 Lexington Avenue
New York, New York

P.S. Please call me upon receipt of the enclosed.

L.B.

THIS NEW JFD ANTENNA FORMULA

$L(n+1)$ means more picture power

L_n new picture purity

Conceived by the University of Illinois*...
Proved-Out in Air Force Satellite Tracking...
Licensed and Developed for Home Use by JFD Electronics...

IT COULD ONLY HAVE BEEN PRODUCED BY SUCH MASSED RESOURCES as those of a prominent university, the Air Force, and the country's leading antenna manufacturer—JFD.

THE LOG-PERIODIC LPV MUST IMPROVE YOUR TELEVISION PERFORMANCE—on virtually every count—because it outperforms previous antennas on virtually every count.

BUILDS UP ENORMOUS POWER to bring in new depth, more detail—regardless of distance or terrain.

FOCUSES WITH PINPOINT PRECISION, to go after the signal you're tuned to and no other—without noise, snow or ghosts.

GET VIVID, VIBRANT PICTURES ON EVERY CHANNEL... the truest color you've ever seen... plus FM and stereo! Ask us about the JFD LOG-PERIODIC LPV designed for your area.

LOCAL: up to 50 miles from transmitter LPV-4: 5 active cells

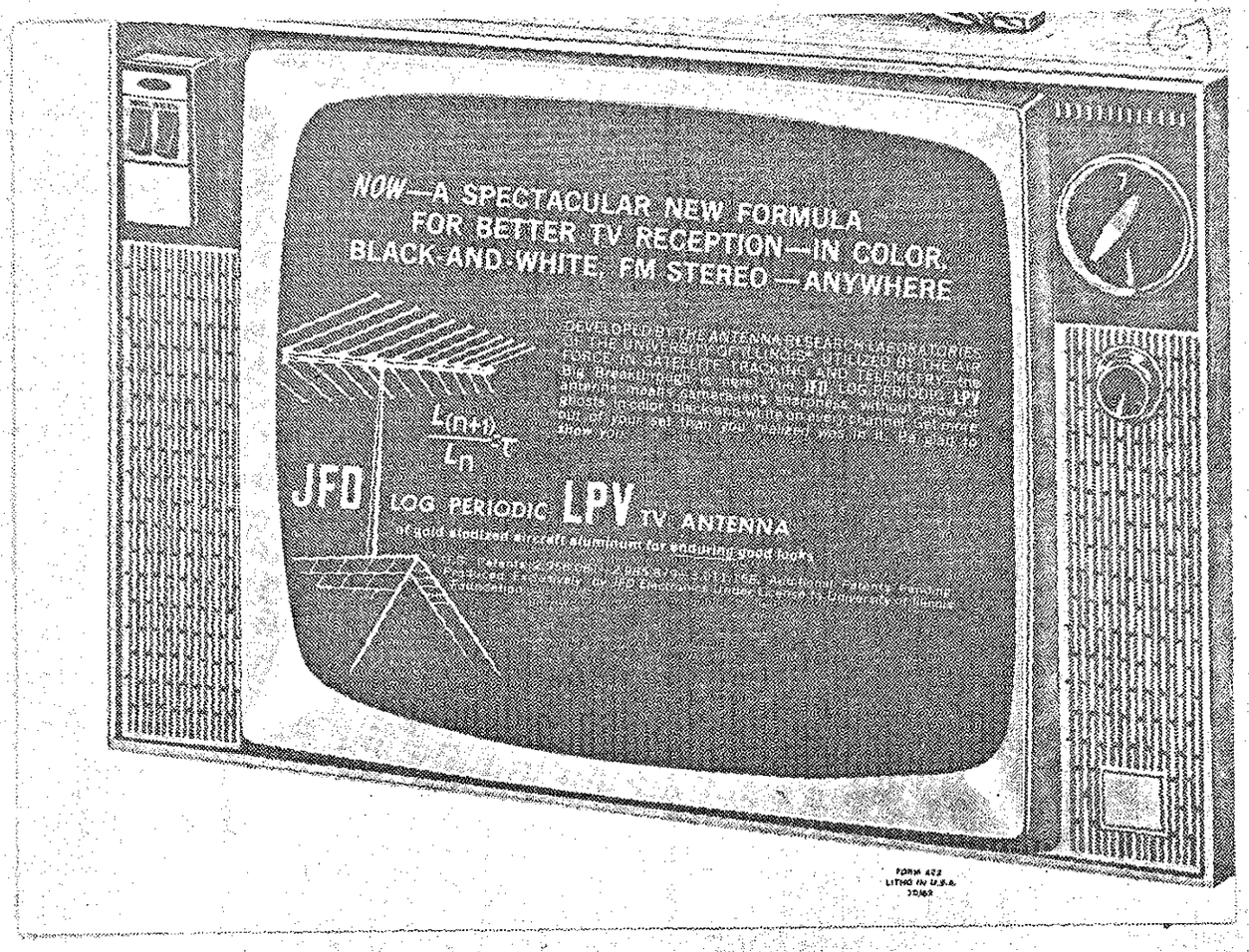
SUBURBAN: up to 75 miles from transmitter LPV-6: 6 active cells

SUPER-SUBURBAN: up to 100 miles from transmitter LPV-8: 7 active cells, 1 director

FRINGE: up to 125 miles from transmitter LPV-11: 9 active cells, 2 directors

FAR FRINGE: up to 150 miles from transmitter LPV-14: 13 active cells, 1 director

SUPER-FRINGE: up to 175 miles from transmitter LPV-17: 15 active cells, 2 directors


NOW—A SPECTACULAR NEW FORMULA
FOR BETTER TV RECEPTION—IN COLOR,
BLACK AND WHITE, FM STEREO—ANYWHERE
$\frac{L_{(n+1)}}{L_n} = \tau$
JFD
LOG PERIODIC LPV TV ANTENNA
of hard knocked aircraft aluminum for enduring good looks

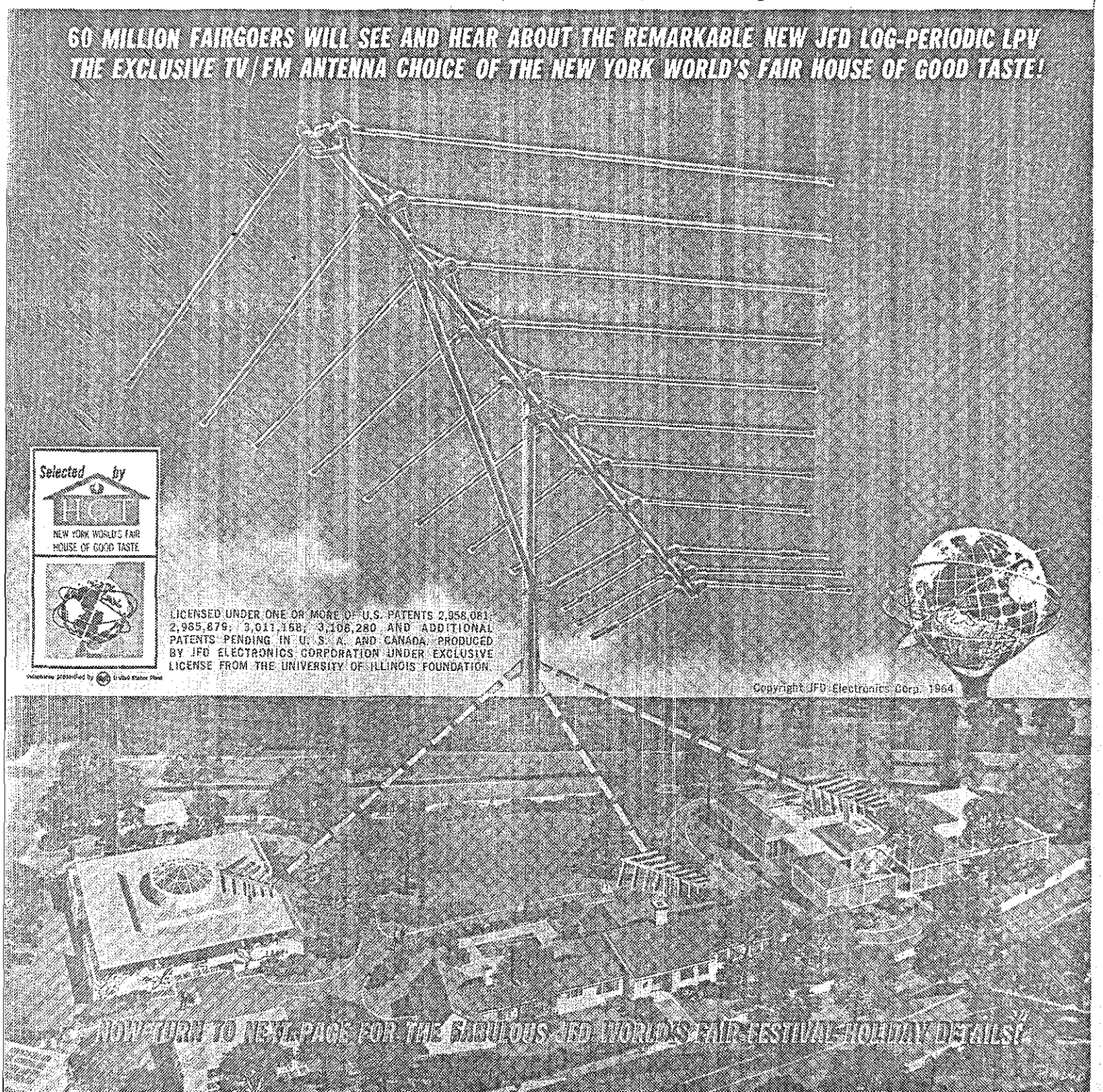
SEE THE JFD LOG-PERIODIC LPV® EXHIBITED AT THE 1964-65 NEW YORK WORLD'S FAIR

The New York World's Fair House of Good Taste Exhibit will showcase today's and tomorrow's finest advances in home living. Its Board of Directors selected the JFD Log-Periodic LPV as the only television antenna to be installed on each of the three homes in its exhibit.

Sixty million Fair-goers will see the JFD Log-Periodic LPV. Millions more, everywhere in America, will see, hear and read about the House of Good Taste and its choice of the JFD Log-Periodic LPV. This powerful new marketing force will be at work building record JFD Log-Periodic LPV sales and profits for you during 1964 and 1965.

Another JFD first that means more customers—more profits for Log-Periodic LPV users!

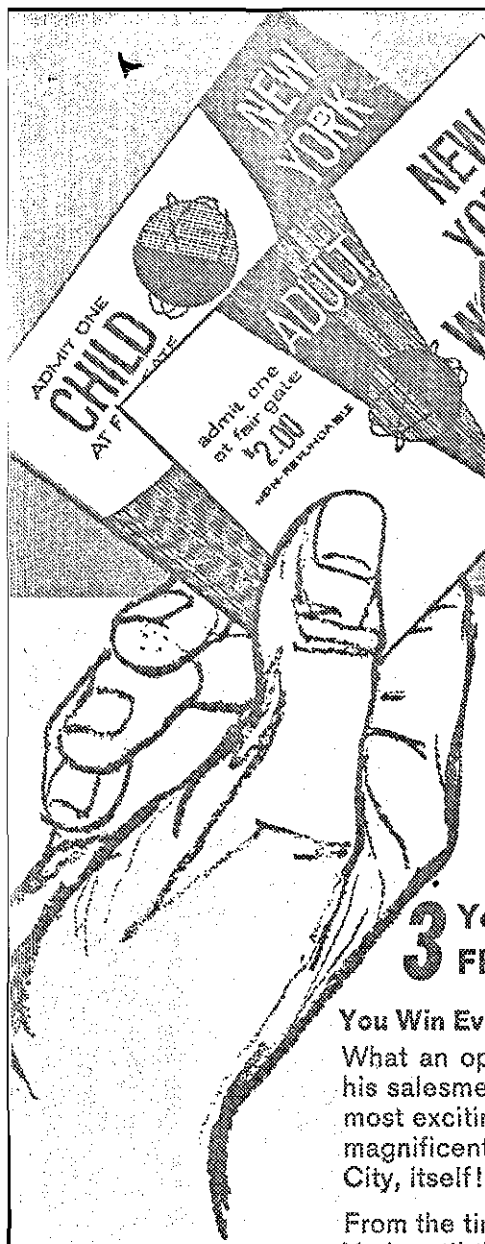
60 MILLION FAIRGOERS WILL SEE AND HEAR ABOUT THE REMARKABLE NEW JFD LOG-PERIODIC LPV THE EXCLUSIVE TV/FM ANTENNA CHOICE OF THE NEW YORK WORLD'S FAIR HOUSE OF GOOD TASTE!



NOW TURN TO NEXT PAGE FOR THE FABULOUS JFD WORLD'S FAIR FESTIVAL HOLIDAY DEALS!

Get ready for the time of your JFD WORLD'S FAIR

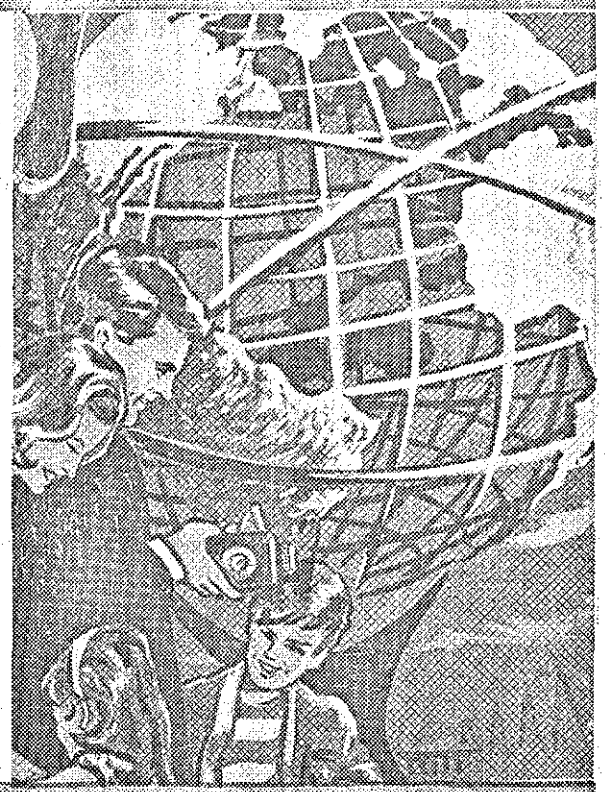
YOU WIN ALL WAYS WHEN YOU FEATURE THE



1 More antenna sales and profits than you have ever seen

2 A fabulous all-expense 8 days and 7 nights holiday at the World's Fair for you or your salesmen

3 Your dealers and salesmen can get FREE World's Fair tickets and trips



You Win Every Way You Look At It.

What an opportunity—for every JFD distributor (and his salesmen)—for a never-to-be-forgotten trip to the most exciting spectacle of the twentieth century—the magnificent World's Fair **and** glamorous New York City, itself!

From the time you step into your Jetliner to fly to New York until the moment you arrive back home—meals, Fair admissions and attractions, hotel accommodations, night clubs, theater tickets, sightseeing—**everything** is on JFD.

START NOW...MAKE SALES/POINTS WITH JFD ANTENNAS!

HOW YOU, YOUR SALESMEN, AND DEALERS CAN PARTICIPATE IN THE JFD WORLD'S FAIR FESTIVAL HOLIDAY

Each and every LPV antenna earns you valuable Fair Point Certificates according to the schedule (right). You or your salesmen can use these Certificates for:

1. An 8-day, 7-night all-expense Fair holiday (worth 25,000 points).
2. A 3-day, 2-night Fair Week-ender holiday (worth 3,000 points).

JFD also matches the Fair Certificates you get with an additional **equal** number of certificates **for your dealer.** Your dealer can use his certificates for:

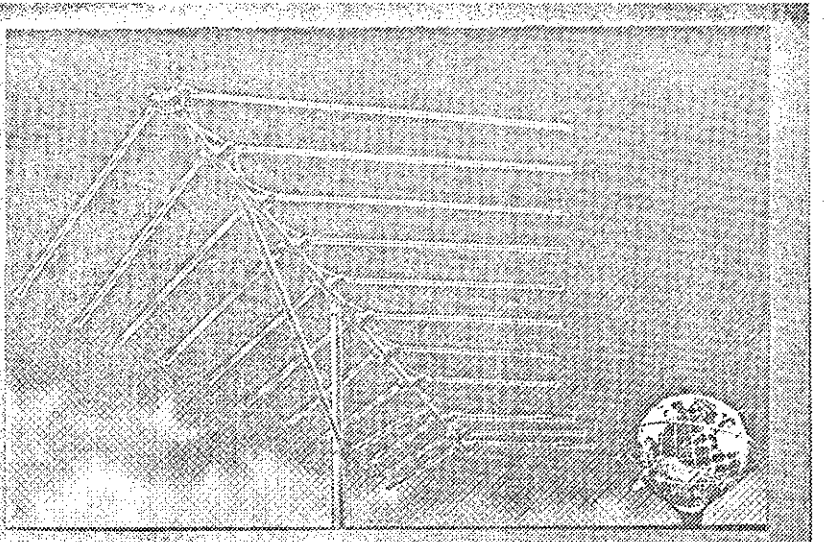
1. Free World's Fair Adult Admission Tickets (worth 150 points) or . . .
2. A 3-day, 2-night Fair **WEEK-ENDER HOLIDAY** (worth 3,000 points) or . . .
3. Redeem his certificates from JFD for $1.25 cash for each 150 points.

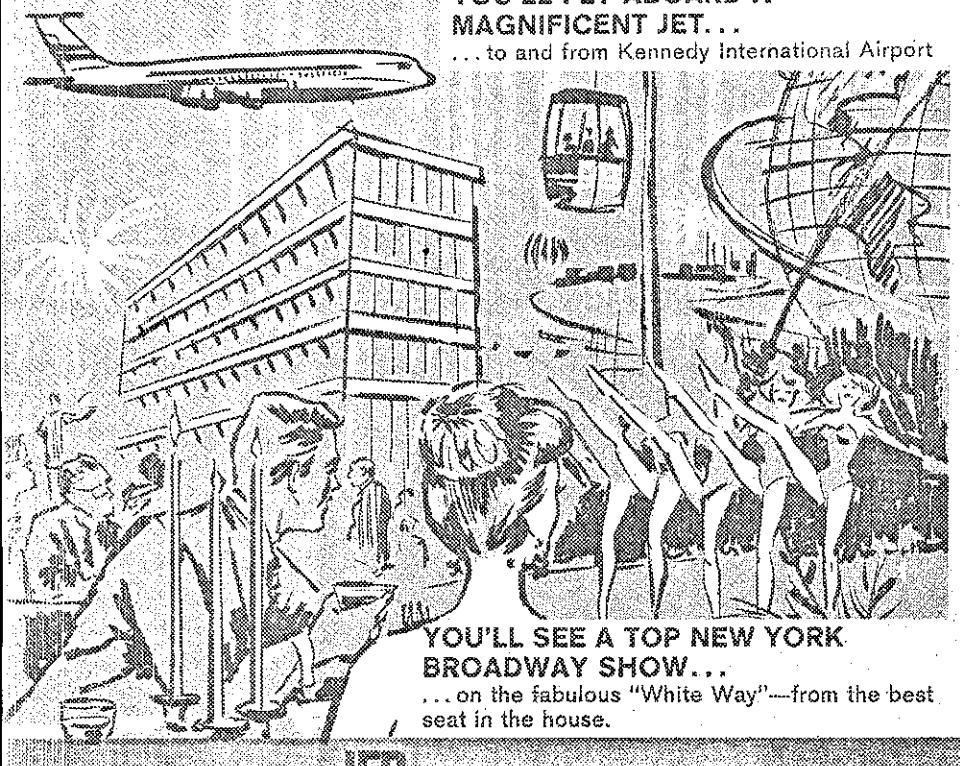
Distributor and dealer Certificates are exchangeable for each other. This gives you more flexibility in fitting the Fair points into any special dealer or distributor salesmen incentive programs to better suit your needs.

life at the 1964-1965 FESTIVAL!

JFD LPV®

LOG PERIODIC





YOU'LL FLY ABOARD A MAGNIFICENT JET...
...to and from Kennedy International Airport

YOU'LL SEE A TOP NEW YORK BROADWAY SHOW...
...on the fabulous "White Way"—from the best seat in the house.

YOU'LL SEE THE SIGHTS...
...of the world's greatest metropolis—New York City.

YOU'LL LIVE IT UP AT...
...New York's best steak house—Danny's Hideaway. Dine, dance and enjoy a floor show at the famous Hawaiian Room of the Hotel Lexington, too.

YOU'LL LIVE IN LUXURY...
...at the palatial new New York Hilton Hotel.

YOU'LL BE OUR HONORED GUEST AT THE WORLD'S FAIR...
...where you will see the fabulous House of Good Taste Exhibit with the JFD Log-Periodic LPV... plus

YOU'LL TOUR THE COMPLETE FAIRGROUNDS AND EXHIBITS...
...and enjoy all these exciting exhibits and attractions: General Motors, Marine Center, Ford, Hall of Sciences, General Electric, Monorail, Auto Thrill Show, Les Poupees De Paris, Motor Cruise, Indian Village, Wax Museum, Dancing Waters, and Santa Maria Replica.

YOU'LL DINE LIKE A KING...
...morning, noon and evening, whether at the Fair or in New York City, you will enjoy deluxe food in attractive surroundings.

JFD POINT VALUES FOR LOG-PERIODIC ANTENNAS:

model	points	model	points
LPV17	60	LPV-U15	20
LPV14	50	LPV6, LPV6PM	15
LPV11	35	LPV4, LPV4PM	10
LPV-U21	30	LPV-U9	10
LPV8, LPV8PM	25	LPV-U5	5

AND TO HELP SELL AND INSTALL MORE ANTENNAS, JFD HAS A SENSATIONAL WORLD'S FAIR TIE-IN PROMOTION PROGRAM!

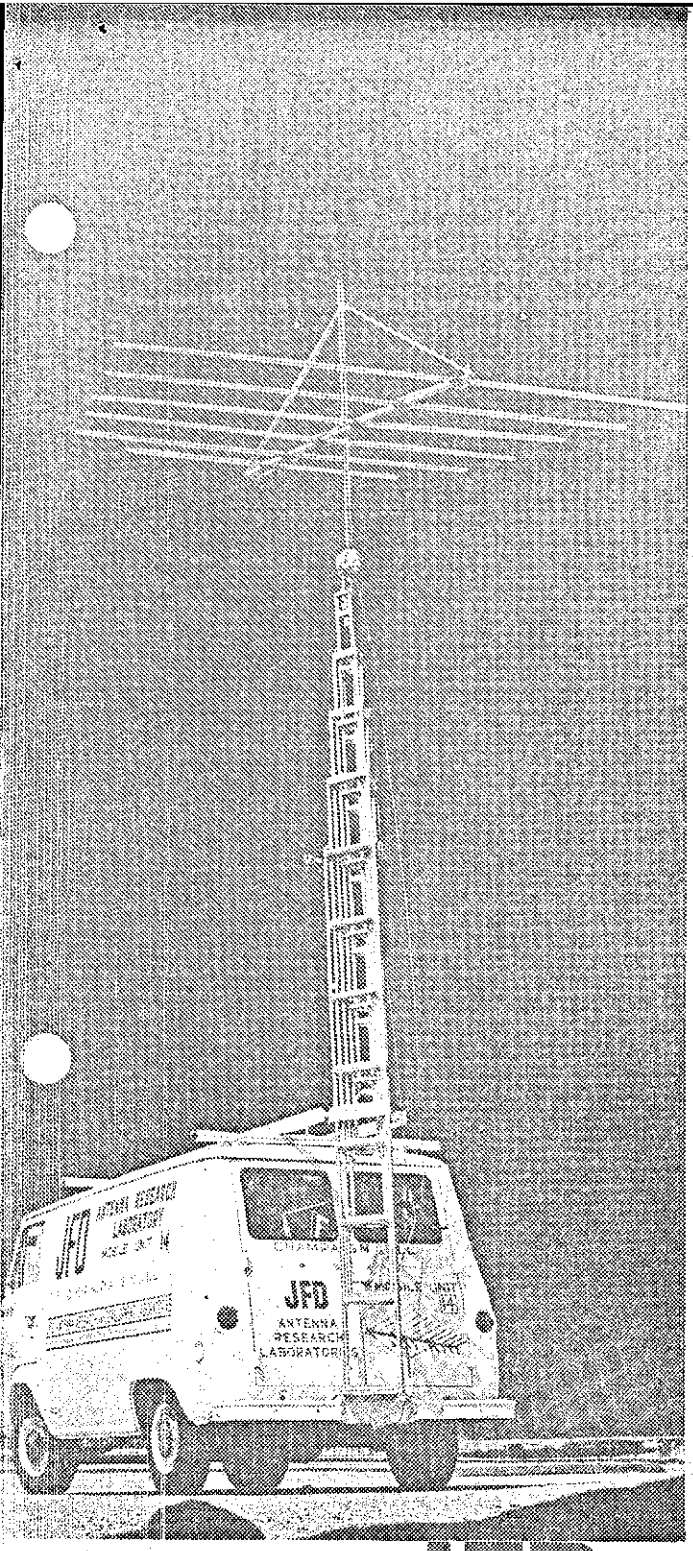
A stunning array of full-color official World's Fair displays, banners, streamers, brochures, folders, cards, newspaper mats, and dozens of additional advertising aids will power your own local sales campaign — earn you more profits and more points toward your Fair holiday.

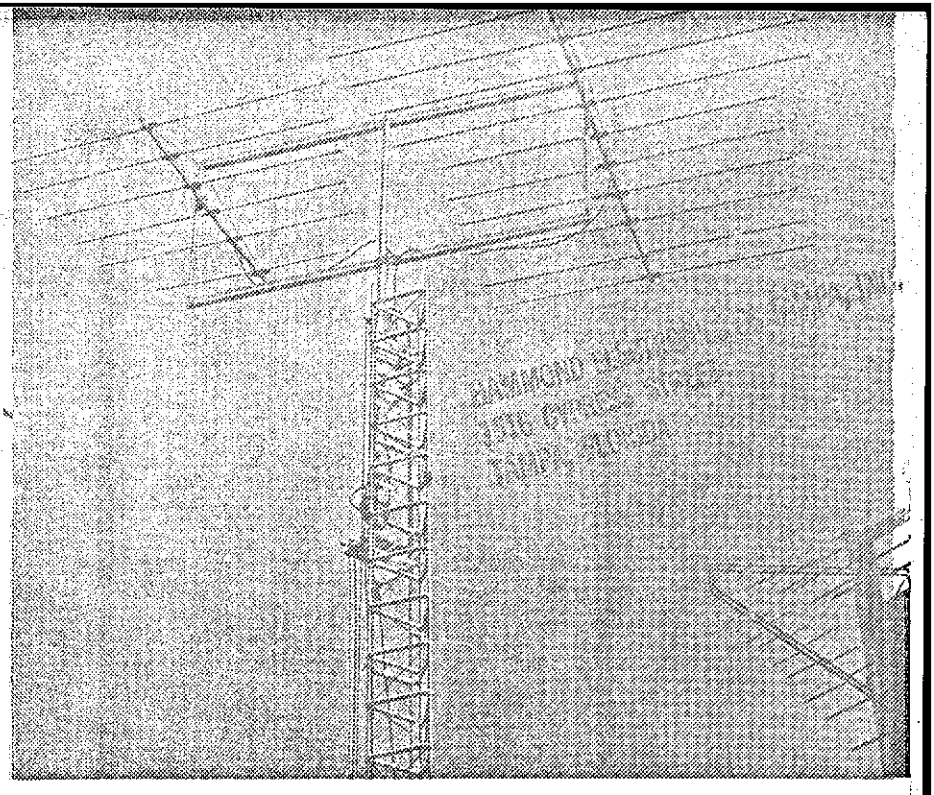
IT'S THE PROFIT/ENTERTAINMENT OPPORTUNITY OF THE YEAR!

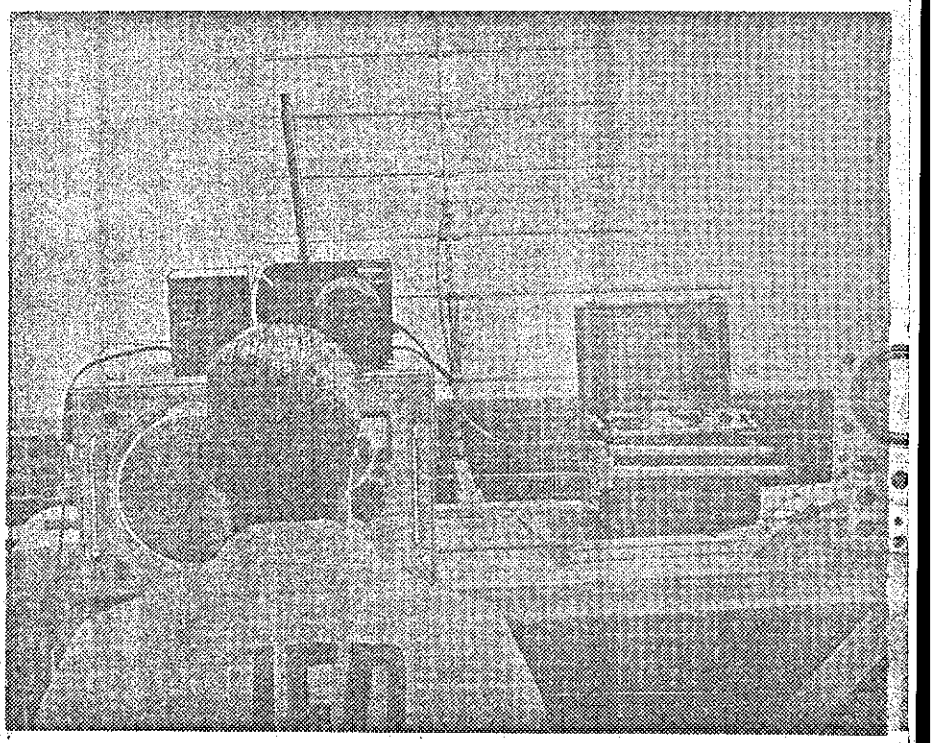
JFD

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn, N. Y. 11219

JFD Electronics-Southern Inc., Oxford, North Carolina
JFD International, 64-14 Woodside Ave., Woodside 77, N. Y.
JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada
401-344 W. Hastings Street, Vancouver 3, B.C.







NEW from the **JFD** Research and Development Laboratories of Champaign, Illinois

LPL-FM STEREO LOG PERIODIC

featuring the new FULL-WAVE Log-Periodic L-Dipole system

developed from research performed at the University of Illinois Antenna Research Laboratories

Licensed under one or more of U.S. patents 2,958,081; 2,985,879; 3,011,168; 3,150,376 and additional patents pending in U.S.A. and Canada. Produced by JFD Electronics Corporation under exclusive license from the University of Illinois Foundation.

JFD LOG-PERIODIC DESIGN DELIVERS U
AND WIDE-BAND RESPONSE REQUI

FM EXPERTS AGREE ON THE JFD NATIONALLY ACCLAIMED LPL-FM LOG PERIODIC ANTENNA

"I would like to take this opportunity to tell you how pleased I am with the new JFD-LPL-FM 10 antenna."
Geoffrey M. Nathanson—Editor and Publisher
FM & FINE ARTS

"The Log-Periodic FM 8 has brought the signal in with amazing clarity, and strength."
Seymour N. Siegel, Director
STATION WNYC-FM

"We have just finished a thorough test of your LPL-FM 10 and can confidently state that it is all that you have said."
A. L. Stewart, Chief Engineer
STATION WEKZ-AM-FM

"I have found the LPL-FM 6 log periodic antenna to meet all these requirements. I am very happy with this antenna and I highly recommend it.
Robert M. Kanner,
Engineering Maintenance Supervisor
RADIO STATION WMCA

"Our tests indicate that the full wavelength elements used in this new line provide twice the gain of the best 10-element f-m yagis."
Ed Wolter, Editor
ELECTRONIC DISTRIBUTING MAGAZINE

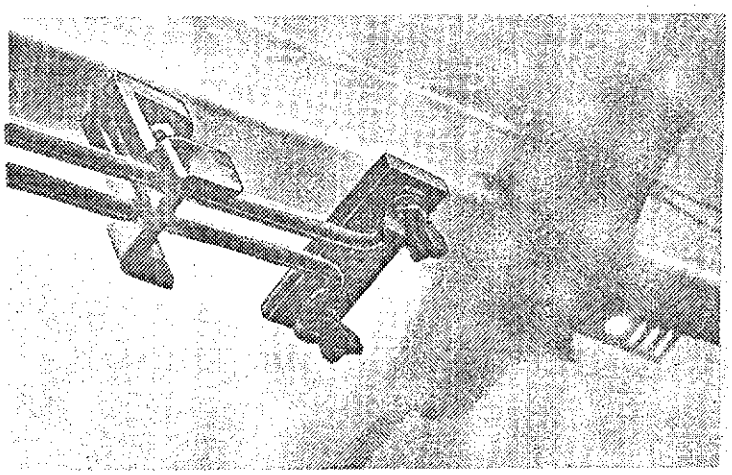
"I now know there really is a Santa Claus, because he brought me the best FM reception that I have ever had with my JFD LPL FM 10 Antenna."
Paul Dean Ford, Licensee
WPFR (FM)

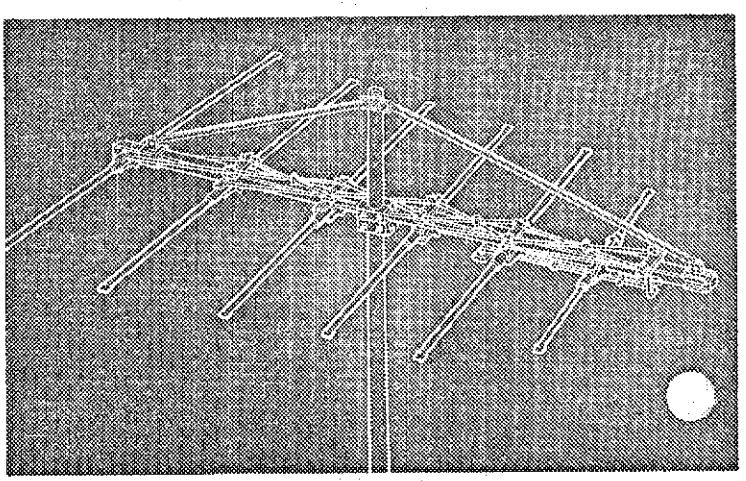
"We have been testing your new LPL-FM 10 Log Periodic antenna with very good results."
Guy Dryden, Chief Engineer
WTBC AM-FM

"I wish to thank you for the opportunity of trying the new JFD FM 10. As you know, in this area we have a severe multipath problem and I feel this new JFD antenna will help this problem in many locations."
MUSI-CAL PLANNED MUSIC PROGRAMMING
W. T. Jones

ACKNOWLEDGED SUPERIOR TO ALL ANTENNAS

- Stainless steel take-off terminals that never corrode.
- Gold alodized ½" o.d. aluminum tubing. Exceeds U. S. Air Force corrosion specifications MIL-C-5541 and MIL-S-5002.
- Top-suspension boom supports (one inch outer diameter) permit close-up mounting of antenna to rotator. Provides rigidity against 100 mile per hour winds.





NIFORM HIGH GAIN, DIRECTIONAL SELECTIVITY, RED FOR FLAWLESS FM STEREO-MULTIPLEX

full-wave Log-Periodic L-Dipole array breaks through the performance limits imposed by conventional "stereo-deaf"

■ Adapted from the revolutionary satellite-tracking LOG-PERIODIC antenna design developed from research performed at the Antenna Research Laboratories of the University of Illinois.

■ FIRST **FULL**-WAVELENGTH L-DIPOLE Log Periodic antenna—achieves the highest gain ever in an FM antenna. (Patents Pending)

UNIFO[redacted] HIGH GAIN ACROSS THE FM BAND—The superior gain of the Log-Periodic array of L-Dipoles provides the FM and FM stereo-multiplex tuner circuits with the high signal voltage needed for properly separated stereo multiplex signals and for high fidelity performance. This is particularly important for stereo-multiplex receivers which require much higher levels of signal voltage than FM monaural receivers.

DIRECTIONAL SELECTIVITY FOR HIGHEST MULTIPATH REJECTION.— The full-wavelength L-dipoles produce the narrowest horizontal FM beam ever possible—10 degrees to 25 degrees **less** than the best FM Yagi. Minor lobe levels are as much as 21.9 db below the main beam. The L-dipole system selects the direct-from-station signal and provides maximum rejection of reflected or multi-path signals that can cause severe distortion of stereo signals.

HIGH FRONT-TO-BACK RATIO—Multiple-driven elements with a **back-fire** radiation pattern result in front-to-back ratios superior to the best Yagis which have end-fire radiation patterns and only two driven elements. The "notch" in the pattern in the backward direction can be used to provide more than 30 db discrimination between stations transmitting from opposite directions.

■ Superior LOG-PERIODIC FREQUENCY INDEPENDENT performance across the entire FM range —from 88 mc/s. to 108 mc/s.

■ BACK-FIRE beam produces highest front-to-back ratio needed to reject interfering signals.

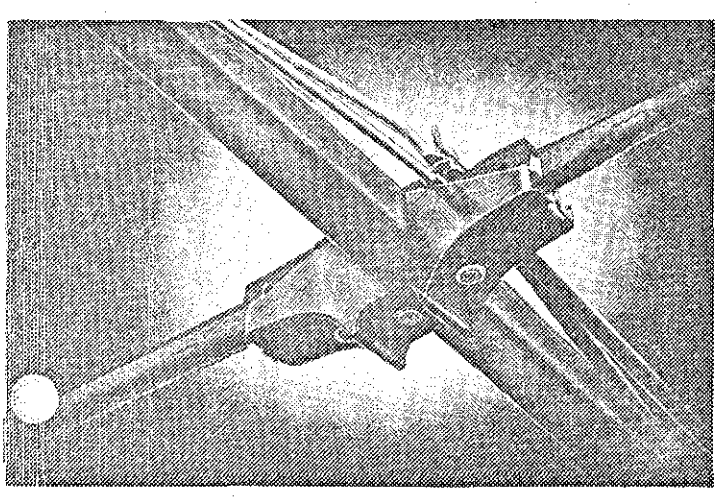
WIDE BAND RESPONSE—Frequency independent performance provides **unvarying** gain across the FM band, unlike the best FM Yagis which have as much as a 2.7 db drop-off in gain at the low frequency end of the band. The **wide**-band Log Periodic LPL-FM makes the traditional FM antenna — the **narrow** band Yagi—**obsolete.**

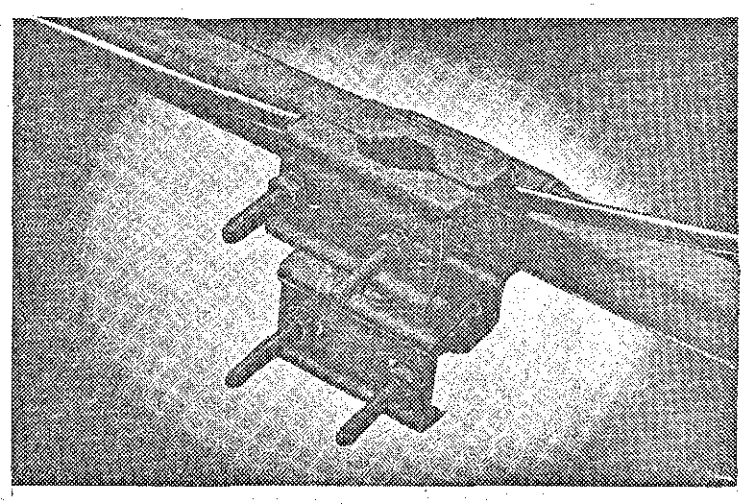
Mathematically designed and laboratory-tested to insure perfect performance at every frequency in the FM band. (Necessary where weak or distant monaural or stereo-multiplex signals must be received.)

ELECTRONICALLY SUPERIOR TO ALL FM YAGIS

■ FULL-WAVELENGTH elements give up to 3 db more gain (up to 41% more signal voltage) than the best 10 element FM Yagis. Even higher gain (up to 3 db) with vertical stacking. ■ LOG-PERIODIC design gives uniform gain, impedance and front-to-back ratios across the entire FM band. ■ UP TO 30 DB FRONT-TO-BACK RATIOS provide as much as 96.8% rejection of FM co-station or adjacent station signal voltage received from the back—with much shorter crossarm lengths than comparable FM Yagis. ■ Low VSWR: 1.5:1 median. Characteristic impedance of 300 ohms from 88 to 108 mc/s. Transfers nearly all the received signal power to the tuner input.

■ Hi-impact, low loss Implex-A insulators.
■ 12-inch long inserts reinforce each element against ice and wind loading.
■ Double, heavy-duty U bolts.
■ Factory-pre-assembled for simplified installation.





For Far Fringe Reception (up to 175 miles)

Model LPL-FM10; 5 Active Cells–5 co-linear directors

List Price: $49.95

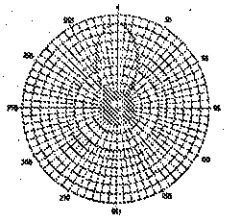
Overall Dimensions: 142.8" L. x 140" W.

Weight: Approx. 9 lbs.

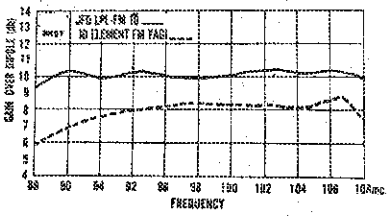
Gain is as much as 41% better than the best 10-element FM Yagi.

GAIN: 9.6 db. (± .6 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 37.5° (± 2.5°)
VSWR: Median 1.5:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 26.0 db



"E" (HORIZONTAL) PLANE POLAR PATTERN



For Fringe Reception (up to 150 miles)

Model LPL-FM8; 5 Active Cells–3 co-linear directors

List Price: $39.95

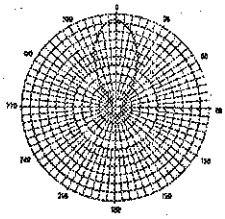
Overall Dimensions: 115.3" L. x 140" W.

Weight: Approx. 8 lbs.

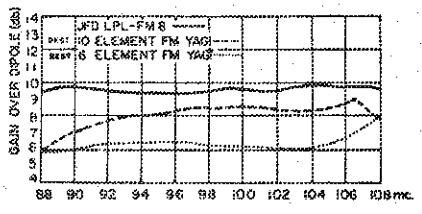
Gain is as much as 35% better than the best 10-element FM Yagi.

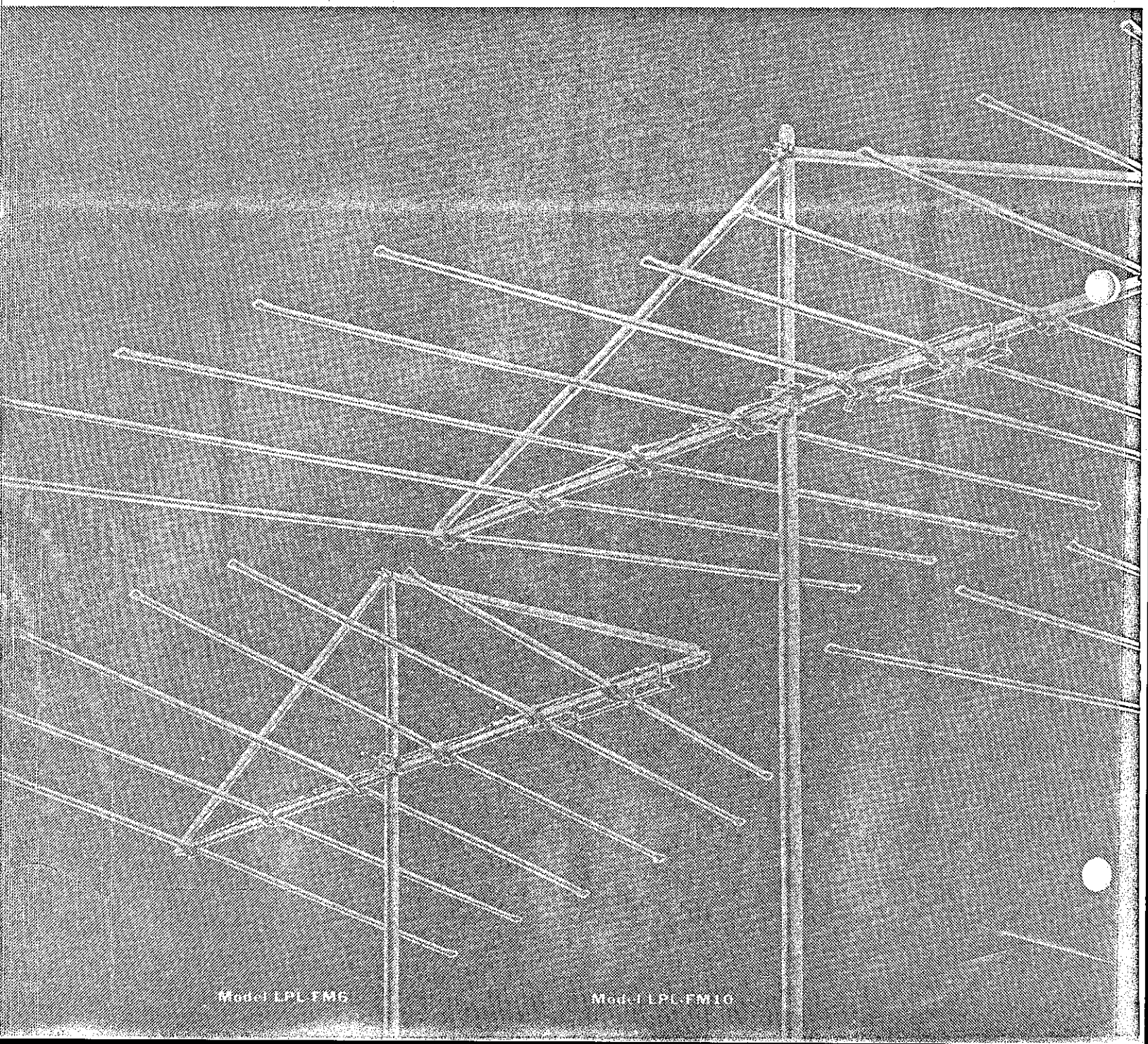
GAIN: 9.1 db (±0.7 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 40.5° (± 3.5°)
VSWR: Median 1.8:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 20 db



"E" (HORIZONTAL) PLANE POLAR PATTERN





Model LPL-FM5

Model LPL-FM10

For Near Fringe Reception (up to 125 miles)

Model LPL-FM6; 5 Active Cells–1 co-linear director

List Price: $29.95

Overall Dimensions: 87.8" L. x 140" W.

Weight: Approx. 6 lbs.

Gain is as much as 30% better than the best 6 element FM Yagi.

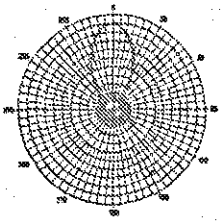
GAIN: 7.7 db (± 0.6 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 43° ± 2.5)

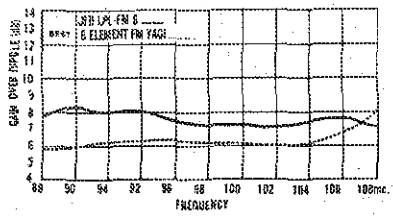
VSWR: Median 1.5:1

NOMINAL IMPEDANCE: 300 ohms

FRONT-TO-BACK RATIO: Median 18 db



"E" (HORIZONTAL) PLANE POLAR PATTERN



For Suburban-Local Reception (up to 75 miles)

Model LPL-FM4; 3 Active Cells–1 co-linear director

List Price: $19.95

Overall Dimensions: 58.3" L. x 140" W.

Weight: Approx. 5 lbs.

Average gain is equal to that of the best 6-element FM Yagi.

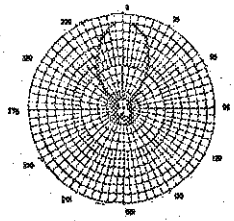
GAIN: 6.3 db (± 0.9 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 46° (± 2°)

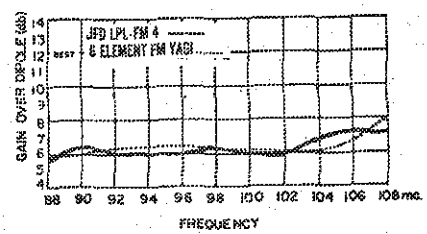
VSWR: Median 1.6:1

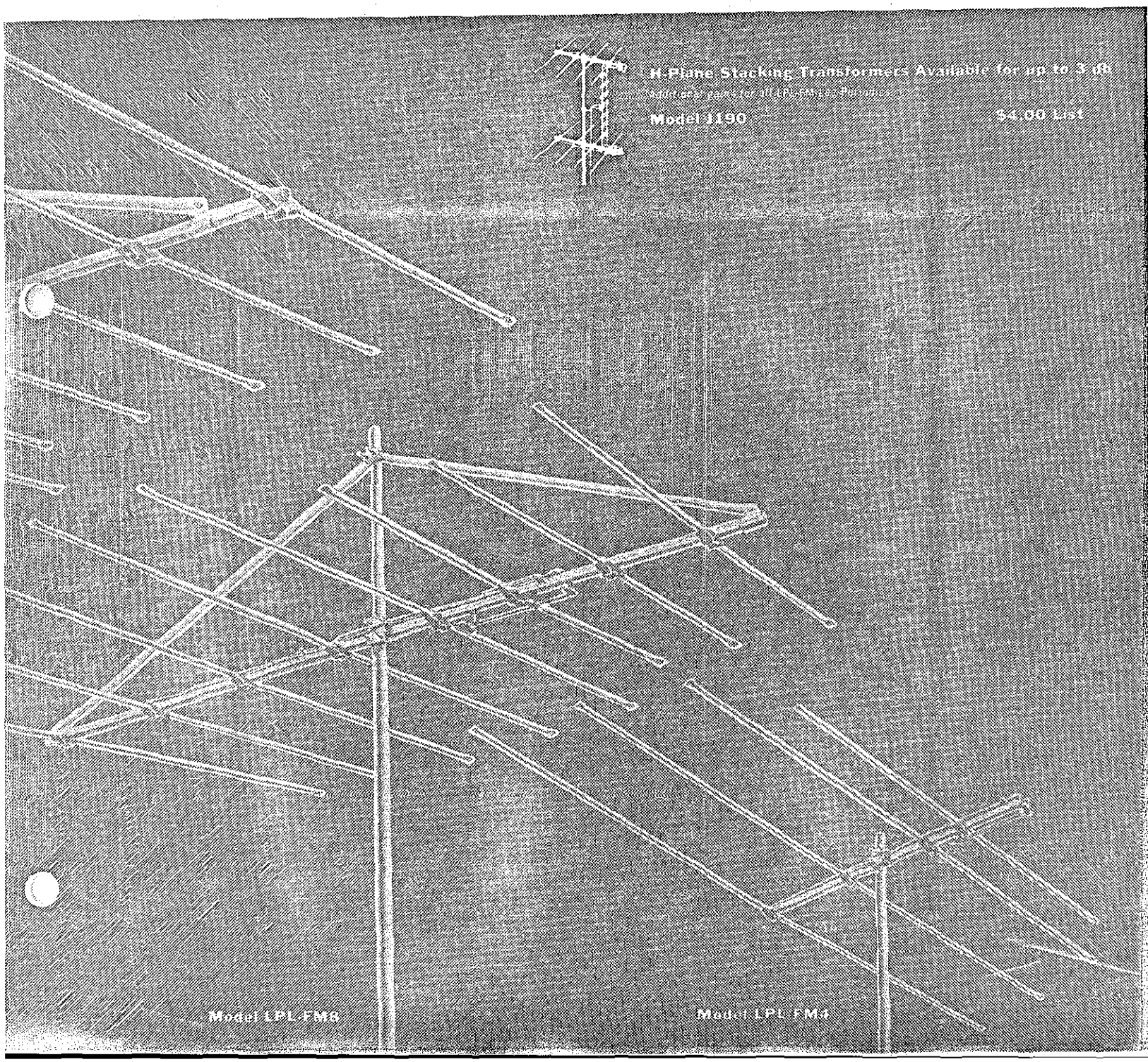
NOMINAL IMPEDANCE: 300 ohms

FRONT-TO-BACK RATIO: Median 16.6 db

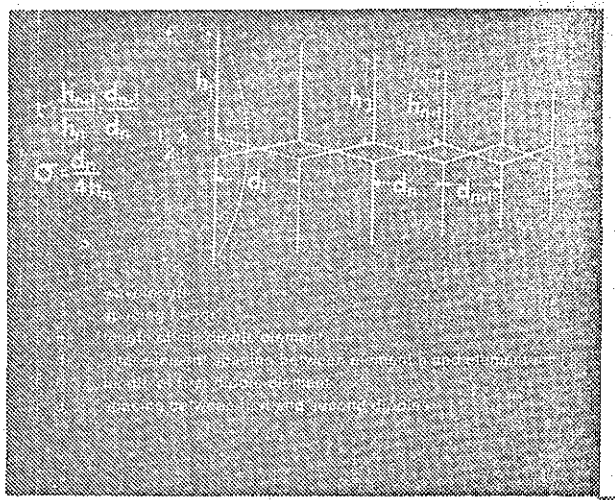


"E" (HORIZONTAL) PLANE POLAR



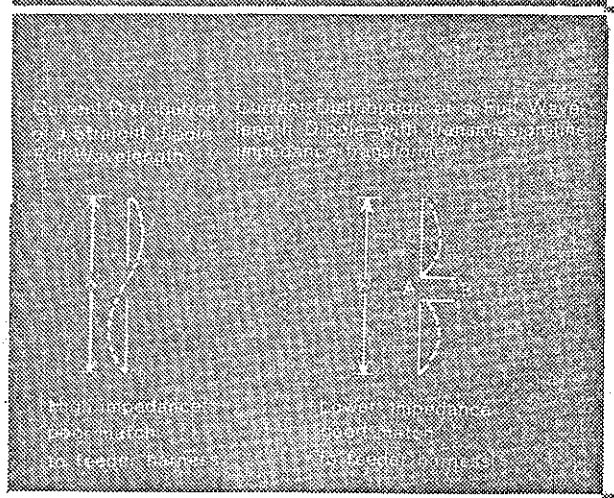


HOW THE JFD LOG PERIODIC LPL-FM WORKS

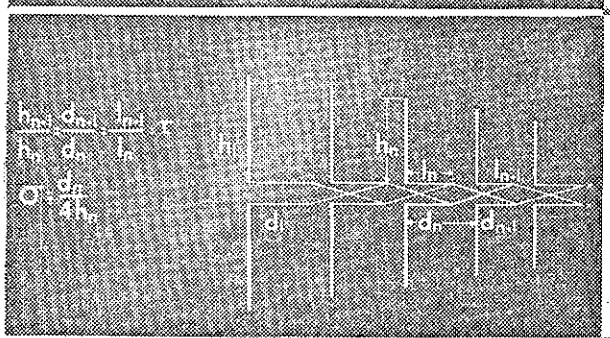


The JFD LPL-FM antenna is derived from the log-periodic dipole array which is replacing obsolete rhombics and curtain arrays in communications systems all over the world. Log-periodic design principles provide the answer to broadband design problems which have plagued antenna engineers since the advent of radio. Although less than ten years old, these principles are now accepted as standards for achieving the ultimate in constant gain, uniform patterns and matched impedance across frequency bands which had long been considered impossible to cover with a single antenna.

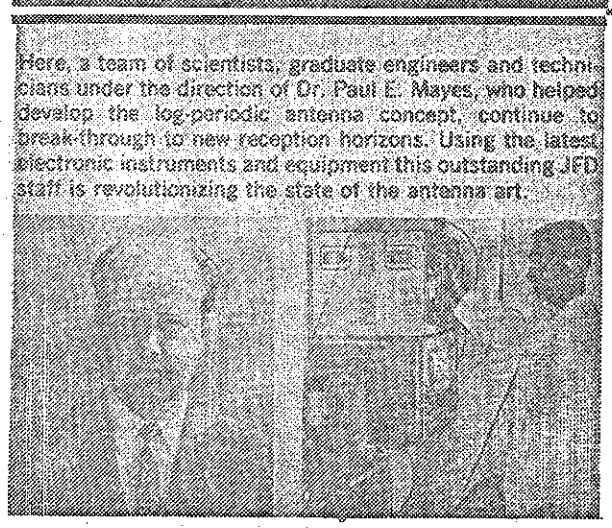
The log periodic dipole array was one of the first practical frequency-independent antennas. Its gain and impedance can be made uniform over arbitrarily large bandwidths. However, as originally developed, the dipoles used were approximately a half-wavelength long. Beamwidths less than 60 degrees can be obtained from the LP dipole array only by using many elements and making the antenna very long.



Taking a cue from the use of harmonically resonant dipoles in the famous LPV antennas developed for VHF television, JFD engineers sought a method of using dipole elements that would produce higher gain than the conventional half-wavelength elements that are commonly used in FM Yagi antennas. Using a three-half-wave dipole for FM (as used in the LPV) would indeed produce a radical increase in gain. However, three-half-wave dipoles for 88-108 mc are too long to be mechanically practical. To achieve a compact, high gain antenna for FM and FM stereo, JFD engineers found a method of using full-wave dipoles. Ordinarily a full-wave dipole has a very high terminal impedance. A unique L-dipole element is formed by adding a transformer "AB" to the full-wave dipole to lower the impedance to the desired value.



Thus the Log-Periodic LPL-FM antenna is an array of **full-wavelength L-dipoles.** The lengths of the dipoles (h_n), transmission line transformers (L_n) and the spacings between the dipoles (d_n) are all tapered by the **scale factor** τ. This produces a **frequency independent** antenna with uniformly high gain far superior to a Yagi with the same number of elements and a uniform impedance of 300 ohms across the entire FM band. The crossed feeder harness introduces a 180° phase shift between adjacent elements which give the LPL-FM the high front-to-back ratio required to reject unwanted signals.



Here, a team of scientists, graduate engineers and technicians under the direction of Dr. Paul E. Mayes, who helped develop the log-periodic antenna concept, continue to break-through to new reception horizons. Using the latest electronic instruments and equipment this outstanding JFD staff is revolutionizing the state of the antenna art.

The Log Periodic LPL-FM antenna concept--**an outstanding product of American technology!**

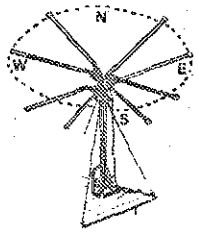
The log periodic principles of antenna design were developed from research performed at the University of Illinois Antenna Research Laboratories in a program sponsored by the Air Force to solve problems of space-age antenna design. Today log periodic antennas are being used to track satellites and interplanetary space-probes, and in space communications and telemetry.

The Log-Periodic LPL-FM antenna was designed by Dr. Paul E. Mayes. The Log-Periodic LPL-FM antenna is the latest development of the JFD R&D Laboratories in Champaign, Illinois. Dr. Paul E. Mayes, co-inventor of the LPV, and engineering consultant to the JFD Laboratories is shown left. On right is illustrated one of many testing procedures employed by the team of JFD scientists and engineers.

Together with completely staffed and equipped engineering facilities this team has produced the VHF Log-Periodic LPV; the UHF Log Periodic LPV-U and LPV-ZU Zig-A-Logs; the VHF-UHF-FM Log Periodic LPV-VU... and **now** the Log Periodic LPL-FM.

NOTHING BEATS A JFD GOLD ALODIZED FM ANTENNA...

IN THE CITY (AND SUBURBS)



Obsolete turnstile antennas do not have equal gain in all directions—thus cannot pick-up many stations.

The new JFD 8-dipole stereo-cone fills in these blind spots—provides more uniform gain in all directions.

JFD STEREO-CONE

FULL CIRCULAR 360° DIRECTIVITY PATTERNS OF JFD STEREO-CONE RECEIVES FM FROM **ALL** DIRECTIONS!

model	description	list
AFM100	STEREO-CONE KIT FOR ALL NEW INSTALLATIONS	$15.95

CONTENTS:

- One preassembled Stereo-Cone antenna.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base mount.
- 50 ft. 300 ohm twin lead.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.

model	description	list
AFM150	STEREO-CONE KIT FOR ALL NEW INSTALLATIONS	$11.95

- One preassembled Stereo-Cone antenna.
- One pair gold alodized mast brackets.

model	description	list
AFM175	STEREO-CONE KIT FOR EXISTING INSTALLATIONS	$13.95

- One preassembled Stereo-Cone antenna.
- One pair gold alodized mast brackets.
- 50 ft. 300 ohm twin lead.
- Three 3½ in. and one 7½ in. wood screw eyes.
- One mast stand-off.

JFD "SUPER S"

—today's most economical all-directional antenna

Attaches in seconds—to any mast! Also available as kit for new installations.

model	description	list
AFM400	"SUPER S" KIT FOR NEW INSTALLATIONS	$11.95

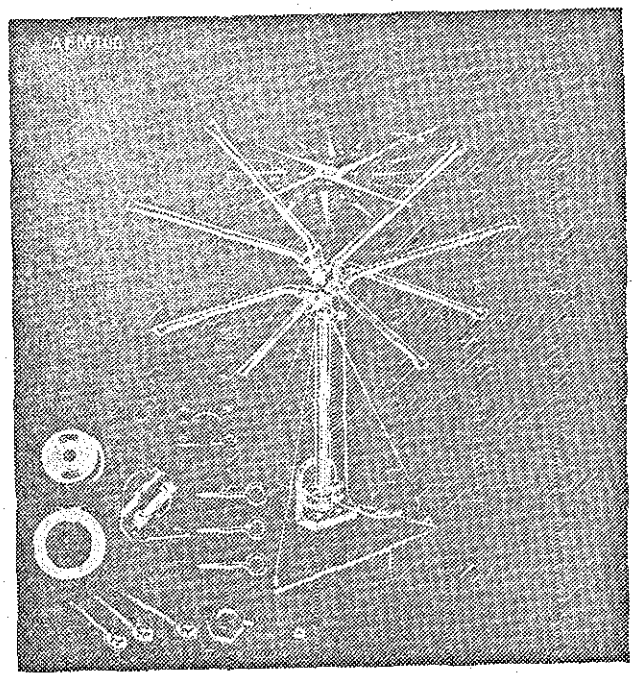
- One preassembled gold alodized AFM400.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base mount.
- 50 ft. 300 ohm twin line.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.
- ½ inch seamless gold alodized element.

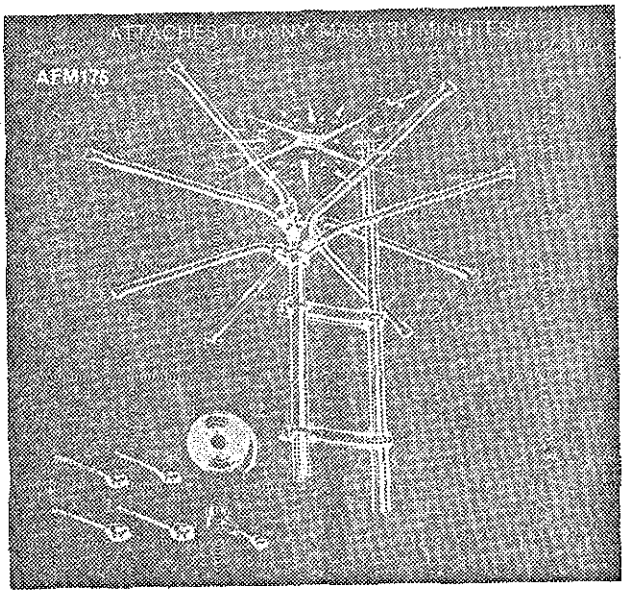
model	description	list
AFM 450	"SUPER S" FOR EXISTING INSTALLATIONS	$6.95

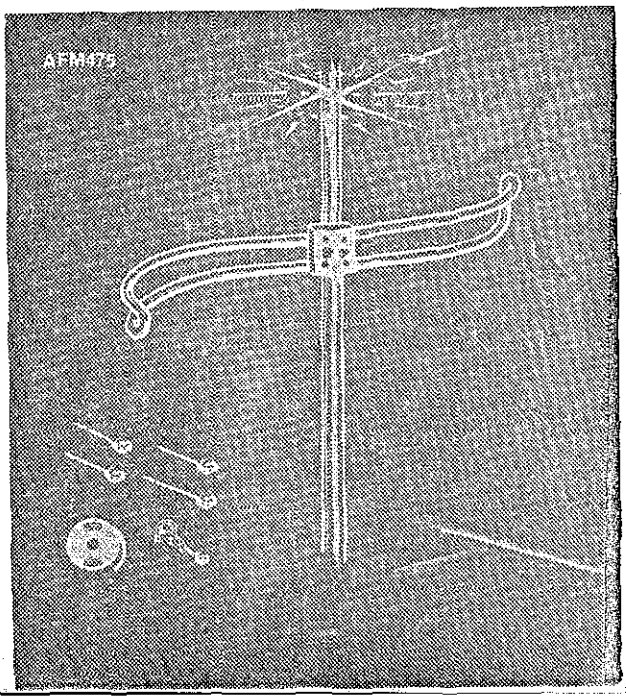
- One preassembled AFM450 "Super-S" antenna.

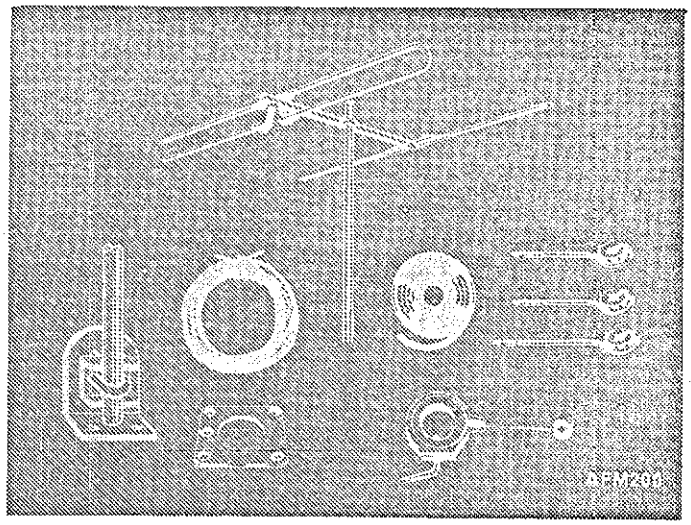
model	description	list
AFM475	"SUPER S" KIT FOR EXISTING INSTALLATIONS	$8.95

- One preassembled AFM450 "Super-S" antenna.
- 50 ft. 300 ohm twin lead.
- Three 3½ in. and one 7½ in. wood screw eyes.
- One mast stand-off.









IN THE SUBURBS (AND CITY)

—ideal for areas where stations are in one general direction.

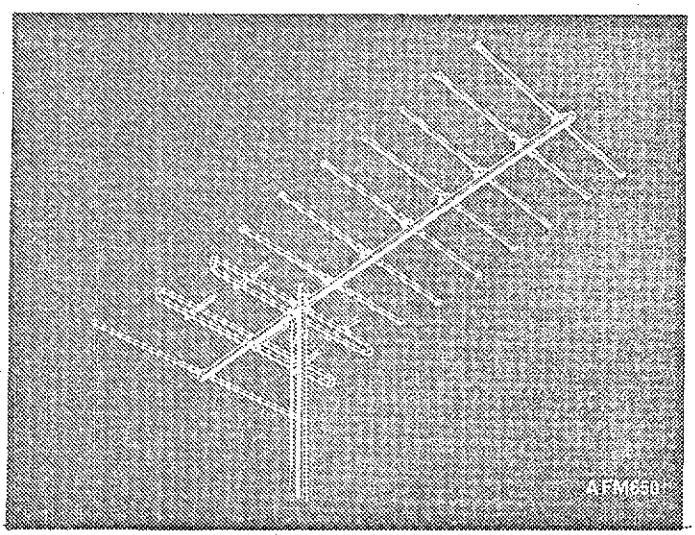
Attaches to any antenna! Also available as kit for all-new installations!

JFD STEREO-DIPOLE AND REFLECTOR

model	description	list
AFM200	STEREO-DIPOLE AND REFLECTOR KIT FOR ALL NEW INSTALLATIONS	$13.85

- One preassembled gold alodized AFM200 antenna.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base base mount.
- 50 ft. 300 ohm twin lead.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.

model	description	list
AFM250	AFM200 antenna only	$8.60



IN THE FRINGES

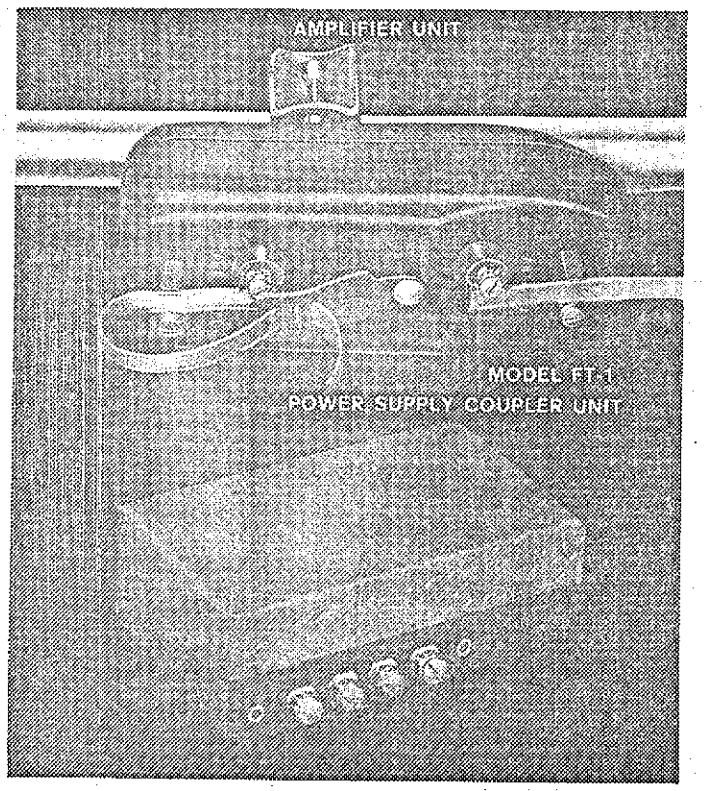
—pinpoints distant stations, pulls in maximum possible signal. (receives stations 100-125 miles distant)

JFD FM YAGIS

- Twin-driven satellite-dipole Yagi captures more signal—delivers 6.5 to 9.2 db gain.
- Wide-spaced element design provides uniform broadband response across FM band.
- Acute directivity minimizes troublesome noise and multi-path signals.
- Preassembled—no loose hardware.
- Gold alodized one inch square aluminum crossarm and ½ inch reinforced aluminum dipoles for rugged mechanical reliability.

model	description	list
AFM350	6-Element FM Yagi for up to 100 miles	$23.50
AFM650	10-Element FM Yagi for up to 125 miles	$32.50

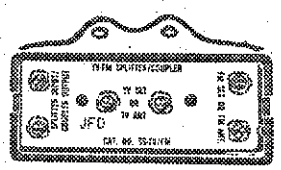
AND FOR THE ULTIMATE IN STEREO-FM ENJOYMENT...



Install the JFD FM Antenna Amplifier model FT-1 for sparkling FM stereo-multiplex or monaural listening. Space-age solid circuitry gives you up to 16 db of amplification—handles up to 45,000 microvolts without overloading. Mounts on the antenna crossarm. Printed circuit is "Poly-U" sealed against weather effects. Exclusive "OFT" Offset Free-space Terminals prevent accumulation of dirt, moisture and ice which siphon off signal strength. Because 117V AC power supply is located at receiver, it also acts as a coupler so that one antenna can serve two FM systems.

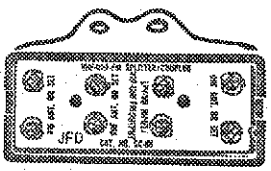
model FT-1 **$34.95 list**

Model SSTVFM Bandpass Filter & TV/FM Coupler-Splitter/Combiner **$5.95 list**



Separates TV and FM frequencies from combined TV/FM signal and feeds them into individual TV set and FM system. Also works as bandpass filter to shut out unwanted TV, amateur and citizens' band signal pick-up by FM antenna and transmission line. Can also serve as a combiner to combine signals from separate TV and FM terminals into one downlead. Mounts in seconds on back of any TV set. No-strip terminals eliminate need for wire stripping, cutting or splicing.

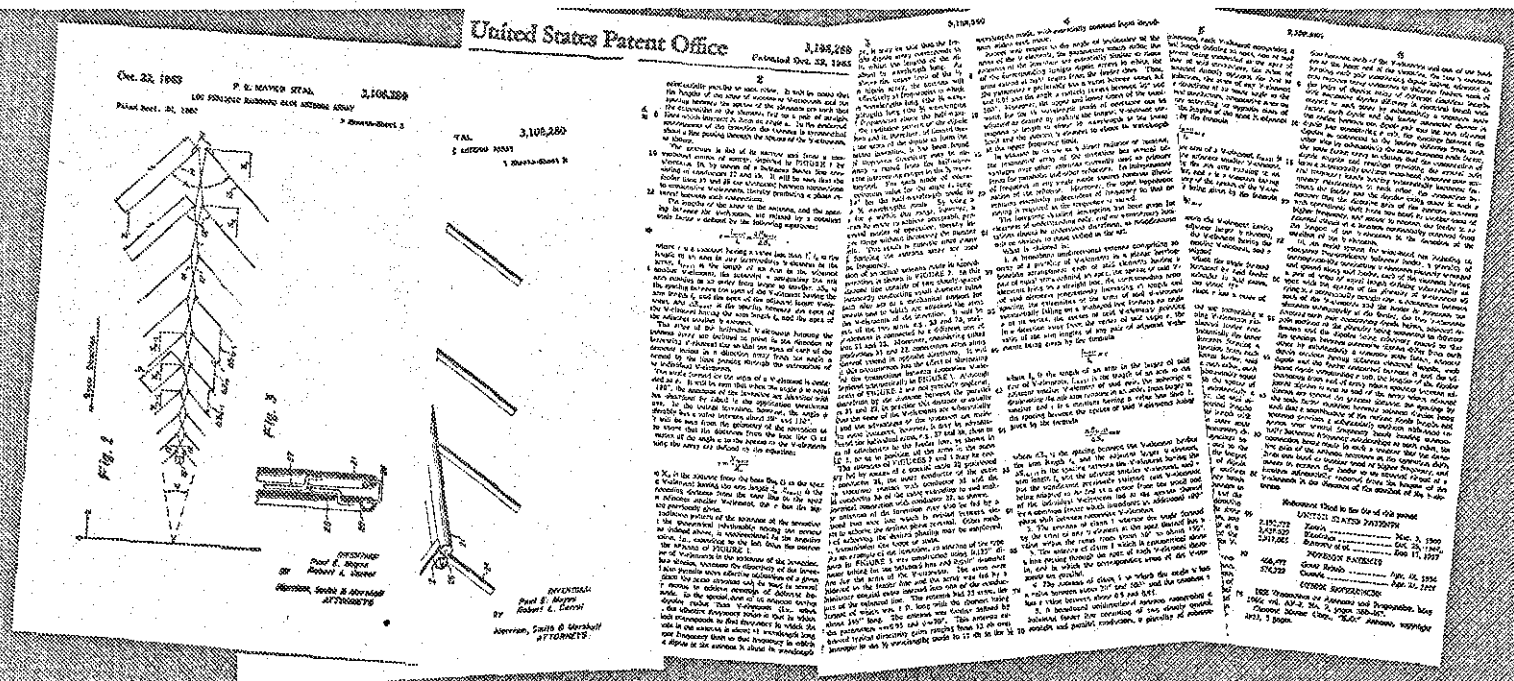
Model SC80 VHF/UHF/FM Coupler-Splitter/ Combiner **$7.95 list**



Made especially for use with JFD LPV-VU 82-channel TV/FM Log Periodic antennas. **Splits** combined VHF/UHF/FM signal coming in on **single** downlead so it can be fed individually into converted or new all-channel 2-83 receiver and FM tuner. Also joins the output of individual VHF antenna, UHF antenna, and FM antenna into **one** downlead. Ends unsightly multiple antenna installations.

FORM NO. 919 LITHO IN U.S.A.

UNIVERSITY OF ILLINOIS
MAYES-CARRELL PATENT ON LOG-


United States Patent Office

LOG-PERIODIC BACKWARD WAVE ANTENNA ARRAY, U.S. PAT. NO. 3,108,280, OF PAUL E. MAYES AND ROBERT L. CARRELL, ASSIGNORS TO THE UNIVERSITY OF ILLINOIS FOUNDATION

U.S. PATENT DISCLOSES THAT NEW LOG-PERIODIC

(Col. 1, lines 10-12 of Log-Periodic Patent)

Has "Unidirectional radiation patterns that are essentially independent of frequency over wide bandwidths."

(Col. 2, lines 62-66 of Log-Periodic Patent)

"Increases directivity*** permits more effective utilization of antenna since the same structure can be used in several frequency modes to achieve coverage of different frequency bands."

(Col. 3, lines 73-75; Col. 4, lines 1 and 2)

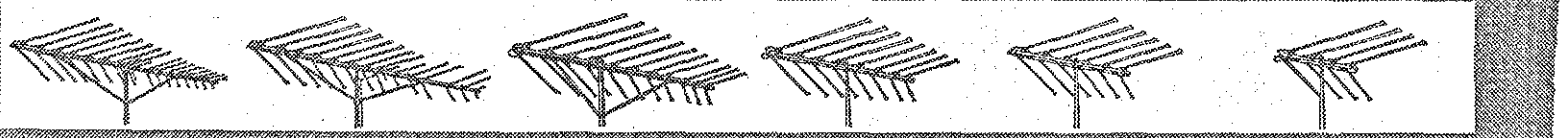
"This antenna exhibited typical directivity gains ranging from 12 db over isotropic in the 3/2 wavelength mode to 17 db in the 7/2 wavelength mode with essentially constant input impedance within each mode."

(Col. 4, lines 21 and 22)

"Moreover, the input impedance remains essentially independent of frequency."

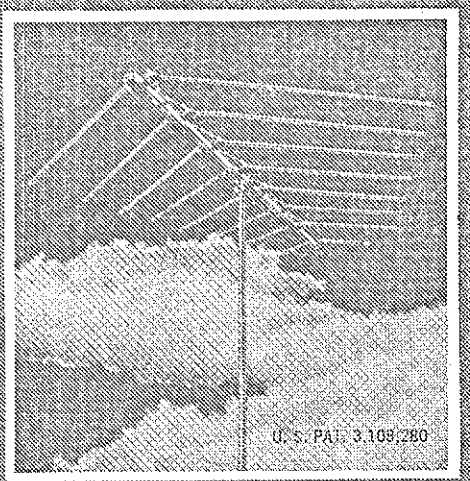
(Col. 4, lines 40-43) "***given by the formula $\frac{L_{(n+1)}}{L_n}=\tau$

ONLY THE JFD LOG PERIODIC LPV OPERATES ACCORDING TO THE PATENTED LOG-PERIODIC CELLULAR FORMULA $\frac{L_{(n+1)}}{L_n}=\tau$ TO PROVIDE FLAWLESS COLOR, BLACK AND WHITE TV, & FM STEREO!



MODEL LPV17	MODEL LPV14	MODEL LPV11	MODEL LPV8	MODEL LPV6	MODEL LPV4
UP TO 175 MILE RANGE	UP TO 150 MILE RANGE	UP TO 125 MILE RANGE	UP TO 100 MILE RANGE	UP TO 75 MILE RANGE	UP TO 50 MILE RANGE
$39.95 list	$49.95 list	$39.95 list	$29.95 list	$21.95 list	$14.95 list

FOUNDATION AWARDED PERIODIC V-ANTENNA—JFD LPV



FOR THE RECORD

All claims by a competitor to the multiple V-type and straight inline, active dipole array were rejected because of the prior Isbell "Circuit dipole log-Periodic" work published in the May, 1960 IRE Transactions on Antennas and Propagation. Immediately before our competitor's application was filed, the covered work done at the University of Illinois Antenna Research Laboratories since 1957.

Shown below are excerpts from the official files of the Patent office citing their reasons for rejecting our competitor's claims to multiple V and straight inline dipole array patents. An official copy is available from JFD, on request.

(Note: Underlining added by JFD)

U.S. DEPARTMENT OF COMMERCE
PATENT OFFICE
WASHINGTON

PAPER NO. 9

[redacted]

Applicant: Harry Greenberg		
Ser. No.	63,520	MAILED
Filed	October 19, 1960	OCT 2 1962
For	DUAL BAND TELEVISION ANTENNA	PAT. DIV. 65

Please find below a communication from the EXAMINER in charge of this application.
Commissioner of Patents.

Responsive to amendments filed January 2, 1962 and September 12, 1962.

References made of record:

Kandoian 2,429,629 Oct. 28, 1947 343-844 X

IRE Transactions on Antennas and Propagation by D. E. Isbell; May 1960 Vol Ap-8 No. 3 pages 260-267 Copy in Scientific Library

*** Claims 2, 6, 7, 11-18, 20 and 23 are rejected as substantially met by the Isbell log periodic antenna shown in Fig. 3 of the above cited IRE article. Fig. 3 shows a coplanar array of dipoles of decreasing length in a direction towards the feed with a transposition harness interconnecting the dipoles. The proportional energy radiation away from the feed vertex is described on the top of page 3 of the reference and this action is considered the equivalent of the proportional energy feature stressed in the claims. Regarding claim 14, the limitation "substantially equally spaced" is too vague to set out any invention over the Isbell antenna.

Claims 24-27 are rejected as unpatentable over the Isbell antenna of Fig. 3. ***

Claims 2, 6, 7, 11-18, 20, and 23-27 are rejected. ***

Examiner.

DO NOT BE MISLED BY LOG-PERIODIC IMITATIONS OR MISLEADING PATENT CLAIMS

Professor Paul Mayes of the Antenna Research Laboratories of the University of Illinois, originator of the log-periodic V-dipole antenna concept.

THERE IS ONLY ONE GENUINE PATENTED LOG-PERIODIC V-ANTENNA—THE JFD LPV!

JFD LPV

Only JFD is licensed exclusively by the University of Illinois Foundation to make the patented Log-Periodic LPV and all other Log-Periodic type TV and FM antennas.

No other so-called Log-Periodic antenna can work like the JFD Log-Periodic LPV because **only JFD** uses the original **patented** Log-Periodic design formula of the Antenna Research Laboratories of the University of Illinois. Rely on the JFD LPV and see why At the Moment of Truth, The Picture is the Proof—that the LPV works **best!** Now in stock at your JFD distributor.

JFD will be glad to send you a copy of the official Log-Periodic Antenna U.S. Patent for your personal study and comparison.

JFD

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn, N. Y. 11219

JFD Electronics-Southern Inc., Oxford, North Carolina
JFD International, 64-14 Woodside Ave., Woodside 77, N. Y.
JFD Canada, Ltd., 51 McCormack Street, Toronto, Ontario, Canada
401-144 W. Hastings Street, Vancouver 3, B.C.

LICENSED UNDER ONE OR MORE OF U.S. PATENTS 2,958,081; 2,985,879; 3,011,168; 3,108,280 AND ADDITIONAL PATENTS PENDING IN U. S. A. AND CANADA. PRODUCED BY JFD ELECTRONICS CORPORATION UNDER EXCLUSIVE LICENSE FROM THE UNIVERSITY OF ILLINOIS FOUNDATION.

JFD DISTRIBUTORS POLICY

TERMS: 2%—10th and 25th, net 30 days.

FREIGHT POLICY:
Freight Prepaid on each order of $500.00 or more assorted merchandise shipped to one location within Continental U. S. (including Hawaii and Alaska, will be prepaid to West Coast Port and collect by boat thereafter.) Includes Transis-tennas, Outdoor and Indoor Antennas, Masting, Hardware and Accessories. Freight prepaid on 25 or more assorted Exact Replacement Antennas, one order-one location within Continental U. S. A. including Hawaii and Alaska.

MINIMUM ORDER: Factory or warehouse shipment—$25.00 net distributor cost.
Refer to form R63-IA for Indoor Antenna, Accessories distributor prices and policies.

RETURN MERCHANDISE: No merchandise should be returned without prior authorization in writing. Merchandise returned without authorization will be refused and all freight and accrual charged back to sender.

Refer to form R63-1A for Indoor Antenna, Accessories, distributor prices and policies.

SERVICE: When placing an order or seeking information write or call the following personnel—

Herb Yassky	Sales Mgr.
Mort Leslie	Sales Mgr.
Allen Kaufman	Traffic & Shpg.
Jim Sarayiotes	Advertising
Fred Voorhaar	Sales Promotion
Ann Powers	Accounts Receivable
Marvin Westin	Credit
Herb Aronson	Pricing & Billing
Si Geller	Controller

DISTRIBUTOR ADVERTISING PROGRAM:

Allowances accrue automatically with antenna purchases, as per schedule that follows, except during special promotions. When proof of advertising in approved media is submitted, JFD issues credit memo to distributor. Distributor advertising funds remaining unused after six months from date of issue will expire.

ADVERTISING	ALLOWANCE	PER	ANTENNA
$1.00	**.75**	**.50**	**.25**
LPV17	LPV11	AN400G	AN300G
SX711G-S	LPV14	AN450G	AN350G
VX1111G		ANS350G	JX311G
		ANS400G	LPV4
		ANS450G	LPV6
		LPV8	MX211G
		PX911G	RX511G
		SX711G	

TRANSIS-TENNA WARRANTY POLICY:
JFD offers the best warranty ever made available to distributor, dealer and consumer.

All amplifiers and power supplies will have a **6 month "shelf"** warranty expiration date stamped on bottom, e.g., a unit made on March 1, 1963, would be stamped Sept. 1, 1963

When Transis-tenna is purchased by customer, dealer should immediately fill out and return warranty card enclosed with each Transis-tenna.

Upon receipt by JFD of consumer Transis-tenna warranty card, an immediate **6-month** customer **"in-use"** warranty policy packed in each TRANSIS-TENNA will go into effect. This "in use" warranty supersedes "shelf" warranty.

Distributors are advised to rotate their stock so that older units are sold first. Expiration dates are stamped on each individual carton and master carton to facilitate stock rotation.

In-warranty* units will be repaired at no charge and returned "prepaid" to sender.

Out-of-warranty units will be repaired and returned freight prepaid to sender at the following flat rate charges:

TNT25 TV-FM	Amplifier only	$4.00
TNT75	DC Power Supply	2.00
TNT85	AC Power Supply	2.00
TNT30 (FM)	Amplifier Only	4.00
TNT105	Amplifier and Power Supply (complete)	4.00
TNT106FM	FM Amplifier Power Supply (complete)	4.00

For In-Warranty service or Out-of-Warranty repair service, package units carefully and ship prepaid to:

TNT Service Dept.
JFD ELECTRONICS CORP.
15th Avenue at 62nd Street,
Brooklyn 19, N. Y.

JFD DISTRIBUTOR PRICE SCHEDULE

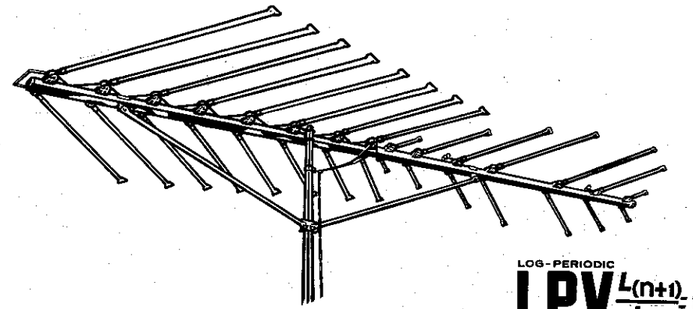
EFFECTIVE APRIL 1, 1963
FORM NO. R63-0

LEGEND
PRICE INCREASE ▲
PRICE DECREASE ▼
(N) NEW PRODUCT
(C) CONSTRUCTION IMPROVEMENT

AAA* GOLD BOND ALODIZED TV AND FM ANTENNAS

*Attractive, Anti-corrosive, Armor

For the Best Picture - Color or Black & White
Use the Best Antenna - the Great New JFD LPV

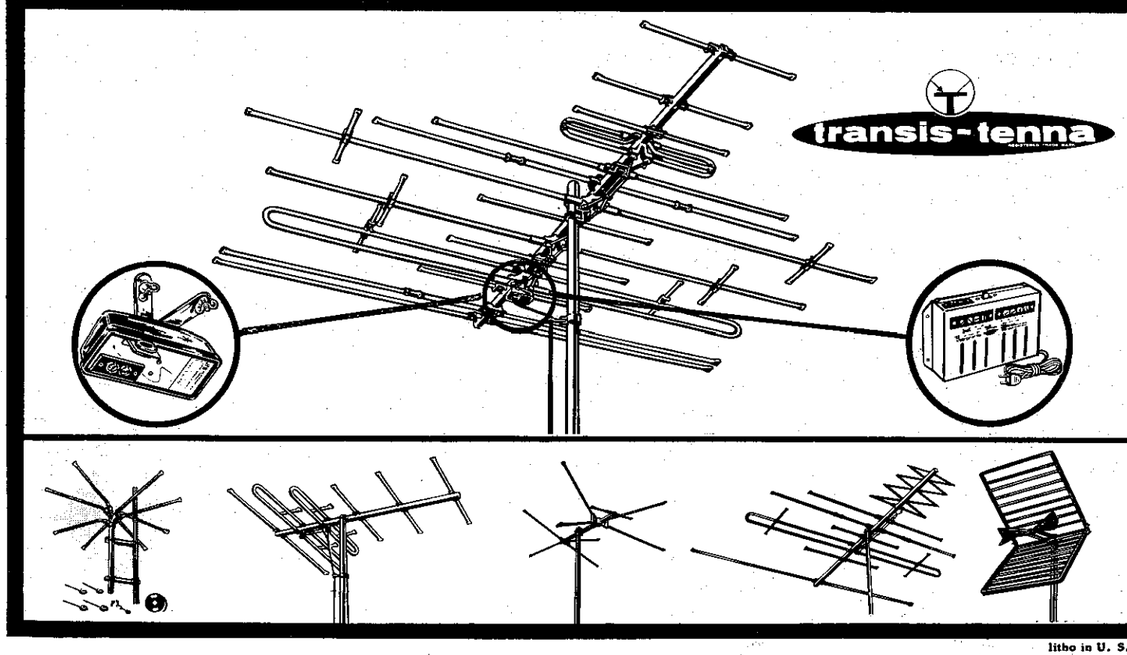


LOG-PERIODIC
LPV $\frac{L(n+1)}{L_n}\tau$

Freight Prepaid on each order of $500.00 or more assorted merchandise shipped to one location within Continental U. S. (including Hawaii and Alaska will be shipped prepaid to West Coast Port and, collect by boat thereafter). Includes Transis-tennas, Outdoor and Indoor Antennas, Masting, Hardware, Accessories.

- **No Freight checks to pay!**
- **No Freight bills to check!**
- **No routings to worry about!**
- **You know your delivered cost!**

See back page for Company Policy, regarding adjustments, discounts and advertising allowances.
Refer to form R63-IA for Indoor Antenna, Accessories distributor prices and policies.



litho in U. S. A.

JFD ELECTRONICS CORPORATION
15th Avenue at 62nd Street, Brooklyn 19, N. Y. • Phone 212 DE 1-1000

AS OF OCTOBER 22, 1962—THE

(*it ended the day JFD introduced the Log-Periodic LPV $\frac{L(n+1)}{Ln}\tau$ TV antenna)

Wave goodbye to all the Rube Goldberg contraptions with their "Chinese puzzle" combinations of collectors, directors, reflectors.

Now you can solve **any** reception problem with **one** compact, precisely-engineered antenna—the **first** TV antenna based on the geometrically-derived **logarithmic-periodic** scale developed by the Antenna Research Laboratories of the University of Illinois for the U.S. Air Force.

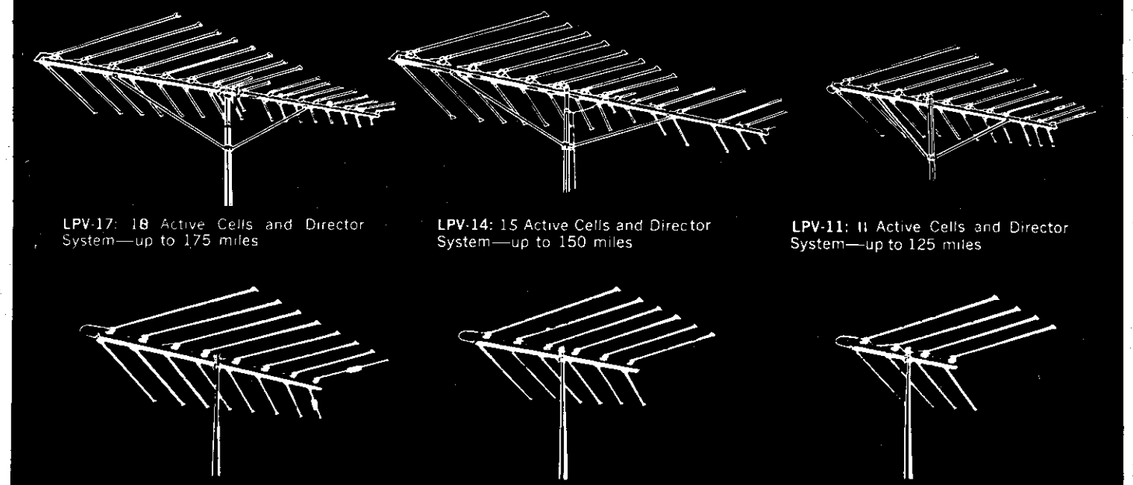
Because it is inherently frequency-independent, the JFD Log-Periodic LPV delivers **the same superb performance on every VHF channel**—performance comparable to that of a single channel Yagi. And delivers it not only in black-and-white, but in Color, and you get FM stereo too!

THE LOG-PERIODIC LPV ACTUALLY **TUNES ITSELF** TO EACH RECEIVED FREQUENCY—RESULTING IN:

- **HIGHEST** GAIN—as high as 14 db. in the LPV 17!
- **SHARPEST** DIRECTIVITY—on high bands as well as low!
- **HIGHEST** FRONT-TO-BACK RATIO—up to 35 db.
- **LOWEST** VSWR—as low as 1.2 to 1—with constant impedance across the full bandwidth!
- **FLAT** RESPONSE ACROSS BOTH VHF BANDS—with greater gain on the high band, where it's needed most (average increase of gain in high band over low band: 3¼ db.)!
- **BROADEST** BANDWIDTH—thanks to its unique frequency-independent characteristics!

FOR THE FIRST TIME ONE SCIENTIFICALLY FORMULATED ANTENNA CONFIGURATION SATISFIES ANY LOCATION DEMAND:
Harmonically resonant V-elements operate on the Log-Periodic Cellular Principle in the Fundamental and Third Harmonic Modes for unprecedented performance —in color—in black and white—in FM STEREO

developed by the Famous Antenna Research Laboratories



LPV-17: 18 Active Cells and Director System—up to 175 miles

LPV-14: 15 Active Cells and Director System—up to 150 miles

LPV-11: 11 Active Cells and Director System—up to 125 miles

LPV-8: 8 Active Cells and Director System—up to 100 miles

LPV-6: 6 Active Cells—up to 75 miles

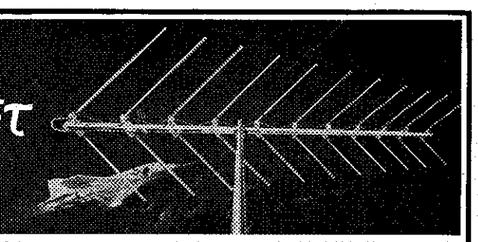
LPV-4: 4 Active Cells—up to 50 miles

Adapted to TV and FM Stereo by JFD

✓ **ELIMINATES THE NEED FOR AREA-DESIGNED ANTENNAS**
✓ **100% PREASSEMBLED "FLIP-QUIK" ASSEMBLY.**
✓ **MASSIVE TANK TURRET BRACKETS THAT DOUBLE-LOCK ELEMENTS.**
✓ **AAA† GOLD BOND ALODIZED TO KEEP THAT BRAND NEW LOOK.**

†Attractive, Anti-corrosive Armor

LPV $\frac{L(n+1)}{Ln}\tau$ TV ANTENNA



Conceived by the University of Illinois*. . .
Proved-Out in Air Force Satellite Tracking . . .
Licensed and Developed for Home Use by **JFD** Electronics . . .

THIS REMARKABLE FORMULA MEANS MORE PICTURE POWER, MORE PICTURE PURITY

IT COULD ONLY HAVE BEEN PRODUCED BY SUCH MASSED RESOURCES as those of a prominent university, the Armed Forces, and the country's leading antenna manufacturer—**JFD.**

THE LOG-PERIODIC LPV MUST IMPROVE YOUR TELEVISION PERFORMANCE—on virtually every count—because it outperforms previous antennas on virtually every count.

BUILDS UP ENORMOUS POWER—to bring in new depth, more detail—regardless of distance or terrain.

FOCUSES WITH PINPOINT PRECISION, to go after the signal you're tuned to and no other—without noise, snow or ghosts.

GET VIVID, VIBRANT PICTURES ON EVERY CHANNEL . . . the truest color you've ever seen . . . plus FM and stereo! Ask us about the **JFD** LOG-PERIODIC **LPV.**

*U.S. Patents 2,958,081 — 2,985,879 — 3,011,168. Additional Patents Pending. Produced Exclusively by JFD Electronics Under License to U. of Illinois Foundation.

PRICE SCHEDULE INDEX No. R63-O

JFD AAA GOLD BOND ALODIZED LPV LOG PERIODIC ANTENNAS

DEVELOPED BY THE UNIVERSITY OF ILLINOIS* ANTENNA RESEARCH LABORATORY, PROVED-OUT IN AIR FORCE SATELLITE TELEMETRY

—THIS HISTORIC NEW PRINCIPLE ENDS THE "ERA OF COMPROMISE" IN TV ANTENNA DESIGN

- IT COULD ONLY HAVE BEEN PRODUCED by such massed resources as those of a prominent university, the military, and the country's leading antenna manufacturer.
- BECAUSE ITS GAIN IS INDEPENDENT OF FREQUENCY, the end-fired log-periodic LPV functions with total efficiency across the entire band—**is comparable on any channel to a tuned Yagi cut to that channel.**
- ON VIRTUALLY EVERY COUNT IT OUTPERFORMS PREVIOUS WIDE-BAND ARRAYS: in gain, in directivity, in bandpass, in front-to-back ratio. Develops gain as high as 7 db on low band and 10 db on high band in the 11-element model. Shows flat response across all 12 channels — with greater gain on the high band, where it's needed most. Result: An all-channel, all-purpose antenna with unprecedented power, a decisive end to snow and ghosts, and the truest color reception yet—as well as vivid sharpness in black-and-white. And the basic log-periodic LPV principle can be adapted to any future UHF antenna needs.
- NOT A "CATCH-ALL COMPROMISE"—the log-periodic LPV signals a halt to the endless piling-on of narrow-band elements and trimmers. Derived from an antenna geometry that repeats the electrical properties of the antenna periodically with the logarithm of the frequency, it is essentially **frequency-independent.** (Actually, the basic log-periodic design is capable of receiving a range as broad as 54 to 890 mcs. or broader.)
- DEVELOPED TO MEET THE AIR FORCE'S RIGOROUS STANDARDS OF RELIABILITY, RUGGEDNESS, HIGH PERFORMANCE—built to uncompromising JFD specifications—of AAA† Gold Bond Alodized aircraft aluminum for **enduring** good looks. 100% PREASSEMBLED FLIP-QUICK CONSTRUCTION—with new JFD "tank-turret" aluminum brackets that align and double-lock elements instantly, permanently in place.
- RECEIVES FM, TOO—delivers drift-free, distortion-free FM stereo.

antenna with unprecedented power, a decisive end to snow and ghosts, and the truest color reception yet—as well as vivid sharpness in black-and-white. And the basic log-periodic LPV principle can be adapted to any future UHF antenna needs.

- MORE, FAR MORE, THAN JUST A "FRINGE" SOLUTION, the log-periodic LPV achieves superior reception in **all** multi-channel areas. It is the first true "universal" antenna. And it will open key profit opportunities to you in the months ahead—not only because it puts better reception within the reach of virtually every TV set-owner, but because it enables you for the first time to **meet all antenna needs with a single antenna line.**
- U. S. PATENT NUMBERS: 2,958,081 - 2,985,879 - 3,011,168 OTHER PATENTS PENDING

*produced exclusively by JFD Electronics under license from the University of Illinois Foundation.

LOG-PERIODIC

$$LPV\ \frac{L_{(n+1)}}{L_n} = \tau$$

*Antenna Research Laboratory

Harmonically resonant V-elements operating on the Log-Periodic Cellular Principle in the Fundamental and Third Harmonic Modes:

FOR THE BEST PICTURE, COLOR AND BLACK & WHITE-USE THE BEST ANTENNA	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.	Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
(C) up to 175 miles	LPV17	18 Active Cell and director system	59.95	1	35.97	32.37	29.98	21.58
up to 150 miles	LPV14	15 Active Cell and director system	49.95	1	29.97	26.97	24.98	17.98
(C) up to 125 miles	LPV11	11 Active Cell and director system	39.95	1	23.97	21.57	19.98	14.58
up to 100 miles	LPV8	8 Active Cell and director system	29.95	1	17.97	16.17	14.98	10.78
up to 75 miles	LPV6	6 Active Cell system	21.95	1	13.17	11.85	10.98	7.92
up to 50 miles	LPV4	4 Active Cell system	14.95	1	8.97	8.07	7.48	5.40

time for decision...

If you would evaluate your antenna and accessory source of supply, you would reach one conclusion. There is only one TOTAL LINE geared for your maximum profit and growth—JFD. Because...

1. ONE ORDER TO JFD DOES THE WORK OF MANY OTHERS because only JFD offers you the industry's broadest selection of standard and electronic antennas and accessories. Transis-tenna amplifiers, conicals, Yagis, broadbands, VHF, UHF, FM, top-of-the-set indoor and exact replacement antennas—masts, and couplers—JFD supplies them all.

2. AND NOW—FREIGHT SAVINGS are part of the profit in dealing with JFD. All JFD products are now FULL FREIGHT PREPAID. Your order for $500.00 or more assorted merchandise is shipped FREIGHT PREPAID. There are no freight bills or routings to worry about. No checks to write. You know your landed cost.

3. ALL JFD ANTENNAS (INCLUDING FAMOUS ZIP CONICALS AND YAGIS) ARE AAA* GOLD BOND ALODIZED to keep looking and working like new—an extra selling feature at practically no extra cost. (*Attractive, Anti-Corrosive Armor).

4. THE FASTEST-SELLING INDOOR TV ANTENNAS are yours from JFD. The popular new JFD TA707 "Jet" for example, our new deluxe-styled, quality-built, top-of-the-set antenna costs you only 59 cents prepaid. Our TA990 "Switch" Indoor—costs you as low as $1.25 landed cost.

5. EXACT REPLACEMENT ANTENNAS for portable TV sets put you ahead in this high-turnover, high-profit replacement market. And only JFD keeps you ahead of competition with new models to match every new portable, because JFD builds over 90 per cent of all O. E. M. antennas.

6. AND NOW—A GREAT NEW TV ANTENNA CONCEPT—THE LPV—will be working for you this fall and winter—as a franchised JFD antenna distributor. Truly, a mathematical dream, that is now an engineering reality.

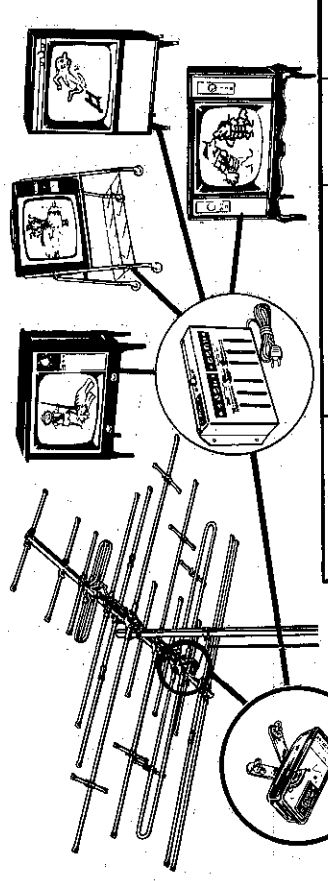
New Products...New Breakthroughs...New Horizons...New Ideas—the move to JFD has never been More Tempting, More Rewarding or More Practical than now. More than ever, it pays to make JFD your total antenna and accessory line. Why not call your JFD representative or write us direct?

LET JFD—THE TOTAL LINE—CONTRIBUTE TO YOUR PROFIT AND PROGRESS.

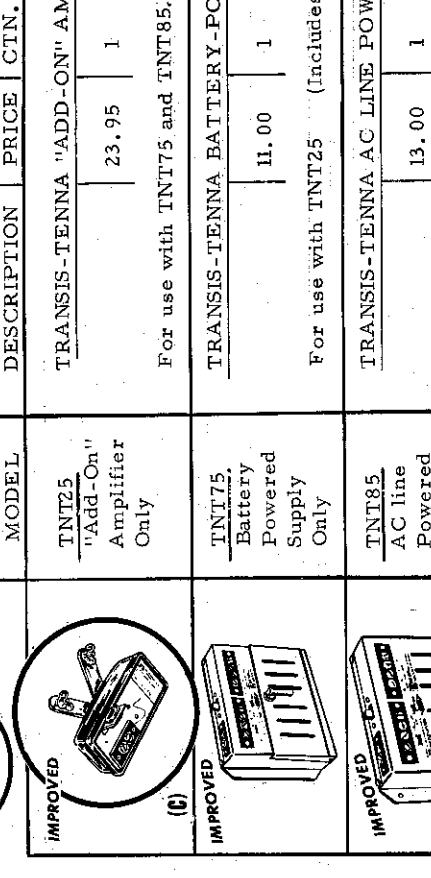
JFD ELECTRONICS CORPORATION—the brand that puts you in command of your market

JFD TRANSIS-TENNA ADD-ON TV/FM Amplifier, Distribution System and Power Supply Units (Less Antenna)

The Transis-tenna is the only amplifier designed to be an electrical and mechanical built-in part of the antenna. It mounts directly on the dipole terminals at the point of highest signal-to-noise ratio.



NOTE: Where conditions do not permit the use of the "add-on" Transis-tenna amplifier directly on the antenna terminals, JFD also makes the new Nu Vista circuit TNT105 4-set TV-FM amplifier for use inside the home.



transis-tenna

BEST FOR SINGLE SET OPERATION!
BEST FOR MULTIPLE SET OPERATION!
Complete with two extra pairs of 300 ohm twin lead connectors, outlets and hardware.

MODEL	DESCRIPTION	LIST PRICE	STD. CTN.	Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
TNT25 "Add-On" Amplifier Only	TRANSIS-TENNA "ADD-ON" AMPLIFIER ONLY	23.95	1	16.05	15.33	14.71	10.78
	For use with TNT75 and TNT85. Can be used for TV or FM						
TNT75 Battery Powered Supply Only	TRANSIS-TENNA BATTERY-POWERED DC SUPPLY ONLY	11.00	1	7.37	7.04	6.76	4.95
	For use with TNT25 (Includes connectors, outlets, and hardware).						
TNT85 AC line Powered Supply Only	TRANSIS-TENNA AC LINE POWERED SUPPLY ONLY	13.00	1	8.71	8.32	7.99	5.85
	For use with TNT25 (Includes connectors, outlets, and hardware).						
TNT100 Battery Powered Supply And Amplifier	BATTERY-POWERED TRANSIS-TENNA "ADD-ON" AMPLIFIER-DISTRIBUTION SYSTEM, AND POWER SUPPLY.	34.95	6	23.42	22.37	21.47	15.73
	(Includes No. TNT75, No. TNT25, 300 ohm connectors, outlets, and hardware--but no antenna).						
TNT103 AC line Powered Supply and Amplifier	AC LINE POWERED TRANSIS-TENNA ADD-ON AMPLIFIER, DISTRIBUTION SYSTEM, AND POWER SUPPLY.	36.95	6	24.76	23.65	22.70	16.63
	(Includes No. TNT85, No. TNT25, 300 ohm connectors, outlets, and hardware--but no antenna).						
TNT105 Nu Vista Amplifier - AC Powered Supply and Amplifier both in Single Unit	NU-VISTA AMPLIFIER - 2 NEW VISTA TUBE CIRCUIT AMPLIFIER, ACCESSORIES AND POWER SUPPLY FOR INDOOR USE	29.95	1	20.07	19.17	18.40	13.48
	300 or 75 ohm input and 300 ohm output. The finest basic unit for 2 TV sets. Features demonstrator switch, adjustable gain control, and courtesy AC outlet. Includes connectors, outlets and hardware-but no antenna						

JFD now makes available a highly efficient series of individual VHF channel and FM Traps, for use with JFD Transis-tennas or any other electronic antenna, to control strong local signals. See page 15 of JFD R63-IA Distributor Price Schedule.

The little-known facts about FM STEREO ANTENNAS

AND WHAT THEY MEAN FOR YOU AND YOUR HI-FI CUSTOMERS

FM stereo is the greatest profit opportunity in home entertainment since the development of television.

Over 75 FM stereo stations are already operating and 55 more will go on the air as soon as their new multiplex equipment is installed.

This represents new profits for alert service-dealers not only in the sale of FM stereo equipment but in the installation of FM stereo antennas as well.

FM stereo systems need a properly designed outdoor antenna for high fidelity stereophonic reception. FM authorities agree that this is a "must". Wires, built-in antennas and rabbit-ears fail to deliver a satisfactory stereo multiplex signal, even where they have been giving acceptable monophonic results. These substitutes lack the gain necessary to overcome the inherent power loss of the suppressed carrier and subcarrier of the stereo signal which shrink the station's stereo range to approximately 52 per cent of its monaural coverage.

In addition, the severity of reflections and other signal disruptions is multiplied in stereo transmission and unbalances the signals. As a result, the owner condemns the station, his dealer and/or his equipment for his reception troubles.

By selling or installing a JFD stereo-engineered FM antenna with each FM stereo system, you protect each sale by:

1. *Assuring flawless high fidelity FM stereo (and monaural) reception from the* maximum *number of stations on the air.*
2. *Reaffirming your customer's faith in* your *technical know-how.*

And, last but by no means least, all at a tidy *profit* for you!

JFD Electronics Corp.

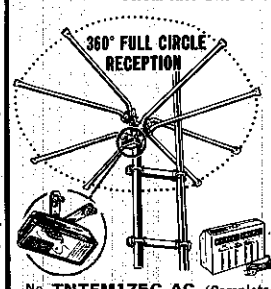
Edward Finkel

EDWARD FINKEL
Vice-President-Sales

JFD has the most complete line of electronic and non-electronic FM stereo antennas for your profit and progress!

Stock up now on the JFD antenna line that brings you high-powered electronic FM Stereo antennas with built-in transistorized amplifiers for long-distance FM ...handy FM antenna kits for town or country. Regardless of the JFD model you choose, you get more power, more features, more profit per dollar.

FOR THE FIRST TIME... UP TO 100 MILE YAGI-QUALITY RECEPTION— FROM ANY DIRECTION— WITHOUT A ROTATOR

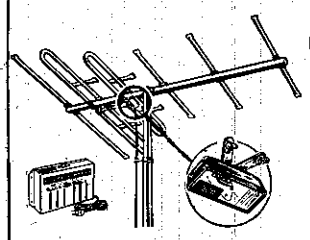


JFD transis-tenna
ELECTRONIC FM STEREO-CONE ANTENNA KIT
Attaches to any TV mast

- Built-in transistorized amplifier boosts FM stereo gain.
- Exclusive 360 degree Stereo-Cone all-directional design captures more stations.
- Attractive, Anti-Corrosive, Gold Bond Alodized aluminum.
- Mounts on same mast as TV antenna.

No. **TNTFM175G-AC** (Complete kit with antenna shown above) **$47.95,** list
No. **AFM175G** (Same as above less amplifier) **$13.95,** list

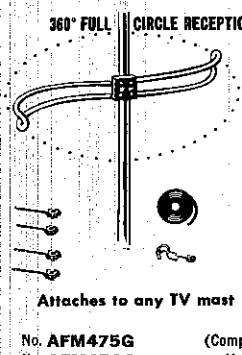
WORLD'S MOST POWERFUL DEEP-FRINGE FM ANTENNA DELIVERS BRILLIANT PERFORMANCE UP TO 200 MILES DISTANT



JFD transis-tenna
TWIN-DRIVEN ELECTRONIC YAGI

- Built-in transistorized amplifier provides highest signal-to-noise ratio ever achieved in FM antenna design.
- Wide-spaced 6-element beam (including twin-driven dipoles) pinpoints far-away stations.
- Attractive, Anti-Corrosive, Alodized aluminum.

No. **TNTFM350G** (Shown above) **$54.95,** list
No. **AFM650G** (10-element non-electronic Twin-Driven Yagi) **$32.50,** list
No. **AFM350G** (6-element non-electronic Twin-Driven Yagi) **$23.50,** list
No. **AFM325G** (3-element non-electronic Yagi) **$12.50,** list

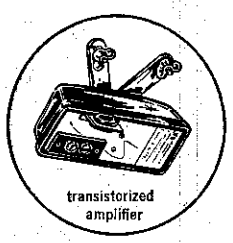


JFD "SUPER-S" FM ANTENNA

- Picks up excellent FM stereo from any point of the compass.
- Attractive, Anti-Corrosive, Gold Bond Alodized Aluminum.
- Budget-priced for easy tie-in sales.
- Mounts on same mast as TV antenna.

Attaches to any TV mast

No. **AFM475G** (Complete with kit) **$8.95,** list
No. **AFM450G** (Antenna only) **$6.95,** list



AND NOW... YOU CAN MAKE ANY FM ANTENNA ELECTRONIC— WITH THE REVOLUTIONARY NEW FM

JFD transis-tenna

- Adds up to 25 db gain to any FM antenna.
- Mounts directly on any antenna's terminals for maximum signal-to-noise ratio.
- So much power to spare, it can operate 2, 3 or 4 FM systems with greater signal strength.

No. **TNT106FM** **$36.95,** list

HIGH FIDELITY EXPERTS AGREE— YOU NEED AN FM STEREO-ENGINEERED ANTENNA FOR TRUE STEREO PERFORMANCE

"One Long Island station reported that more than 95 per cent of all calls complaining of poor reception were traced to poor antenna setups.
Popular Science

What one station learned about FM stereo: From listener's standpoint, most significant difference between FM-stereo and conventional radio installation is need for far better antenna system.
Weekly Television Digest

The antenna has always been important in FM. But with stereo multiplex FM, a good antenna is absolutely vital, even in metropolitan areas.
Radio Electronics

Indoor antennas are prone to pick up many reflected signals, which can be fairly well tolerated in monophonic FM reception, but which raise havoc with stereo because of selective cancellation at different modulating frequencies.
PF Reporter

IN FM/TV ANTENNAS— JFD is the brand that puts you in command!

JFD ELECTRONICS CORPORATION

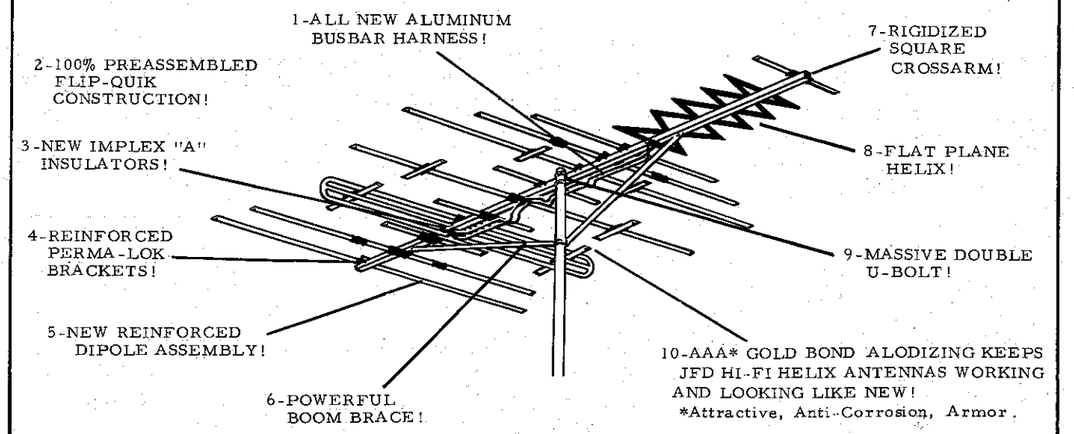
JFD

AAA GOLD BOND ALODIZED HI-FI HELIX COLORTENNAS

U. S. Patent No. 2923007

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
NEW — For local reception	MX200G	13 Work. Elmts. Metro-Helix	13.20	1		7.92	7.13	6.60	4.75
For local reception	MX211G AAA Gold Bond Alod.	14 Work. Elmts. Mini-Helix	14.95	1		8.97	8.07	7.48	5.40
50 miles	JX311G AAA Gold Bond Alod.	15 Work. Elmts. Junior-Helix	18.75	1		11.25	10.12	9.38	6.75
75 miles	RX511G AAA Gold Bond Alod.	17 Work. Elmts. Super-Helix	21.95	1		13.17	11.85	10.98	7.92
100 miles	SX711G AAA Gold Bond Alod.	23 Work. Elmts. Star-Helix	30.50	1		18.30	16.47	15.25	10.98
	SX711G-S AAA Gold Bond Alod.	2-Bay SX711G 46 Work. Elmts. Star-Helix	63.50	1		38.10	34.29	31.75	22.86
125 miles	PX911G AAA Gold Bond Alod.	26 Work. Elmts. Power-Helix	37.50	1		22.50	20.25	18.75	13.50
150 miles	VX1111G AAA Gold Bond Alod.	31 Work. Elmts. Satellite-Helix	49.50	1		29.70	26.73	24.75	17.82

10 ELECTRONIC AND MECHANICAL DESIGN ADVANCES
THAT DELIVER MORE OF WHAT YOU ARE LOOKING FOR!



Why are more Service-Dealers Switching to JFD HI-FI TV ANTENNAS?

because

they know *5 million* antennas need replacement—that *JFD* HI-FI TV antennas assure them a *bigger* share of this profitable market.

because

JFD is the *total* antenna line with the *right* model, at the *right* price for every location—does the *most* for them in mile-shrinking *performance* and customer *confidence*.

because

JFD all-out advertising *sells* for them in powerful national mass media—such as Look, TV Guide, Successful Farming, Farm Journal, Progressive Farmer.

because

JFD sales stimulators such as cloth patches, decals, mobiles, banners, displays and direct mail give them the *complete* package to *sell* new customers.

HOW MUCH INSTALLATION BUSINESS ARE YOU LOSING BY NOT SWITCHING TO JFD! THE TV ANTENNA LINE AMERICA KNOWS BEST!

LPV | HI-FI HELIX | HI-FI BANSHEE | HI-FI FIREBALL

THE BRAND THAT PUTS YOU

JFD

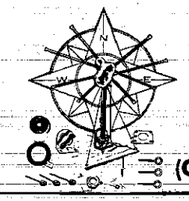
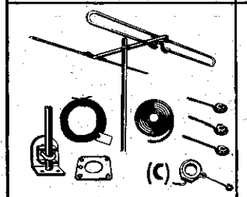
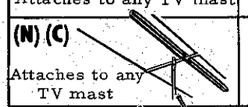
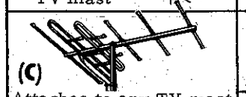
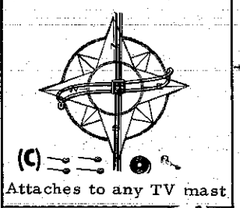
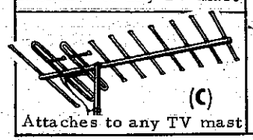
IN COMMAND OF THE MARKET

JFD ELECTRONICS CORPORATION, Brooklyn New York

JFD — AAA GOLD BOND ALODIZED FM STERO ANTENNA

STEREO-CONE All-Directional FM Antenna Kits.

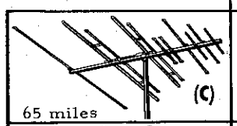
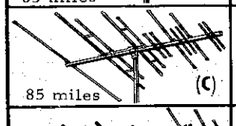
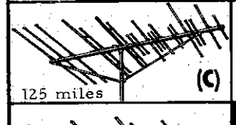
STEREO-CONE -- A new concept in FM Antenna Design!

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
 (C)	AFM100G AAA Gold Bond Alod.		15.95	1		10.69	10.21	9.80	5.74
		Stereo-Cone Kit with Roof Mount for all-new installations. *One preassembled Stereo Cone (in gold alodized aluminum.) *One 5" gold alodized aluminum mast. * One universal base mount for wall or roof installation. * Galvanized steel guy wire, ring, standoffs and mounting hardware. * 50ft. 80 mil. 300 ohm lead.							
 (C) Attaches to any TV mast	AFM150G AAA Gold Bond Alod.		11.95	1		8.01	7.65	7.34	4.30
		Stereo-Cone attach-it Kit for existing TV Antenna Installations. Contents: * One gold alodized Stereo-Cone Turnstile FM Antenna. * Two gold alodized mast extensions. * Two sets of U-bolts for mounting.							
	AFM175G AAA Gold Bond Alod.		13.95	1		9.35	8.93	8.57	5.02
		Stereo-Cone "attach-it" all-directional Deluxe FM Antenna Kit for existing TV Antenna Installations. Contents: * One preassembled gold alodized all directional Stereo-Cone Turnstile FM Antenna. * Two gold alodized mast extensions. * Two sets of U-bolts for mounting to mast. * 50 ft. 80 mil. 300 ohm twin lead. * Three 3 1/2" wood screw eyes. * One 7 1/2" wood screw eye. * One mast stand-off.							
 (C)	AFM200G AAA Gold Bond Alod.		13.85	1		9.28	8.86	8.51	4.98
		Stereo-Folded Dipole and Reflector Kit for all-New Installations. Contents: * One preassembled Hi-Fi FM gold alod. aluminum antenna, model AFM200. * One 5 ft. gold alodized aluminum mast. * One universal base mount for wall or roof installation. * Galvanized steel guy wire, guy ring, stand-offs, and mounting hardware. * 50 ft. polyethylene 300 ohm transmission line.							
 (N) (C) Attaches to any TV mast	AFM250G AAA Gold Bond Alod.		8.60	1		5.76	5.50	5.28	3.10
		Stereo-Folded Dipole and Reflector Antenna only.							
 (N) (C) Attaches to any TV mast	AFM325G AAA Gold Bond Alod.		12.50	1		8.38	8.00	7.68	4.50
		Stereo 3-Element Wide-Spaced Yagi for local FM areas.							
 (C) Attaches to any TV mast	AFM350G AAA Gold Bond Alod.		23.50	1		15.75	15.04	14.44	8.46
		Stereo 6-Element Wide-Spaced Yagi for fringe FM areas - 9 db gain - flat across FM band. 1" sq. crossarm - 1/2" sleeved elements, aluminum brackets.							
 (C) Attaches to any TV mast	AFM450G AAA Gold Bond Alod.		6.95	1		4.66	4.45	4.27	2.50
		Stereo All-Directional "S" Kit for existing TV. Antenna Installations. Contents: * All-Directional "S" FM antenna.							
	AFM475G AAA Gold Bond Alod.		8.95	1		6.00	5.73	5.50	3.22
		Stereo-All-Directional Deluxe "S" Kit for existing TV Antenna Installations. Contents: * All-directional "S" FM Antenna. * Three 3 1/2" wood screw eyes. * One 7 1/2" wood screw eyes. * One mast stand-off. * One 50 ft. Twin Lead.							
 (C) Attaches to any TV mast	AFM650G AAA Gold Bond Alod.		32.50	1		21.78	20.80	19.97	11.70
		Stereo 10-Element Wide-Spaced Yagi for deep fringe FM areas - 12 db gain - flat across FM band. 1" sq. crossarm - 1/2" sleeved elements, aluminum brackets.							

JFD — AAA GOLD BOND ALODIZED HI-FI BANSHEE BROAD BAND ANTENNAS

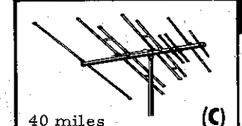
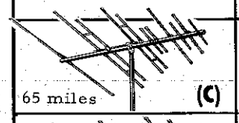
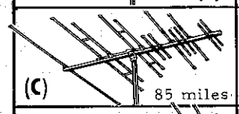
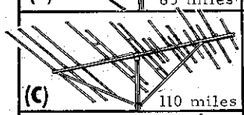
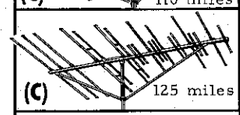
Heavy Duty Dipoles

Features heavy-duty dipole assembly (1" and 3/8" od) plus all features illustrated below.

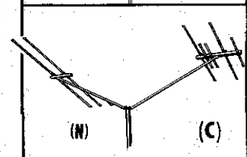
	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
 (C) 65 miles	For up to 65 miles AN300G AAA Gold Bond Alod.	17-Work. Elmts. Heavy-Duty Banshee	25.70	1		15.42	13.88	12.85	9.25
 (C) 85 miles	For up to 85 miles AN400G AAA Gold Bond Alod.	19-Work. Elmts. Heavy-Duty Banshee	27.65	1		16.59	14.93	13.83	9.95
 (C) 125 miles	For up to 125 miles ANS400G AAA Gold Bond Alod.	30-Work. Elmts. Heavy-Duty Banshee	41.00	1		24.60	22.14	20.50	14.75

Completely Preassembled Dipoles

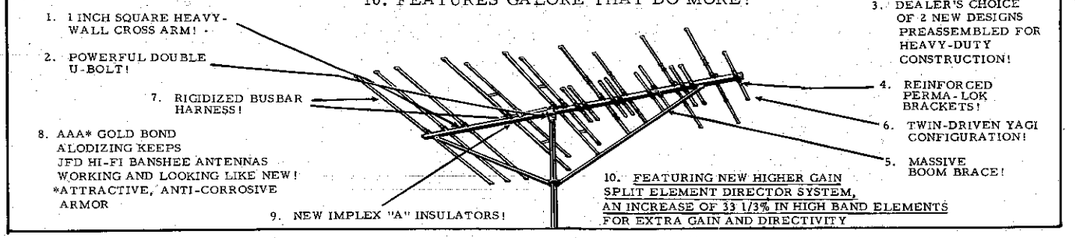
Features completely preassembled construction (1/2" and 3/8" od dipoles), plus all features below.

 (C) 40 miles	Local reception up to 40 miles AN250G AAA Gold Bond Alod.	13-Work. Elmts. Pre-assembled Banshee	23.60	1		14.16	12.74	11.80	8.50
 (C) 65 miles	For up to 65 miles AN350G AAA Gold Bond Alod.	17-Work. Elmts. Pre-assembled Banshee	25.70	1		15.42	13.88	12.85	9.25
 (C) 85 miles	For up to 85 miles AN450G AAA Gold Bond Alod.	19-Work. Elmts. Pre-assembled Banshee	27.65	1		16.59	14.93	13.83	9.95
 (C) 110 miles	For up to 110 miles ANS350G AAA Gold Bond Alod.	27-Work. Elmts. Pre-assembled Banshee	38.75	1		23.25	20.92	19.38	13.95
 (C) 125 miles	For up to 125 miles ANS450G AAA Gold Bond Alod.	30-Work. Elmts. Pre-assembled Banshee	41.00	1		24.60	22.14	20.50	14.75

BOOSTER PAK

 (N) (C)	ANDP400G AAA Gold Bond Alod	Booster-Pak., Converts 19 elmt. Banshee	14.60	1		8.76	7.88	7.30	5.25
		AN400G to 30 work. elmts. ANS400G							
	ANDP450G AAA Gold Bond Alod	Booster-Pak Converts 19 elmt. Banshee,	14.60	1		8.76	7.88	7.30	5.25
		AN450G to 30 work. elmts. ANS450G							

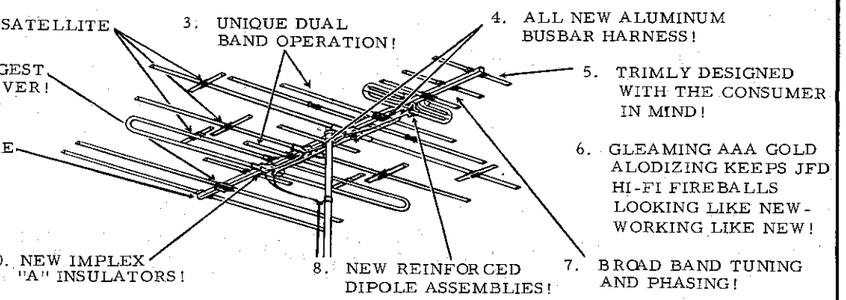
10. FEATURES GALORE THAT DO MORE!



JFD — AAA GOLD BOND ALODIZED HI-FI FIREBALL BROAD BAND ANTENNAS

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
25 miles	FB201G AAA Gold Bond Alod.	4-Work. Elmts. Fireball	8.20	2		4.92	4.43	4.10	2.95
50 miles	FB490G AAA Gold Bond Alod.	9-Work. Elmts. Fireball	15.97	1		9.58	8.62	7.99	5.75
75 miles	FB500G AAA Gold Bond Alod.	9-Work. Elmts. Twin-Driven Fireball	16.67	1		10.00	9.00	8.34	6.00
100 miles	FB510G AAA Gold Bond Alod.	14-Work. Elmts. Twin-Driven Fireball	27.50	1		16.50	14.85	13.75	9.90
125 miles	FB520G AAA Gold Bond Alod.	24 Work. Elmts. Triple-Driven Fireball	37.50	1		22.50	20.25	18.75	13.50

11 ELECTRICAL AND MECHANICAL REASONS WHY JFD HI-FI FIREBALLS ARE THE BEST BUY!



AAA* GOLD ALODIZED

...AT NO EXTRA COST...TO KEEP LOOKING LIKE NEW, WORKING LIKE NEW! EXCEEDS REQUIREMENTS OF MIL-C-5541 and MIL-S-5002 GOVERNMENT SPECIFICATIONS *

JFD AAA GOLD ALODIZING immerses your antenna in a gleaming golden electro-chemical bath that actually becomes a permanent part of the aluminum. This costly iridescent finish beautifies the antenna . . . protects it by preventing corrosion or discoloration from atmospheric gases or salt air . . . fights off dust and soot that impairs antenna performance.

And your lustrous gold alodized coating will never flake, peel or chip. It is as flexible and durable as the aluminum to which it is bonded . . . actually heals itself from damage.

*Attractive, Anti-Corrosion, Alodine treated.

JFD AAA GOLD ALODIZING is unlike other anodized films that insulate antenna contact points. Instead, it is electrically conductive to insure maximum signal transfer to antenna terminals.

The same alodized coating (less the gold color) meets Military Specifications for use on almost all spacecraft.

* Salt Spray and color fastness data available on request.

JFD — AAA GOLD BOND ALODIZED ELECTRONIC FM TRANSIS-TENNAS

transis-tenna

JFD Stereo FM Transis-tennas are available in either of two types: as (1) a complete Stereo FM antenna-amplifier-distribution system and (2) as an "add-on" amplifier which can be mounted on the dipoles of any existing FM antenna for extra gain. Whichever system you select you give hi-fi listeners the additional sensitivity and gain they need to compensate for the power loss of stereo casts.

TRANSIS-TENNA ADD-ON FM Amplifier, Distribution System and Power Supply Units (Less Antenna)

The FM Transis-tenna amplifier mounts directly on the antenna terminals at the point of highest signal-to-noise ratio. The AC line powered supply, located inside the home, drives up to 4 FM systems, anywhere in the home.

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
IMPROVED	TNT106FM FM Amp. & AC Power Supply 25 db gain	Transis-tenna "Add-On" Stereo FM Amplifier-Distribution System and Power Supply. (Includes No. TNT30, No. TNT85, 300 ohm connectors, outlets, hardware, but no antenna).	36.95	1		24.76	23.65	22.70	16.63
IMPROVED	TNT30 Amp. Only	Transis-tenna Stereo FM Amplifier only for use with TNT85 Power Supply	23.95	1		16.05	15.33	14.71	10.78
	TNT85 AC Power Supply Only	Transis-tenna AC line Powered Supply only, for use with TNT30 amplifier. (Includes connectors, outlets and hardware).	13.00	1		8.71	8.32	7.99	5.85

AAA GOLD BOND ALODIZED TRANSIS-TENNA FM ANTENNAS

25 db gain

TNTFM175G-AC — 47.95 | 1 | 32.13 | 30.69 | 29.46 | 21.58

AAA Gold Bond Alod. For up to 100 miles

Attaches to any TV Mast

25 db gain

Transis-tenna Stereo-Cone "attach-it" all-directional deluxe FM Antenna Kit for existing TV antenna installations. Eliminates need for rotators and stacked yagis. Potent 25 db gain.

* One electronic Stereo-Cone "attach-it" all- directional FM Antenna with built-in transistorized amplifier plus AC powered supply and 4-FM set distribution system.
* Two gold alodized mast extensions.
* Two sets of U-bolts for mounting to mast.
* 50 ft. 80 mil. 300 ohm twin lead.
* Three 3 1/2" wood screw eyes.
* One 7 1/2" wood screw eye.
* One mast stand-off.

100 MILE YAGI FM STEREO RECEPTION IN ALL DIRECTIONS WITHOUT A ROTATOR - 25 db gain

34 db gain

TNTFM350G-AC — 54.95 | 1 | 36.82 | 35.17 | 33.76 | 24.73

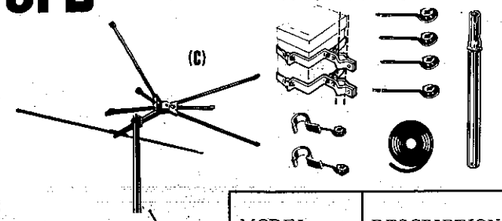
AAA Gold Bond Alod. For up to 200 miles

Transis-tenna Stereo FM 6-element wide-spaced yagi for the ultimate in long range reception. 34 db gain. Flat frequency response.

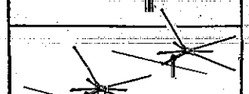
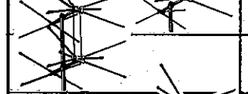
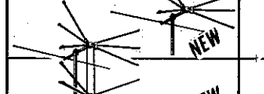
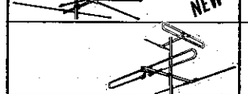
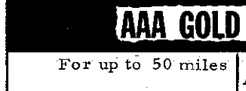
200 MILES - FULL FIDELITY STEREO FM RECEPTION - 34 db gain

JFD AAA GOLD BOND ALODIZED ZIP CONICAL CHIMNEY MOUNT KITS

Minimum order 25 per cat. no.

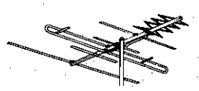
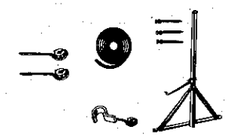
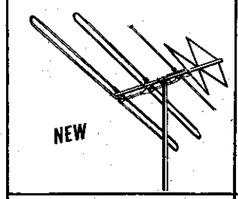
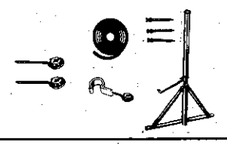
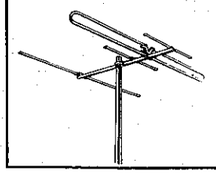
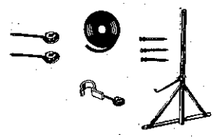


* The ZIP Conical of your choice as shown below.
* 1 - 5 ft. 1-1/4 gold alodized alum. mast for single bay, or two 5 ft. alum. masts for two bay ZIPS.
* 1 - 50 ft. 80/20 Twin Lead.
* 1 - BR2 Z-Chimney mount with straps.
* 2 - SPT125 Mast Snap-on.
* 3 - T3 3" Screw eyes.
* 1 - T7 7" Screw eye.
* 1 - Inst. Sheet.

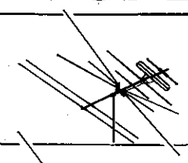
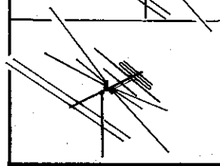
	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
	ZIP21G-CH	1-Bay ZIP21G Conical plus kit above	11.00	1		6.60	5.94	5.50	3.95
	ZIP221G-CH	2-Bay ZIP221G Conical plus kit above	17.65	1		10.59	9.53	8.83	6.35
	ZIP51G-CH	1-Bay ZIP51G Conical plus kit above	12.35	1		7.41	6.67	6.18	4.25
	ZIP52IG-CH	2-Bay ZIP52IG Conical plus kit above	19.30	1		11.58	10.42	9.65	6.95
	ZIP91G-CH	1-Bay ZIP91G Conical plus kit above	11.25	1		6.75	6.07	5.63	4.05
	ZIP92IG-CH	2-Bay ZIP92IG Conical plus kit above	18.50	1		11.10	9.99	9.25	6.65
	QC5G-CH	2-Bay Hi-Lo QC5G antenna plus kit above	14.50	1		8.70	7.83	7.25	5.20

DELUXE TENNA PAKS

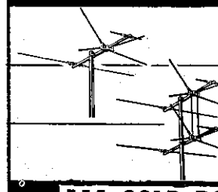
AAA GOLD BOND ALODIZED — Note: Minimum order 25 per cat. no.

			LIST PRICE	STD. CTN.		1-4	5-11	12 & UP	DIST. COST
For up to 50 miles 	JX311G-TP AAA Gold Bond Alod. 	* 1 Bay JX311G Gold Bond Alodized Junior-Helix antenna. * 1 Gold Bond Alodized aluminum 5 ft. Tri-mount mast. * 50 ft. 80/20 Transmission line. * 2-3 1/2" wood screw-eye stand-offs. * 1 mast stand-off. * 3-self-sealing drive-in-nails.	24.50	1		14.70	13.23	12.25	8.82
For up to 30 miles 	MX200G-TP AAA Gold Bond Alod. 	* 1-Bay MX200G Gold Bond Alodized Metro-Helix antenna. * 1 Gold Bond Alodized aluminum 5 ft. Tri-mount mast. * 50 ft. 80/20 Transmission Line. * 2-3 1/2" wood screw-eye stand-offs. * 1 mast stand-off. * 3-self-sealing drive-in nails.	14.95	1		8.97	8.07	7.48	5.50
For up to 25 miles 	FB201G-TP AAA Gold Bond Alod. 	* 1-FB201G antenna. * 1 Gold Bond Alodized aluminum 5 ft. Tri-mount mast. * 1- 50 ft. 80/20 Twin-lead. * 2-3 1/2" wood screw-eyes. * 1 mast stand-off. * 3- Self-sealing drive-in nails.	13.75	1		8.25	7.42	6.88	4.95

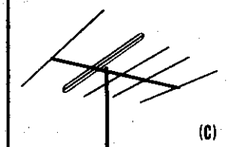
JFD AAA GOLD BOND ALODIZED VHF ALL-CHANNEL CONICAL YAGIS

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
	JET213G	1-Bay Super-Jet. For 65-70 miles. Performance-proved in over 250,000 installations out where the fringe begins. Flat-plane multi-element yagi-design.	13.90	2		8.34	7.51	6.95	5.00
	JET213G-S	2-Bay Super-Jet. For 80-90 miles. Features: 1" sq. alum. boom; tubular alum. dowels; double U-bolt, capped ends, 600 ohm dipole, wide-spacing.	28.50	1		17.10	15.39	14.25	10.25
	JET513G	1-Bay Pip-Jet. For 65-70 miles. The popular-priced companion to the mighty Super-Jet. A great buy!	11.25	2		6.75	6.07	5.63	4.05
	JET513G-S	2-Bay Pip-Jet. For 80-90 miles. Features: tubular aluminum dowels, 1" sq. alum. boom; capped ends, and other quality JFD construction features.	23.05	1		13.83	12.45	11.53	8.30

AAA GOLD BOND ALODIZED SHORE CLIPPER SOLID ROD ELEMENTS — Minimum order 25 per cat. no.

	ZIP33G 25 miles	1-Bay Clipper 8 Solid Rod Work. El With Bird Perch.	6.70	6		4.02	3.62	3.35	2.40
	ZIP332G 50 miles	2-Bay Clipper 16 Solid Rod Work. El With Bird Perch.	13.75	3		8.25	7.42	6.88	4.95
	ZIP3321G 50 miles	2-Bay Clipper 16 Solid Rod Work. El With Bird Perch.	14.60	1		8.76	7.88	7.30	5.25

AAA GOLD BOND ALODIZED 5 EL LO-BAND WIDE-SPACED YAGIS

 (C)	5Y2G	Channel 2	13.75	2		8.25	7.42	6.88	4.95
	5Y3G	Channel 3	13.05	2		7.83	7.05	6.53	4.70
	5Y4G	Channel 4	12.35	2		7.41	6.67	6.18	4.45
	5Y5G	Channel 5	11.40	2		6.84	6.16	5.70	4.10
	5Y6G	Channel 6	10.70	2		5.78	6.78	5.35	3.85

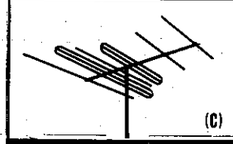
1" sq. Al. crossarm-600 ohm dipoles. 1/2" sleeve reinforced elmts., Al. brackets. Recommended for areas: 50-85 miles from transmitter, under normal receiving conditions. 25-60 miles distant from station where terrain or atmosphere hinders signals.

AAA GOLD BOND ALODIZED 5 EL HI-BAND WIDE-SPACED YAGIS

 (C)	5Y7G	Channel 7	5.85	6		3.51	3.16	2.93	2.10
	5Y8G	Channel 8	5.85	6		3.51	3.16	2.93	2.10
	5Y9G	Channel 9	5.85	6		3.51	3.16	2.93	2.10
	5Y10G	Channel 10	5.85	6		3.51	3.16	2.93	2.10
	5Y11G	Channel 11	5.85	6		3.51	3.16	2.93	2.10
	5Y12G	Channel 12	5.85	6		3.51	3.16	2.93	2.10
	5Y13G	Channel 13	5.85	6		3.51	3.16	2.93	2.10

1" sq. Al. crossarm-600 ohm dipoles. 1/2" sleeve reinforced elmts., Al. brackets. Recommended for areas: 50-85 miles from transmitter, under normal receiving conditions. 25-60 miles distant from station where terrain or atmosphere hinders signals.

AAA GOLD BOND ALODIZED 6 EL LO-BAND PACE-SETTER YAGI

 (C)	6Y26G	Channel 2 thru 6	21.15	2		12.69	11.42	10.58	7.60

1" sq. Aluminum Crossarm - 600 ohm dipoles. 1/2" sleeved Aluminum Brackets. Reinforced elements.
The perfect antenna answer in locations where good reception is wanted on more than one low band channel within a 30-65 mile radius of transmitters.

AAA GOLD BOND ALODIZED 10 EL LO-BAND WIDE-SPACED YAGIS

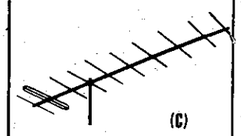
 (C)	10Y2G	Channel 2	27.80	1		16.68	15.01	13.90	10.00
	10Y3G	Channel 3	26.35	1		15.81	14.23	13.18	9.50
	10Y4G	Channel 4	24.30	1		14.58	13.12	12.15	8.75
	10Y5G	Channel 5	24.30	1		14.58	13.12	12.15	8.75
	10Y6G	Channel 6	22.94	1		13.76	12.38	11.47	8.25

1" sq. Al. crossarm-600 ohm dipoles. 1/2" sleeve reinforced elmts., Al. brackets. Performance proved: In locations 100-150 miles distant from transmitters over uniform terrain. In rolling or irregular country 50-100 miles distant.

JFD

AAA GOLD BOND ALODIZED — 10 EL HI-BAND PACE-SETTER YAGIS

MODEL	DESCRIPTION	LIST PRICE	STD. CT.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
10Y7G	Channel 7	11.10	4		6.66	5.99	5.55	4.00
10Y8G	Channel 8	11.10	4		6.66	5.99	5.55	4.00
10Y9G	Channel 9	11.10	4		6.66	5.99	5.55	4.00
10Y10G	Channel 10	11.10	4		6.66	5.99	5.55	4.00
10Y11G	Channel 11	11.10	4		6.66	5.99	5.55	4.00
10Y12G	Channel 12	11.10	4		6.66	5.99	5.55	4.00
10Y13G	Channel 13	11.10	4		6.66	5.99	5.55	4.00

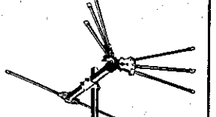


100-150 miles

Performance proved: In locations 100-150 miles distant from transmitters over uniform terrain. In rolling or regular country 50-100 miles distant from transmitter. 1" sq. crossarm - 600 ohm dipoles. 1/2" sleeved reinforced elements and aluminum brackets.

AAA GOLD BOND ALODIZED — 10 EL PACE-SETTER BROAD-BAND YAGI

10Y26G	Channels 2 thru 13	31.95	1		19.17	17.25	15.97	11.50



75-125 miles

No better antenna for fringe areas where two or more low band channels are on the air. Pulls in crisp, steady pictures over 75-125 miles where terrain is even and 50-100 miles where conditions are poor. 1" sq. crossarm - 600 ohm dipoles. 1/2" sleeved reinforced elements and aluminum brackets.

AAA GOLD BOND ALODIZED — 10 EL PACE-SETTER HI-BAND YAGI

10Y713G	Channels 7 thru 13	14.60	2		8.76	7.88	7.30	5.25

50-100 miles

Engineered for multi-high-band channels 50-100 miles under favorable receiving circumstances and 30-80 miles under adverse conditions. 1" sq. crossarm - 600 ohm dipoles. 1/2" sleeved reinforced elements and aluminum brackets.

AAA GOLD BOND ALODIZED — VHF CHANNEL 7 thru 13 YAGI-HELIX

YH713G	Yagi-Helix Channels 7 thru 13	12.95	2		7.77	6.99	6.48	4.66

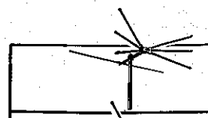
This is it for moderate to strong areas with two or more high band channels. Features famous JFD high gain helix design.

AAA GOLD BOND ALODIZED — VHF ALL-CHANNEL JETENNA CONICAL

Assembles Faster! Performs Better! 3,000,000 in use today! The famous conical with the original time-saving labor-saving "jet-action" preassembly that made antenna history. Now...faster-than-ever... stronger than ever...more sensitive than ever.

JET160G AAA Gold Bond Alod.	1 Bay JeTenna	11.55	2		6.93	6.24	5.78	4.15
JET161G AAA Gold Bond Alod.	2 Bay JeTenna	24.75	1		14.85	13.36	12.38	8.90
Seamless aluminum element series								

JET660G AAA Gold Bond Alod.	1 Bay JeTenna	8.60	2		5.16	4.64	4.30	3.10
JET661G AAA Gold Bond Alod.	2 Bay JeTenna 1" Sq. boom tub. dowels	17.95	1		10.77	9.69	8.98	6.45
Butt-seam aluminum element series								
JET661G-SR AAA Gold Bond Alod.	2 Bay JeTenna solid rod 61ST6 alum. elem.	22.05	1		13.23	11.91	11.03	7.95
Solid aluminum element series								

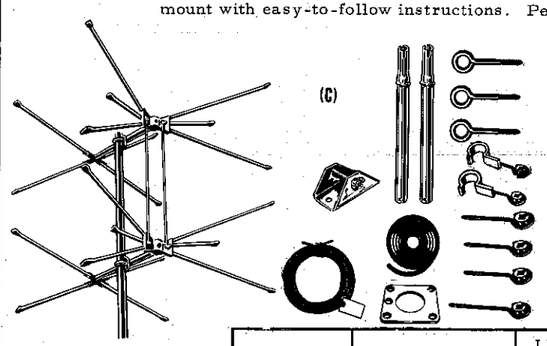


MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
ZIP9G	1-Bay 8-El. Fan Front	4.50	6		2.70	2.43	2.25	1.62
ZIP92G	2-Bay 8-El. Fan Front	9.55	3		5.73	5.16	4.78	3.44
ZIP921G	2-Bay 8-El. Fan Front	10.10	1		6.06	5.45	5.05	3.64

JFD

ZIP CONICAL ROOF MOUNT KITS — AAA GOLD BOND ALODIZED (MIN. ORDER-25 KITS PER CAT. NO.)

CUSTOM-made kits to suit your local needs, prepackaged in eye-catching 2-color consumer carton, are available on special order.
Complete with performance-proved all-aluminum ZIP conical, shown below, steel mast, lightning arrester, transmission line, screweyes, mast stand-offs, and base mount or chimney mount with easy-to-follow instructions. Perfect for the do-it-your selfers.



* The ZIP Conical of your choice as shown below.
* 1 - 5 ft. 1-1/4 gold alodized alum. mast for single bay, or two 5 ft. gold alodized alum. masts for two bay ZIPS.
* 1 - 50 ft. Twin lead.
* 1 - All-angle Base Mt.
* 1 - BR44 - 1 1/4 Guy Ring.
* 1 - 25 ft. - TW620 - 6/20 Guy Wire for single bay kits, or 50 ft. for stacked array antennas.
* 3 - BR33 - 3 Steel Guy Hooks.
* 1 - SPT125 Mast Snap-on for single Bay - 2 for stacked.
* 3 - T3 3" Screw eyes.
* 1 - T7 7" Screw eye.
* 1 - Inst. Sheet.

MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
ZIP11G-RM	1-Bay ZIP11G Conical plus kit above	9.70	1		5.82	5.24	4.85	3.50
ZIP121G-RM	2-Bay ZIP121G Conical plus kit above	16.25	1		9.75	8.77	8.13	5.85
ZIP21G-RM	1-Bay ZIP21G Conical plus kit above	9.85	1		5.91	5.32	4.93	3.55
ZIP221G-RM	2-Bay ZIP221G Conical plus kit above	16.40	1		9.84	8.86	8.20	5.90
ZIP41G-RM	1-Bay ZIP41G Conical plus kit above	10.55	1		6.33	5.70	5.28	3.80
ZIP421G-RM	2-Bay ZIP421G Conical plus kit above	17.65	1		10.59	9.53	8.83	6.35
ZIP51G-RM	1-Bay ZIP51G Conical plus kit above	10.55	1		6.33	5.70	5.28	3.80
ZIP521G-RM	2-Bay ZIP521G Conical plus kit above	17.90	1		10.74	9.67	8.95	6.45
ZIP91G-RM	1-Bay ZIP91G Conical plus kit above	10.30	1		6.18	5.56	5.15	3.70
ZIP921G-RM	2-Bay ZIP921G Conical plus kit above	16.95	1		10.17	9.15	8.48	6.10
QC5G-RM	2-Bay QC5G antenna plus kit above	13.35	1		8.01	7.21	6.68	4.80

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
82"	J182G AAA Gold Bond Alod.	To stack all Banshee type antennas.	4.00			2.40	2.16	2.00	1.44
42 3/4"	JC160G AAA Gold Bond Alod.	Makes JET661G or any stacked conical.	1.10			.66	.59	.55	.40
42 3/4"	ZIPJCG AAA Gold Bond Alod.	Makes stacked ZIP conicals.	.70			.42	.38	.35	.25

AAA GOLD BOND ALODIZED — ZIP CONICALS Minimum order 24 per cat. no.

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		1-4	5-11	12 & UP	DIST. COST
	ZIP1G	1-Bay 6-El.	4.05	6		2.43	2.19	2.03	1.46
	ZIP12G	2-Bay 6-El.	8.70	3		5.22	4.70	4.35	3.12
	ZIP121G	2-Bay 6-El.	9.20	1		5.52	4.97	4.60	3.32
	ZIP2G	1-Bay 6-El. w/HF El.	4.20	6		2.52	2.27	2.10	1.50
	ZIP22G	2-Bay 6-El. w/HF El.	8.90	3		5.34	4.81	4.45	3.20
	ZIP221G	2-Bay 6-El. w/HF El.	9.45	1		5.67	5.10	4.73	3.40
	ZIP3G	1-Bay 6-El. w/HF Dir.	4.50	6		2.70	2.43	2.25	1.62
	ZIP32G	2-Bay 6-El. w/HF Dir.	9.55	3		5.73	5.16	4.78	3.44
	ZIP321G	2-Bay 6-El. w/HF Dir.	10.10	1		6.06	5.45	5.05	3.64
	ZIP4G	1-Bay 8-El.	4.85	6		2.91	2.62	2.43	1.75
	ZIP42G	2-Bay 8-El.	10.30	3		6.18	5.56	5.15	3.70
	ZIP421G	2-Bay 8-El.	10.85	1		6.51	5.86	5.43	3.90
	ZIP5G	1-Bay 8-El. w/HF El.	4.95	6		2.97	2.67	2.48	1.78
	ZIP52G	2-Bay 8-El. w/HF El.	10.45	3		6.27	5.64	5.23	3.76
	ZIP521G	2-Bay 8-El. w/HF El.	11.00	1		6.60	5.94	5.50	3.96
	ZIP6G	1-Bay 8-El. w/HF Dir.	5.10	6		3.06	2.75	2.55	1.84
	ZIP62G	2-Bay 8-El. w/HF Dir.	10.80	3		6.48	5.83	5.40	3.88
	ZIP621G	2-Bay 8-El. w/HF Dir.	11.35	1		6.81	6.13	5.68	4.08

JFD

AAA GOLD BOND ALODIZED — URBAN ALL-CHANNEL ANTENNAS

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
	P800G Bulk	1 Bay Economy V Beam	4.85	10		2.91	2.62	2.48	1.75
	Q800G Bulk	1 Bay Deluxe V Beam w/built in Lightning Arr.	5.70	6		3.42	3.08	2.85	2.05
	QC1G Bulk	1 Bay Straight Dipole	4.15	6		2.49	2.24	2.08	1.50
	QC4G Bulk	1 Bay Folded Dipole	5.30	4		3.18	2.86	2.65	1.90
	QC5G Bulk	2 Bay Folded Hi-Lo	7.75	4		4.65	4.18	3.88	2.80
	QC10G Bulk	1 Bay HF Folded Dipole	2.25	10		1.35	1.21	1.13	.80
	QC150G Bulk	1 Bay Inline Hi-Lo	7.20	4		4.32	3.89	3.60	2.60

AAA GOLD BOND ALODIZED — VHF-UHF V ANTENNAS

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		1-4	5-11	12 & UP	DIST. COST
	UN103G	2 Bay Redwood	5.14	6		3.08	2.77	2.57	1.85
	UN105G	4 Bay Redwood	10.70	3		6.42	5.78	5.35	3.85

AAA GOLD BOND ALODIZED — ECONOMY YAGIS

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		1-4	5-11	12 & UP	DIST. COST
50-75 miles		For 50-75 miles over flat country.							
	5Z2G	5 El. (Ch. 2)	12.50	2		7.50	6.75	6.25	4.50
	5Z3G	5 El. (Ch. 3)	12.25	2		7.35	6.61	6.13	4.40
	5Z4G	5 El. (Ch. 4)	11.70	2		7.02	6.32	5.85	4.20
	5Z5G	5 El. (Ch. 5)	10.30	2		6.18	5.56	5.15	3.70
	5Z6G	5 El. (Ch. 6)	10.15	2		6.09	5.48	5.06	3.65
		600 ohm dipole, 1" round boom, improved element brackets.							
50-75 miles									
	5Z7G	5 El. (Ch. 7)	5.25	6		3.15	2.83	2.63	1.89
	5Z8G	5 El. (Ch. 8)	5.25	6		3.15	2.83	2.63	1.89
	5Z9G	5 El. (Ch. 9)	5.25	6		3.15	2.83	2.63	1.89
	5Z10G	5 El. (Ch. 10)	5.25	6		3.15	2.83	2.63	1.89
	5Z11G	5 El. (Ch. 11)	5.25	6		3.15	2.83	2.63	1.89
	5Z12G	5 El. (Ch. 12)	5.25	6		3.15	2.83	2.63	1.89
	5Z13G	5 El. (Ch. 13)	5.25	6		3.15	2.83	2.63	1.89
		600 ohm dipole, 1" round boom, improved element brackets.							
100-125 miles		For 100-125 miles over flat country.							
	10Z2G	10 El. (Ch. 2)	24.30	1		14.58	13.12	12.15	8.75
	10Z3G	10 El. (Ch. 3)	23.60	1		14.16	12.74	11.80	8.50
	10Z4G	10 El. (Ch. 4)	22.80	1		13.68	12.31	11.40	8.20
	10Z5G	10 El. (Ch. 5)	21.95	1		13.17	11.85	10.98	7.90
	10Z6G	10 El. (Ch. 6)	21.10	1		12.66	11.39	10.55	7.60
		600 ohm dipole - 1" round boom, boom braced, improved high-tension element brackets.							
100-125 miles									
	10Z7G	10 El. (Ch. 7)	8.50	4		5.10	4.59	4.25	3.15
	10Z8G	10 El. (Ch. 8)	8.50	4		5.10	4.59	4.25	3.15
	10Z9G	10 El. (Ch. 9)	8.50	4		5.10	4.59	4.25	3.15
	10Z10G	10 El. (Ch. 10)	8.50	4		5.10	4.59	4.25	3.15
	10Z11G	10 El. (Ch. 11)	8.50	4		5.10	4.59	4.25	3.15
	10Z12G	10 El. (Ch. 12)	8.50	4		5.10	4.59	4.25	3.15
	10Z13G	10 El. (Ch. 13)	8.50	4		5.10	4.59	4.25	3.15
		600 ohm dipole - 1" round boom, improved high-tension element brackets.							

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
(C)	11Z713G AAA Gold Bond Alod.	10 El. Ch. 7-13 1" round boom, 600 ohm dipole, improved high tension brackets.	10.40	4		6.24	5.62	5.20	3.75
(C)	6Z713G AAA Gold Bond Alod.	6 El. Ch. 7-13 1" round boom, 600 ohm dipole, improved high tension brackets.	7.65	4		4.59	4.13	3.83	2.75

UHF ANTENNAS

25-50 miles	UHF202	4-Bow Stack Super-sensitive cardioid dipoles, new IMPLEX "A" insulators.	8.20	2		4.92	4.43	4.10	2.95
	UHF203	Includes UHF202 antenna and 36" swaged end aluminum mast for plugging into top of existing mast.	9.05	2		5.43	4.89	4.53	3.25
	UHF208 75-100 miles	8-Bow Stack Super-sensitive cardioid dipoles, new IMPLEX "A" insulators.	19.95	1		11.97	10.77	9.98	7.18
	UHF212 75-125 miles	12 Bow Stack Super-sensitive cardioid dipoles, new IMPLEX "A" insulators.	33.50	1		20.10	18.09	16.75	12.06
(C)	UHF352G AAA Gold Bond Alod. 50-75 miles	Alum. 12-El., Ultra-Yagi (Specify Channel No.) Wide-Spaced, all aluminum, free stacking transformers.	5.40	2		3.24	2.92	2.70	1.95
(C)	UHF356G AAA Gold Bond Alod. 100-125 miles	Alum. 16-El Ultra-Yagi (Specify Channel No.) Wide-Spaced, all-aluminum, free stacking transformers.	8.20	2		4.92	4.43	4.10	2.95
(C)	UHF410G AAA Gold Bond Alod. 25-50 miles	Alum. Corn. Reflect. Quantity net 250 per order, per location All Aluminum, preassembled, IMPLEX "A" insulators, deluxe.	7.60	4		4.56	4.10	3.80	2.75 2.40
NEW	UHF411G AAA Gold Bond Alod. 25-50 miles	Alum. Corn. Reflect. Quantity net 250 per order, per location All Alum. construc. Butt Seam Elements. IMPLEX "A" insulator.	7.60	4		4.56	4.10	3.80	2.75 2.40
	UHF600 25 miles	Bow Flector Aluminum dipole, preassembled IMPLEX "A" insulator, free stacking transformer.	5.40	2		3.24	2.92	2.70	1.95
	UHF615 20 miles	Bow Tie Reflector Economy version of UHF600.	3.20	6		1.92	1.73	1.60	1.15

NEW UHF TRANSLATOR MPATI ANTENNAS

Powerful Reception Channels 70 thru 83. Features powerful cardioid dipole, IMPLEX "A" insulators, ruggedized preassembled construction, broadband stacking for extra gain on translator channels. MPATI models are especially adapted to meet requirements of Strato-Vision programs.

TR1204 MPAT1204 50-75 miles	4-Bow Translator Educational TV antenna version of TR1204.	8.75	2		5.25	4.72	4.38	3.15
TR1206 MPAT1206 50-100 miles	6-Bow Translator Educational TV antenna version of TR1206.	10.95	2		6.57	5.91	5.48	3.94
TR1212 MPAT1212 75-100 miles	12-Bow Translator Educational TV antenna version of TR1212.	24.95	1		14.97	13.47	12.48	8.98
TR1218 MPAT1218 75-125 miles	18-Bow Translator Educational TV antenna version of TR1218.	34.95	1		20.97	18.87	17.48	12.58

	MODEL	DESCRIPTION	LIST PRICE	STD. CTN.		Suggested Dealer Prices 1-4	5-11	12 & UP	DIST. COST
(N)	TR1224 MPAT1224 125-150 miles	24-Bow Translator Educational TV antenna version of TR1224.	49.50	1		29.70	26.73	24.75	17.82

AAA GOLD BOND ALODIZED WINDOW ANTENNAS

	C119G	Window Conical (Fits standard sash windows). Approved by N. Y. C. & Chicago Housing Authorities.	9.73	1		5.84	5.26	4.87	3.50
	EX30G	Extends C119 base to fit 6 ft. span.	3.75	1		2.25	2.02	1.88	1.35
	EX119G	Extends C119 base to fit 5 ft. span.	2.75	1		1.65	1.48	1.38	.99

AAA GOLD BOND ALODIZED STACKING TRANSFORMERS

	BT2G-BT6G	Makes Stacked Low Band Yagi. Specify Channel Desired.	1.75		1.05	.94	.88	.63
	BT7G-BT13G	Makes Stacked High Band Yagi. Specify Channel Desired.	1.25		.75	.67	.63	.45
42 3/4"	J160G	Makes JET161G, JET661G (Butt Seam Aluminum)	1.50		.90	.81	.75	.54
80 1/2"	J162G	Makes 4 Bay Jet Conical (Must be used with JC164G Stacking Trans.)	4.00		2.40	2.16	2.00	1.44
56"	J163G	Makes JET213G-S	1.50		.90	.81	.75	.54
34 1/2"	JC164G	For use with J162G to make short stacked 4-Bay JET (2-JC164G's req).	1.10		.66	.59	.55	.40
80 1/2"	J165G	Makes wide stacked JET213G-S (Peaks channels 2-6).	4.00		2.40	2.16	2.00	1.44
51 9/16"	J166G	Makes stacked JET513G-S	1.50		.90	.81	.75	.54
42 3/4" (C)	J168G	Makes stacked FB500G-S	3.00		1.80	1.62	1.50	1.08
68" (C)	J169G	To regular stack VX1111G, high front-to-back ratio, FB500G	1.75		1.05	.94	.88	.63
96" (C)	J170G	Makes wide stacked SX711G-S, PX911G-S and FB500G-S. (Favors Ch. 2 thru 6)	4.00		2.40	2.16	2.00	1.44
23 5/8"	J174G	Converts UN103G into UN105G	1.10		.66	.59	.55	.40
92"	J175G	Makes stacked 5Y26G-S, 10Y26G-S	3.00		1.80	1.62	1.50	1.08
32"	J178G	Makes stacked 5Y713G-S, 10Y713G-S	1.50		.90	.81	.75	.54
56"	J179G	Makes JX311G-S, RX511G-S, SX711G-S. Also short-stacks old PX911G when attached to bazooka bar term. at rear.	2.50		1.50	1.35	1.25	.90

BLONDER-TONGUE

Laboratories Inc. / 9 Alling St. Newark 2, N. J. / Area code 201 / MArket 2-8151

RECEIVED
APR 17 1964
RINES AND RINES
NO. TEN POST OFFICE SQUARE, BOSTON

APRIL 15, 1964

MR. ROBERT RINES
RINES & RINES
NO. 10 POST OFFICE SQUARE
BOSTON, 9, MASSACHUSETTS

DEAR BOB:

I JUST RECEIVED A SHIPMENT FROM THE WEST COAST OF AN ALMOST CHINESE COPY OF OUR UHF OUTDOOR DART ANTENNA.

AT IKE BLONDER'S REQUEST, I AM RETAINING THE ANTENNA IN MY OFFICE PENDING YOUR NEXT VISIT SO THAT WE CAN DISCUSS OUR POSITION WITH RESPECT TO POSSIBLE PATENT INFRINGEMENT.

TO HELP YOU BRING THIS PRODUCT IN FOCUS IN RESPECT TO VOLUME, WE HAVE TOTAL PURCHASE COMMITMENTS AT THIS TIME OF 40,000 UNITS. OF COURSE, THERE ARE MANY MORE THOUSANDS INVOLVED WHERE THE INDOOR GOLDEN ARROW IS CONCERNED.

BEST REGARDS,

BLONDER-TONGUE LABORATORIES

HARRY A. GILBERT
VICE PRESIDENT

HAG/CM

BLONDER, ISAAC S. etal 325,511

Nov. 21, 1963

DIRECTIVE ANTENNA

250

June 2, 64

June 2, 1964

BLONDER, ISAAC S. etal

325511 11/21/63 250

DIRECTIVE ANTENNA

BLONDER, ISAAC S. etal 325,511

Nov. 21, 1963

DIRECTIVE ANTENNA

250

June 2, 64

RINES AND RINES

10 Post Office Square
Boston, Massachusetts

February 3, 1964

Mr. Harry Gilbert
Blonder-Tongue Electronics
9 Alling Street
Newark 2, New Jersey

Re: U.S. Application S.N. 325,511
(Blonder)

Dear Harry:

We enclose for your file the assignment in connection with the above-numbered application, which assignment was recorded in the United States Patent Office on November 21, 1963, Reel 1331, Frames 788 and 789.

Yours very truly,

RINES AND RINES

By _____

RS/BD
Enc.

BT

Frequency Independent Antennas

P E Mayes – Univ of Illinois

p. 116 Proceedings of the Aerospace
Forum on
Antenna Research
Jan 27-30 '64
Univ of Illinois

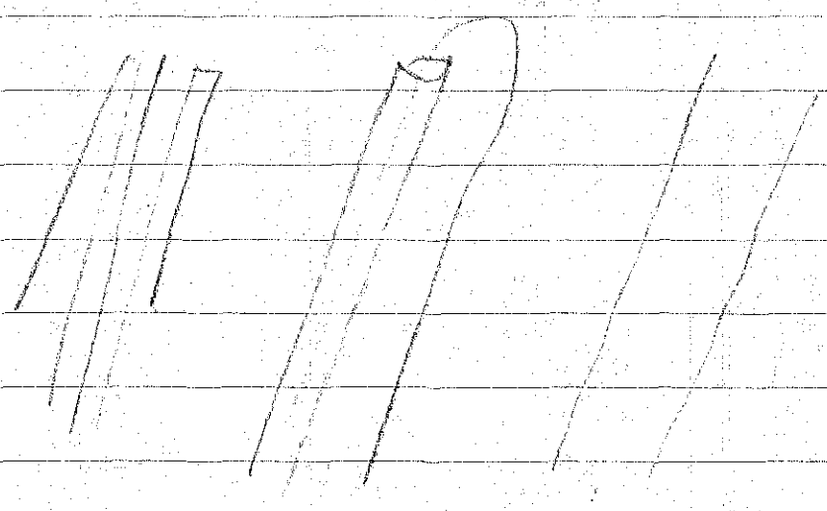
p. 182 The Rumsey Log-Periodic Dipole Antenna
Peter Carel

p. 166 Frequency Independent Antennas
Panel

U.S. Pat. 3,259,904

Canada (910942)

Spain 310655



APPROVAL &
DISSAPPROVAL OF ADS

April 13, 1964

Merriam, Smith & Marshall
30 West Monroe Street
Chicago, Illinois

Attention: Mr. Sam Smith

Dear Sam:

Per our conversation, I am enclosing herewith copies of the various trade ads and consumer ads that we have run on the Log Periodic antennas. In addition there are various pieces of distributor-dealer literature that we are using in our mailings.

Each of the ads are representative of the message we have been telling the trade and each of them in turn, has been running in various magazines and not only in the individual magazine enclosed.

In trade ads #1 and #2 and consumer ads #1 and #2, which were run quite early, we had not as yet changed over to the standard phrase which we have adopted in stating our licensing arrangement with the Foundation, and which you will see expressed from Trade ad #3 through Trade ad #8. The same might hold true on some of the earlier literature but as of now, any time we have occassion to use this phrase covering our licensing arrangement, it is being picked up exactly as you see it in trade ad #8.

Mr. Sam Smith (Cont.)

I sincerely believe that we have at all times attempted to stay within the agreed on limits of our reference to our relationship to the University of Illinois and the University of Illinois Foundation.

If there is any ambiguity, it arose in the limited space and words we had available to inform our readers of the relationship of the University of Illinois Antenna Research Laboratory to its original contribution in the basic invention of the log periodic principle and our attempt to give them full credit for this invention.

If you have any suggestions after reading this literature and giving due consideration to the fact that it is a major competitor complaining and not the University or the Foundation, we will be happy to consider incorporating those suggestions into any new material we prepare.

I am awaiting your comments.

Kindest personal regards,

Ed Finkel

EF/es
encl.
cc-P. Mayes
J. Colvin

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN *

*VA. & D.C. BARS

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

April 14, 1964

Mr. Edward Finkel, Vice President
JFD Electronics Corporation
1462 Sixty-Second Street
Brooklyn 19, New York

Re: License Agreement Between
University of Illinois Foundation
and JFD Electronics Corporation

Dear Ed:

From the standpoint of the University of Illinois Foundation, Mr. Colvin has directed me to advise you that Paragraph 10 of the License Agreement entered into as of May 24, 1962 between JFD Electronics Corporation and the University of Illinois Foundation is a provision of the agreement which should not be overlooked. The Foundation has not had an opportunity to review your advertising material in final form prior to publication. That provision of the agreement cannot be waived. The Foundation, of course, expects under the provision of Paragraph 2 of the License Agreement that you will, in connection with products manufactured and sold, comply fully with Section 287 of Title 35, United States Code. This can be done by merely marking the goods with an expression substantially like "Licensed under Patent No. 3,108,280 of the University of Illinois Foundation." However, as to this latter type of identification, extreme care should be taken to make certain that the product so identified actually is of such character as fully to be covered by one or more claims of the University of Illinois Foundation patents under which JFD Electronics Corporation is licensed under the agreement identified.

If you will submit your literature concerning the products to be so identified, we will indicate to you promptly whether or not we consider that the products come fully and clearly within the scope of the claims of one or more of the University of Illinois Foundation patents. We will also identify the particular patents.

In order to make such comparison and identification, we believe that you should afford us a minimum of thirty days from the time of submission. This time should be adequate for us and, because you will, of course, be well aware of any design prior to the time that you are in produc-

tion, it should be agreeable to you. If you find for some special reasons your operations cannot be carefully carried on by allowing as much as thirty days for such investigation, we will try, where possible, to give you the information sooner. Pursuing a program of this character we should then avoid any possibility of erroneous patent marking.

As to the identification of your antenna of the so-called "LPV variety" we are of the opinion that an antenna having the individual dipoles spaced by a scale factor other than that which determines the length of the various adjacent dipole sections does fall within the scope of the teachings and the claims of at least some of the patents. We recognize that there are certain conditions where the operation and antenna characteristic have to be a slight departure from that of a log periodic antenna operating at maximum efficiency. Despite this possibility, we consider that manufacturing tolerances, as well as a limited amount of design freedom, should certainly give ample justification to make the antenna in such a way that a slight departure from complete log periodic functioning at its maximum efficiency should be allowed.

Lastly, with respect to advertising copy, we ask that you will please submit any proposed copy to us, at least fifteen days prior to the time when you will want approval.

I am quite sure that the Foundation would not generally approve the publication of pictures of its staff personnel despite the fact that certain such staff personnel might serve as technical advisors to the advertising company. I would be glad to check with the Foundation to determine whether or not it would be willing to approve of publication of pictures of the staff at the University of Illinois who have contributed to the work of your company, provided the identification is limited to a mere name identification, such as "Dr. Paul E. Mayes," without tying him to the work at the Foundation.

It would make the handling of this entire situation much easier if your company, as a licensee, would comply in all respects with Paragraph 10 of the agreement now in effect. Any failure to comply with this provision of the agreement would be looked upon by the Foundation as a breach.

Sincerely yours,

Samuel B. Smith

SBS:mn

Samuel B. Smith

cc: Mr. James C. Colvin

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN *

*VA. & D.C. BARS

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET
CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

April 15, 1964

Mr. Ed Finkel
Vice President-Sales
JFD Electronics Corporation
1462 Sixty Second Street
Brooklyn 19, New York

Dear Ed:

Thanks for your April 13 letter, with the enclosures of the numerous trade ads and consumer ads, as well as your most recent promotional pamphlets. I would like to have two additional copies of each of the recent promotional pamphlets.

Most of the problems raised by your advertising material relate to policy matters concerning the University of Illinois Foundation and the University itself. Those are matters upon which I cannot pass. I have, accordingly, sent all of your material to Mr. Colvin for his review and consideration and I should be able to advise you within the fifteen-day period concerning our views as to the propriety of all of the advertising. At the same time it will then be possible to give you a final indication of whether or not the material can be published with the understanding that you have complied with Paragraph 10 of the License, insofar as reference to the University or Foundation is concerned and with Paragraph 2, insofar as reference to the patents may be concerned.

I would like to know, however, what structures you are manufacturing or selling which you believe at the present time come within the teachings of the Dyson, Du Hamel and Isbell patents referred to, for instance, on page 4 of ELECTRONIC & APPLIANCE SPECIALIST for March, 1963. May I please have your comments at an early date.

Sincerely,

Samuel B. Smith

Samuel B. Smith

SBS:mn

CHARLES J. MERRIAM
SAMUEL B. SMITH
JEROME B. KLOSE
NORMAN M. SHAPIRO
WILLIAM A. MARSHALL
BASIL P. MANN
CLYDE V. ERWIN, JR.
ALVIN D. SHULMAN
R. JONATHAN PETERS
ALLEN H. GERSTEIN
OWEN J. MURRAY
EDWARD M. O'TOOLE
DONALD E. EGAN *

*VA. & D.C. BARS

LAW OFFICES

MERRIAM, SMITH & MARSHALL

THIRTY WEST MONROE STREET

CHICAGO, ILLINOIS 60603

TELEPHONE
FINANCIAL 6-5750

April 29, 1964

Mr. Edward Finkel
Vice President-Sales
JFD Electronics Corporation
1462 Sixty-Second Street
Brooklyn 19, New York

Re: University of Illinois Foundation and
JFD Electronics Corporation License

Dear Ed:

In accordance with the telephone discussion had with you Tuesday, it is agreeable to the University of Illinois Foundation that all matters relating to previously released trade and consumer ads of JFD Electronics Corporation will be considered as bygones. There obviously was misunderstanding, by all parties, as to what was intended by paragraph 10 of the original license agreement. If the suggestions presented in my April 15, 1964 letter concerning future advertising are carried out, we think there should be no problem. If the suggested time-table of 15 days for consideration of advertising material proves inadequate, we undoubtedly could, under special occasions, accelerate the consideration, although you realize that this might be difficult because of the number of people involved.

On the matter of patent markings and the identification of any apparatus as being related to the patents in question, may we ask that you will please submit full details of all contemplated structures sufficiently soon so that we can make a review and advise you whether or not the contemplated structure is, in our opinion, actually covered by one or more of the patents listed in your grouping. Special comments by yourself, your Engineering Department and engineers at the University of Illinois, of course, will be helpful in reaching

this consideration, but the question of whether or not any structure is covered by any particular patent is one upon which this office will have to pass. Thus, here again, we ask you to please give us adequate time to make that review.

In the matter of enforcing the patents of the University of Illinois Foundation, we hope that you will recognize that this will be done to the best of the ability of the Foundation. But, of course, before any final decision can be made it will necessitate a careful review of possible infringing structures being made by this office and the engineers connected with the development program. Any decision would then be made by the executors of the Foundation, following a submission of such recommendations to the Board of Directors. The only way that we can take steps to enforce the patents would be after having had directions from the Board of Directors to proceed.

Lastly, in connection with matters of the type with which we are dealing, perhaps I should advise you that the general rules concerning University organization and procedures provide that in connection with research gifts, grants and contracts: "The sponsoring agent shall not use the name of the University in any advertisement whether with reference to a cooperative investigation or otherwise, without the prior approval of the President of the University." This regulation is generally strictly interpreted and perhaps a desire to construe the license agreement in the most favorable fashion caused the Foundation and this office to have been a bit too liberal, but we have had a great deal of interest in our endeavor to cooperate with you to the utmost. If we follow the plans outlined here and in my previous letter of April 15, I believe you will find that the liberal attitude is continued but in a more closely regulated pattern.

Should you have any questions about this matter, of course, we expect that you will call us.

Sincerely,

Samuel B. Smith

SBS/fh
cc: Mr. S. Faber
Mr. J. Colvin

224 Illini Union · Urbana, Illinois 61803

UNIVERSITY OF ILLINOIS FOUNDATION

July 29, 1964

Mr. Ed Finkel
JFD Electronics Corporation
15th Avenue at 62nd Street
Brooklyn, New York 11219

Dear Ed:

Sam Smith has forwarded your letter about advertising slogans. I see nothing wrong in your copy:

> "Brings the acknowledged Log-Periodic design of the Antenna Research Laboratories of the University of Illinois to a new peak of performance."

particularly as it applies to the zig-a-log.

I don't need to comment on the printed pieces since they have already been produced.

I completely understand your problems so far as the time schedule is concerned in the production of advertising matter and I will be prompt in acting on any proposed copy. I just want to be sure that article 10 of the agreement is complied with.

With all good wishes,

Cordially yours,

James C. Colvin
Executive Director

JCC:pw

August 12, 1964

University of Illinois Foundation
University of Illinois
Champaign, Illinois

Attention: Mr. James Colvin

Re: Copy Clearance for
LPV Antennas

Dear Jim:

A few weeks ago, when Sam Smith was in town, I met with him at Mr. Faber's office and amongst the things we discussed was the question of clearance of copy material used in our selling campaign on LPV antennas.

At that meeting I proposed to Sam a plan whereby we could save a lot of time and avoid problems in preparing our advertisements and catalog brochures and also avoid the risk of having you object to the phrases and copy content therein. I suggested that we submit to you a list of statements that we have used in all of our past literature referencing the University of Illinois and the University of Illinois Antenna Laboratories and have you review them and agree in advance on this series of legends that we may be free to include in any advertising or catalog work on LPV antennas made by us under the license.

Once we have these authorized legends, we will thereafter work our ads and literature around them so that we can expect a submitted proof to clear without any problem or delay. I believe that within the scope of the approved legends, we will be able to still retain enough of a variety so as not to make our literature or ads stereotyped or repetitive.

Mr. James Galvin (Cont.)

We have four (4) areas in which we have prepared material:

1. World's Data Literature
2. Catalog and Price List Literature
3. Commercials, Magazines, Trade Papers
4. JFD Product Literature

We would like you to review the phrases used in the first and second categories as follows:

1. World's Data Literature

Developed by the University of Illinois Antenna Research Laboratories.

Produced by JFD Electronics Corporation under Exclusive License from the University of Illinois Foundation.

The JFD LPV is designed according to the patented Log-Periodic geometric formula of the famous Antenna Research Laboratories of the University of Illinois.

Only JFD is licensed exclusively by the University of Illinois Foundation to make the patented Log-Periodic LPV and all other Log-Periodic type TV and FM antennas.

No other so-called Log-Periodic antenna can work like the JFD LPV because only JFD uses the original patented Log Periodic formula of the Antenna Research Laboratories of the University of Illinois.

Mr. James Galvin (Cont.)

2. Catalogs and Price List Literature

Formulated according to the patented geometrically derived logarithmic-periodic scale of the Antenna Research Laboratories of the University of Illinois.

Developed at the University of Illinois Antenna Research Lab.

Developed by the University of Illinois Antenna Research Lab.

This new concept has been related to TV-FM antennas exclusively for JFD by Prof. Paul E. Mayes of the Antenna Research Laboratory, University of Illinois.

Our advertising department is reviewing the remaining literature and some time next week I will send you the information on the third category to be followed shortly thereafter by the last.

Would you please review the above phrases and indicate which we can continue to use in the preparation of our advertising material.

Time is always important to us Jim, and we would like to avoid any delay in getting clearance from you on the above material.

Sincerely,

Ed Finkel

EF/ss
cc Jaffe

224 Illini Union · Urbana, Illinois 61803

UNIVERSITY OF ILLINOIS FOUNDATION

August 21, 1964

Mr. Ed Finkel
JFD Electronics Corporation
15th Avenue at 62nd Street
Brooklyn, New York 11219

Dear Ed:

Greetings!

I got back to the office a couple of days ago and have talked with various people here about your letter of August 12 concerning JFD advertising copy.

I have been involved in preparation of ad copy both with companies and with agencies and I know the need for promptness in looking at any piece of copy. So I have complete sympathy for your position. However, to approve slogans in advance is not entirely satisfactory because the context in which the statement is made as well as the way in which it is displayed has much to do with whether the statement itself would be proper so far as the University is concerned.

We have no objection to the following statements in connection with the World's Fair literature:

"Developed by the University of Illinois Antenna Research Laboratories."

"Produced by JFD Electronics Corporation under Exclusive License from the University of Illinois Foundation."

"The JFD LPV is designed according to the patented Log-Periodic geometric formula of the famous Antenna Research Laboratories of the University of Illinois."

We have no objection to these statements under catalog literature:

"Formulated according to the patented geometrically derived logarithmic-periodic scale of the Antenna Research Laboratories of the University of Illinois."

"Developed at the University of Illinois Antenna Research Lab."

"Developed by the University of Illinois Antenna Research Lab."

However, any one of these statements could be objectionable if they appeared in 72-point type at the top of your advertising or if it represented any instruments beyond University of Illinois products.

As to the two other statements in World's Fair literature, our people feel that the fourth item should be expurgated to eliminate the words:

". . . and all other Log-Periodic type TV and FM antennas."

So far as the fifth item is concerned we would want you to rephrase it to read as follows:

"No other so-called Log-Periodic antenna can work like the JFD LPV because only JFD is authorized to use the original patented Log Periodic formula of the Antenna Research Laboratories of the University of Illinois."

In the fourth item under catalogs we should like you to have it read:

"This new concept has been related to TV-FM antennas exclusively for JFD by Dr. Paul E. Mayes."

I hope this is in some way helpful to your program. I am obliged to say that under article 10 of the agreement we feel you still must submit complete advertising copy and lay-out because only in that way can we get the full picture of the material being used. I see no reason why we can not call you as soon as we get the material so that your Advertising Department should not be slowed appreciably.

Remember, we really want to help in any way we can but we must be careful as to the way in which the University of Illinois name is used. This does not relate only to you but to all licensees in the Foundation program.

Cordially yours,

James C. Colvin
Executive Director

JCC:pw
cc: Mr. Samuel B. Smith

P.S. When are you coming to see us?

224 Illini Union · Urbana, Illinois 61803

UNIVERSITY OF ILLINOIS FOUNDATION

September 4, 1964

Mr. James Sarayiotes
Advertising Manager
JFD Electronics Corporation
15th Avenue at 62nd Street
Brooklyn, New York 1129

Dear Mr. Sarayiotes:

When Mr. Ed Finkel called me today I told him that the photostat for the display, the head for which reads "Brilliant Color, Black/White," etc. is perfectly satisfactory so far as we are concerned. I am writing now to confirm it to you.

Either in your office someone failed to include the photostat of the decal or we didn't find it. Mr. Finkel says he will put one in the mail for us today and we will call you about it as soon as we receive it.

With all good wishes,

Cordially yours,

James C. Colvin
Executive Director

JCC:pw

Att.

September 14, 1964

University of Illinois Foundation
University of Illinois
Champaign, Illinois

Attention: Mr. James Colvin

Re: Copy Clearance for LPV Antennas

Dear Jim:

Following up my letter of August 12, 1964, listed below are the phrases used in our commercials, magazines and trade papers.

I would appreciate your reviewing them and clearing those so they can be used in any future ads we will prepare.

Commercials, Magazines and Trade Papers

Developed from Research Performed at the Antenna Laboratiros of the University of Illinois

Developed from Research Performed at the University of Illinois Antenna Laboratories.

Adapted from the Famous Satellite Tracking Antenna Design of the Antenna Research Laboratories of the University of Illinois.

JFD ELECTRONICS ANTENNA LABORATORY EMPLOYS INDUSTRY'S HIDDEN RESOURCE -- Forms Alliance with the University of Illinois; New Laboratory Established under the Direction of Professor Paul E. Mayes, an Antenna Authority.

Mr. James Colvin (Cont.)

4. JFD PRODUCTS LITERATURE (Cont.)

Created by the Antenna Research Laboratories of the University of Illinois*-
Principles Utilized in Air Force Satellite Tracking and Telemetry-
Exclusive from JFD Electronics-

Again, would you please review them and let me know which we may continue to use for the future.

I take this opportunity to thank you for your patience and cooperation in resolving this problem.

Sincerely,

Ed Finkel

EF/ss
cc-S. Faber
S. Smith

224 Illini Union · Urbana, Illinois 61803

UNIVERSITY OF ILLINOIS FOUNDATION

September 25, 1964

Mr. Ed Finkel
JFD Electronics Corporation
15th Avenue at 62nd Street
Brooklyn, New York 11219

Dear Ed:

I regret that I have not answered your September 14 letter sooner.

Under "Commercials, Magazines and Trade Papers" we approve the first three paragraphs. These are as follows:

> "Developed from Research Performed at the Antenna Laboratories of the University of Illinois."
>
> "Developed from Research Performed at the University of Illinois Antenna Laboratories."
>
> "Adapted from the Famous Satellite Tracking Antenna Design of the Antenna Research Laboratories of the University of Illinois."

We object to the fourth paragraph because, although you have been working in cooperation with the University, I think this slogan gives the wrong impression. The paragraph I refer to is the following:

> "JFD ELECTRONICS ANTENNA LABORATORY EMPLOYS INDUSTRY'S HIDDEN RESOURCE -- Forms alliance with the University of Illinois; New Laboratory Established under the Direction of Professor Paul E. Mayes, an Antenna Authority."

So far as the next paragraph is concerned the one which begins: "In fact, the LPV . . ." we do not believe this is quite accurate and would like to have you change it as follows:

> "In fact, the LPV concept was developed at the Antenna Research Laboratories of the University of Illinois which has given birth to such other space-age designs as the spiral antenna used on the Transit Satellite."

The next paragraph is perfectly satisfactory. It reads:

"For more than 8 years, a group of antenna scientists at the Antenna Research Laboratory of the University of Illinois has been experimenting with vhf and uhf antennas that have no theoretical limitations on bandwidth - are frequency-independent."

With all good wishes,

Cordially yours,

James C. Colvin
Executive Director

JCC:pw

cc: Professor Paul Mayes
Mr. Samuel B. Smith

JFD

JFD ELECTRONICS CORP.

September 14, 1964

University of Illinois Foundation
University of Illinois
Champaign, Illinois

Attention: Mr. James Colvin

UNIV of ILL

Re: Copy Clearance for LPV Antennas

Dear Jim:

Following up my letter of August 12, 1964, listed below are the phrases used in our commercials, magazines and trade papers.

I would appreciate your reviewing them and clearing these so they can be used in any future ads we will prepare.

Commercials, Magazines and Trade Papers

Developed from Research Performed at the Antenna Laboratires of the University of Illinois

Developed from Research Performed at the University of Illinois Antenna Laboratories.

Adapted from the Famous Satellite Tracking Antenna Design of the Antenna Research Laboratories of the University of Illinois.

JFD ELECTRONICS ANTENNA LABORATORY EMPLOYS INDUSTRY'S HIDDEN RESOURCE -- Forms Alliance with the University of Illinois; New Laboratory Established under the Direction of Professor Paul E. Mayes, an Antenna Authority.

JFD

JFD ELECTRONICS CORP.

Mr. James Colvin (Cont.)

Commercials, Magazines and Trade Papers

In fact, the LPV was developed by some of the same scientists at the Antenna Research Laboratory of the University of Illinois who designed the conical spiral antenna used in the Transit Satellite.

For more than 8 years, a group of antenna scientists at the Antenna Research Laboratory of the University of Illinois has been experimenting with vhf and uhf antennas that have no theoretical limitations on bandwidth - are frequency-independent.

Please try to get your answer to me on the above as soon as possible.

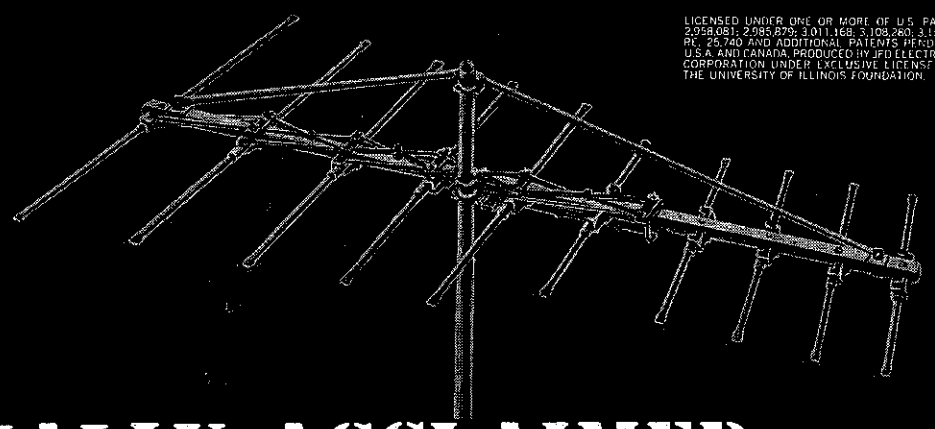
Trade ads are always under tight schedules and we would not like to miss any deadlines now that we are coming into our season.

Sincerely,

Ed Finkel

EF/ss
cc-S. Faber
S. Smith

FM EXPERTS AGREE ON THE JFD



NATIONALLY ACCLAIMED LPL-FM LOG PERIODIC ANTENNA

"I would like to take this opportunity to tell you how pleased I am with the new JFD-LPL-FM 10 antenna."
Geoffrey M. Nathanson—Editor and Publisher
FM & FINE ARTS

"The Log-Periodic FM 8 has brought the signal in with amazing clarity, and strength."
Seymour N. Siegel, Director
STATION WNYC-FM

"We have just finished a thorough test of your LPL-FM 10 and can confidently state that it is all that you have said."
A. L. Stewart, Chief Engineer
STATION WEKZ-AM-FM

"I have found the LPL-FM 6 log periodic antenna to meet all these requirements. I am very happy with this antenna and I highly recommend it.
Robert M. Kanner,
Engineering Maintenance Supervisor
RADIO STATION WMCA

"Our tests indicate that the full wavelength elements used in this new line provide twice the gain of the best 10-element f-m yagis."
Ed Walter, Editor
ELECTRONIC DISTRIBUTING MAGAZINE

'I now know there really is a Santa Claus, because he brought me the best FM reception that I have ever had with my JFD LPL FM 10 Antenna."
Paul Dean Ford, Licensee
WPFR (FM)

"We have been testing your new LPL-FM 10 Log Periodic antenna with very good results."
Guy Dryden, Chief Engineer
WTBC AM-FM

"I wish to thank you for the opportunity of trying the new JFD FM 10. As you know, in this area we have a severe multi-path problem and I feel this new JFD antenna will help this problem in many locations."
W. T. Jones
MUSI-CAL PLANNED MUSIC PROGRAMMING

☐ **Features full-wave log-periodic L-dipole system.**

☐ **Derived from the powerful logarithmic periodic array used to track America's missiles and satellites through space — discovered by the Antenna Research Laboratories of the University of Illinois.**

No wonder! The all-new JFD LPL-FM antenna is **log-periodic** engineered to give you up to 41% more gain, plus the directional selectivity, and wideband response your system needs for fidelity FM stereo or mono performance.

The secret is in the **full-wave** log periodic L-dipole cells that work with amazing frequency - independent efficiency and directivity over the entire 88-108 mc. FM/FM stereo range. Result: the **purest** FM sound your system has ever reproduced—on **more** stations—near or far.

FOUR LPL-FM ANTENNAS TO CHOOSE FROM

Model	Range (up to)	List
LPL-FM 10 (illustrated)	to 175 miles	**$49.95**
LPL-FM 8	to 150 miles	**$39.95**
LPL-FM 6	to 125 miles	**$29.95**
LPL-FM 4	to 75 miles	**$19.95**

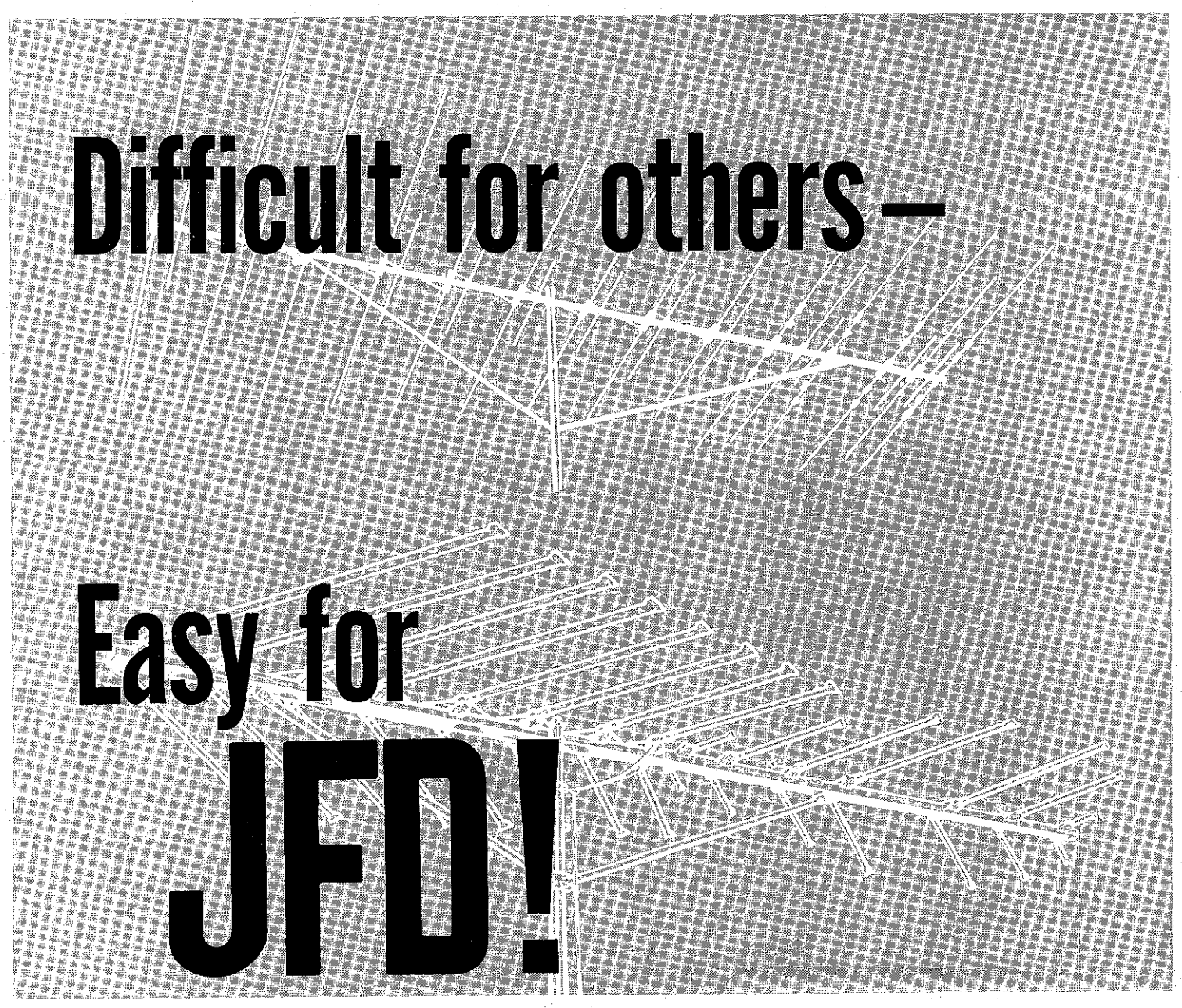
PICK UP MORE STATIONS . . . IMPROVE STEREO RECEPTION!
with the JFD FM Tele-Amp Amplifier. Strengthens weak signals . . . feeds up to two FM receivers with crisp, distortion-free FM mono or stereo. Space-age circuitry provides up to 18 db. of amplification without overloading. No controls or adjustment. Uses standard 117 V.A.C.
Model FT1 $34.95

GET RID OF INTERFERENCE!
Shut out interference and unwanted signals from TV, amateur and citizen's band radio, ignition and fluorescent noise with the JFD TV/FM Filter/Signal Splitter. Also electronically combines any TV antenna with any FM antenna so only one down-lead is needed. Also separates TV/FM signal of combination TV/FM antennas for input into separate TV set and FM system.

Model SSTVFM **List** $5.95

JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn, New York 11219 U.S.A.



Difficult for others—

Easy for JFD!

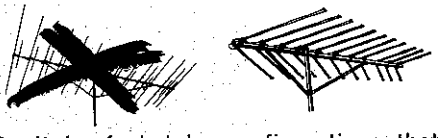
One of our competitors has been attempting to excuse its inability to produce a multi-driven Vee-type dipole antenna workable on the high band by claiming erratic impedance relationships occurred among the elements used. This, our competitor claims, produced peaks and valleys. Result: loss of full potential, necessitating their devising a dual-purpose dipole arrangement—the addition of short parasitics to their antenna—for uniform gain on channels 7 to 13.

UNIVERSITY OF ILLINOIS ANTENNA RESEARCH LABORATORY MEASUREMENTS PROVE JFD LOG-PERIODIC LPV WORKS MORE EFFICIENTLY ON HIGH BANDS

According to extensive tests by the Antenna Research Laboratory of the University of Illinois, the input impedance of the log-periodic LPV (Vee'd) dipole system is **more** nearly constant with frequency in the **higher** harmonic modes than in the fundamental mode.

Log Periodic JFD LPV $\frac{L(n+1)}{Ln} = \tau$

"LOOK-ALIKES ARE *NOT* ALIKES"



Don't be fooled by configurations that look like the patented* JFD Log-Periodic LPV. There is only one **log-periodic.** It was developed by the Antenna Research Laboratories of the University of Illinois from new telemetry and radio astronomy antenna concepts. JFD Electronics is the only manufacturer licensed by the University of Illinois to produce this configuration as a television and FM Stereo receiving antenna.

The JFD log-periodic LPV is the **first** scientifically formulated design that ends the era of antenna compromise. No other antenna can approach its unprecedented performance in color . . . in black and white . . . in FM stereo.

the microwave journal

JANUARY 1963 ARTICLE "BROADBAND BACKWARD-WAVE ANTENNAS" REPORTS NO DIFFERENCE OF CHARACTERISTIC IMPEDANCE IN FUNDAMENTAL OR HARMONIC MODE OPERATION

Measured test data published by Professor Paul E. Mayes of the University of Illinois in Microwave Journal, a leading professional engineering publication, reports there is **no** evidence of any "peaks and valleys" on high band channels in log-periodics.

Ideally, the input impedance at the apex of an infinite log-periodic structure should be the same for all frequencies related by the scale factor τ . The departure from the ideal log-periodic variation is negligible if the removed piece of line is electrically small at the highest operating frequencies.*

The LPV antennas were designed so that the removed length of line due to truncation $x \ll \lambda$ min., where λ min. is the minimum operating wavelength. This has produced an antenna with minimal impedance variation.

Let's examine the actual impedance of the LPV antenna as represented on a Smith Chart (see fig. 14). The two circles , A and B, represent the maximum standing wave ratios of the two modes of operation in the LPV. The impedance of the LPV's lies within the circles for each mode. Since the standing wave ratio is consistently less than 1.9:1 the SWR circles have a small radius and the impedance has **minimal** variation.

Figure 14 above is Professor Mayes Smith Chart representation of the impedance variation of the log-periodic LPV antenna. To obtain VHF frequencies as shown in figure 14A, a scale factor of .18:1 was used.

*Technical Report #52—Analysis and Design of the Log-Periodic Dipole Antenna, by Robert Carrel. Sponsored by Aeronautical Systems Division, Wright-Patterson Air Force Base, Ohio.

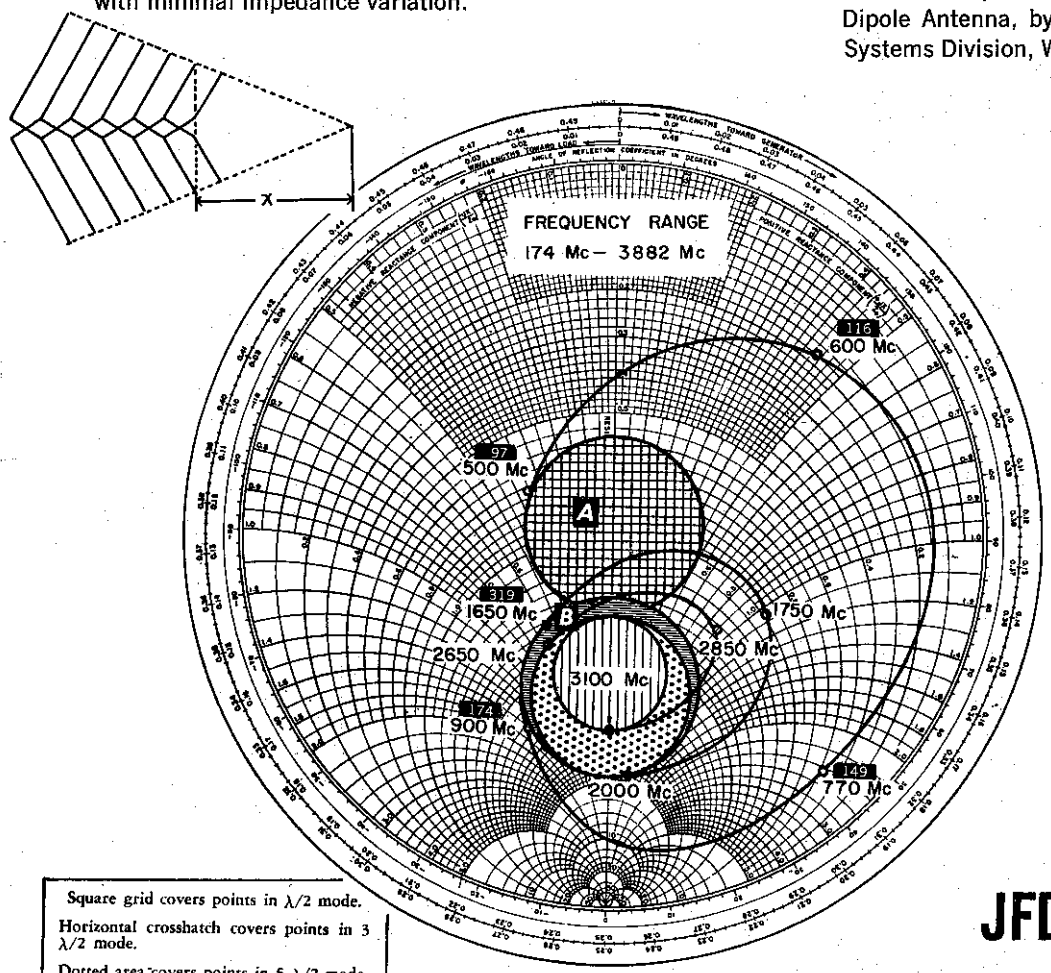


Fig. 14
Input impedance of an LPV antenna.

Mc. Frequency in Fig. 14	(.18: 1) Scaled down Frequency
174	34
500	97
600	116
770	149
900	174
1650	319
1750	338
2650	513
2850	551
3100	600

Fig. 14A

no question about it—

the JFD LPV $\frac{L_{(n+1)}}{L_n} = \tau$ IS A WINNER

"6 db BETTER THAN THE BEST!"

If you are installing JFD Log Periodic LPV's, no doubt you will agree with this report from R. L. Monroe, a leading TV antenna service-dealer of Charleston, West Virginia—a problem reception area.

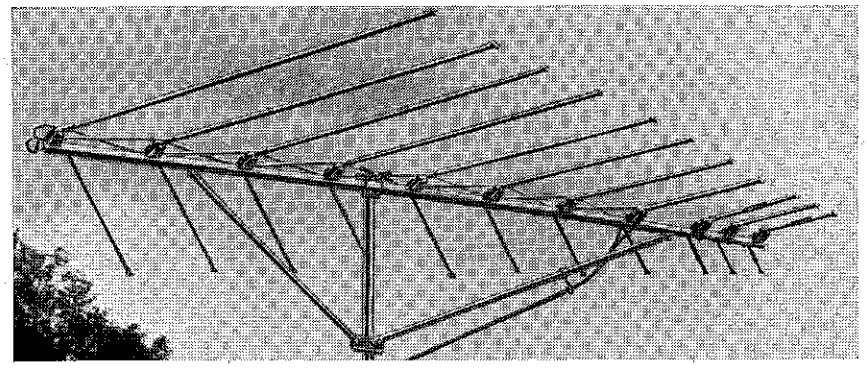
"It beats all, it beats everything that I have ever seen. Not only that, but this antenna is better than 6 db better than the best that I have installed. It pulled in a consistently clear picture from Columbus, over 130 miles away. *** *** **** *"It's just great on color —turns browns into real reds, faded bluish greens into brilliant greens, and completely eliminates the chronic ghost problems we have been suffering from in this area."*

****I have been in this business since 1948, which is a considerable time, particularly in the valley, and have yet to see any antenna, even near to this log periodic antenna in performance of the things I have wanted."*

Why the JFD Log Periodic LPV Outperforms Every TV Antenna Ever Made!

The log-periodic LPV blows the whistle on cumbersome antennas with their "Chinese puzzle" combinations of collectors, directors and reflectors. Now a single precisely-engineered antenna—the first based on a geometrically-derived *logarithmic* scale—actually *tunes* itself to the desired channel for unprecedented performance in crisp black and white or stunning color—plus FM STEREO. Is it any wonder that never before have so many installers and technicians so quickly acclaimed a TV antenna?

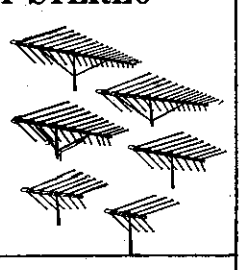
We would like to tell you more about the LPV, and how its *frequency independent* characteristics, have broken through distance, ghost and interference barriers to bring clear, steady pictures into previously "impossible" areas. Write today for your log periodic LPV Sales Kit. Better yet, call your JFD distributor and try one with our money-back guarantee of a better picture. You will prove it to yourself.



Developed by the University of Illinois Antenna Laboratory—Now Serving in Satellite Telemetry—Adopted to TV by JFD! THE LOG PERIODIC LPV ENDS THE ERA OF ANTENNA COMPROMISE! FOR THE FIRST TIME ONE SCIENTIFICALLY FORMULATED ANTENNA CONFIGURATION SATISFIES ANY LOCATION DEMAND:

Harmonically resonant V-element operate on the Log-Periodic Cellular Principle in the Fundamental and Third Harmonic Modes for unprecedented performance —in color—in black and white—plus FM STEREO

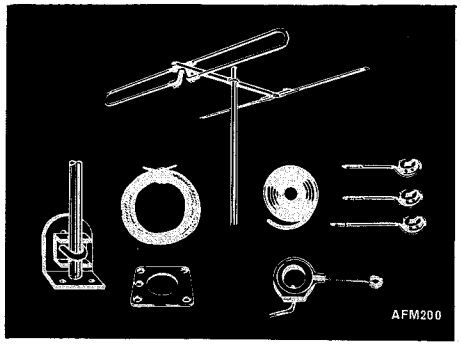
LPV17:	18 Active Cell and Director System—up to 175 miles	$59.95, list
LPV14:	15 Active Cell and Director System—up to 150 miles	$49.95, list
LPV11:	11 Active Cell and Director System—up to 125 miles	$39.95, list
LPV8:	8 Active Cell and Director System—up to 100 miles	$29.95, list
LPV6:	6 Active Cell System—up to 75 miles	$21.95, list
LPV4:	4 Active Cell System—up to 50 miles	$14.95, list



JFD ELECTRONICS CORPORATION

15th Avenue at 62nd Street, Brooklyn 19, N.Y.
JFD Electronics-Southern Inc., Oxford, North Carolina
JFD International, 15 Moore Street, New York, N.Y.
JFD Canada, Ltd., 51 McCormack Street, Toronto. Ontario, Canada

Form No. 799 litho in U. S. A. 8-64



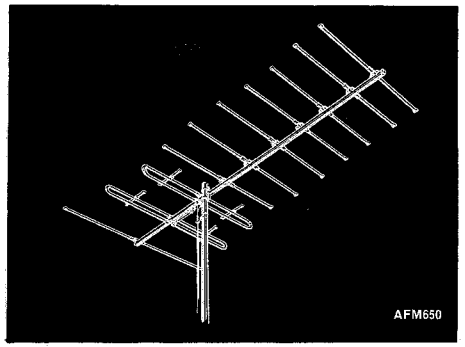
—ideal for areas where stations are in one general direction.

Attaches to any antenna! Also available as kit for all-new installations!

model	description	list
AFM200	**STEREO-DIPOLE AND REFLECTOR KIT FOR ALL NEW INSTALLATIONS**	$13.85

- One preassembled gold alodized AFM200 antenna.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base base mount.
- 50 ft. 300 ohm twin lead.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.

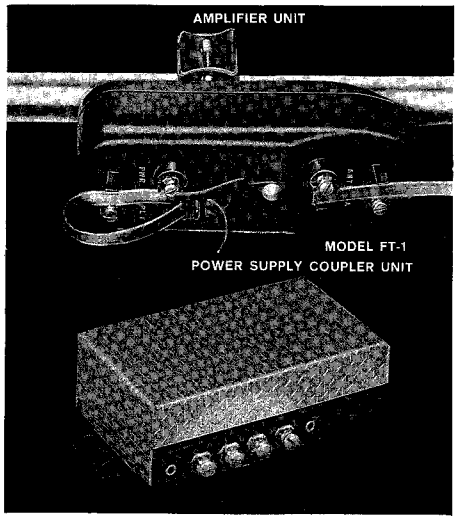
model	description	list
AFM250	AFM200 antenna only	$8.60



—pinpoints distant stations, pulls in maximum possible signal. (receives stations 100-125 miles distant)

- Twin-diven satellite-dipole Yagi captures more signal—delivers 6.5 to 9.2 db gain.
- Wide-spaced element design provides uniform broadband response across FM band.
- Acute directivity minimizes troublesome noise and multi-path signals.
- Preassembled—no loose hardware.
- Gold alodized one inch square aluminum crossarm and ½ inch reinforced aluminum dipoles for rugged mechanical reliability.

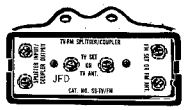
model	description	list
AFM350	6-Element FM Yagi for up to 100 miles	$23.50
AFM650	10-Element FM Yagi for up to 125 miles	$32.50



Install the JFD FM Antenna Amplifier model FT-1 for sparkling FM stereo-multiplex or monaural listening. Space-age solid circuitry gives you up to 16 db of amplification—handles up to 45,000 microvolts without overloading. Mounts on the antenna crossarm. Printed circuit is "Poly-U" sealed against weather effects. Exclusive "OFT" Offset Free-space Terminals prevent accumulation of dirt, moisture and ice which siphon off signal strength. Because 117V AC power supply is located at receiver, it also acts as a coupler so that one antenna can serve two FM systems.

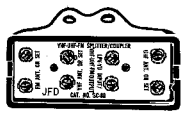
model FT-1 **$34.95 list**

Model SSTVFM Bandpass Filter & TV/FM Coupler-Splitter/Combiner **$5.95 list**



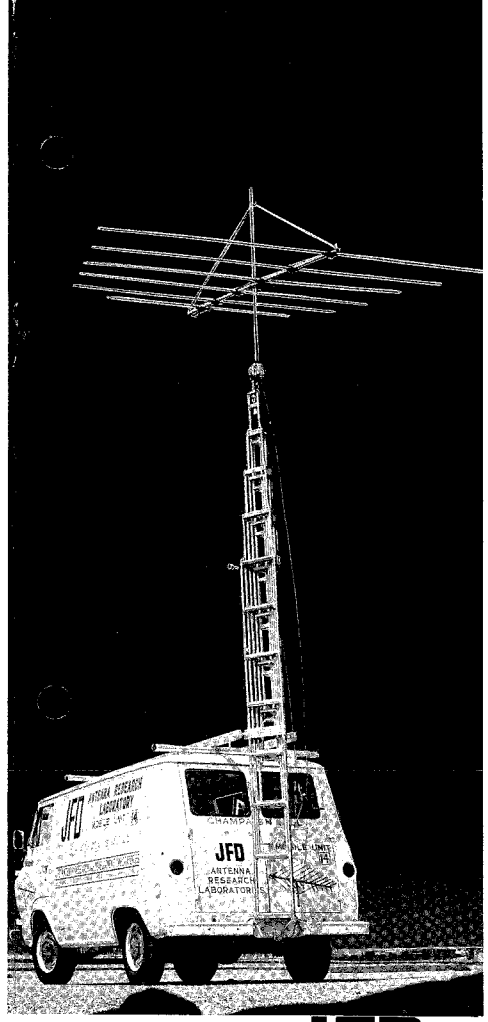
Separates TV and FM frequencies from combined TV/FM signal and feeds them into individual TV set and FM system. Also works as bandpass filter to shut out unwanted TV, amateur and citizens' band signal pick-up by FM antenna and transmission line. Can also serve as a combiner to combine signals from separate TV and FM terminals into **one** down-lead. Mounts in seconds on back of any TV set. No-strip terminals eliminate need for wire stripping, cutting or splicing.

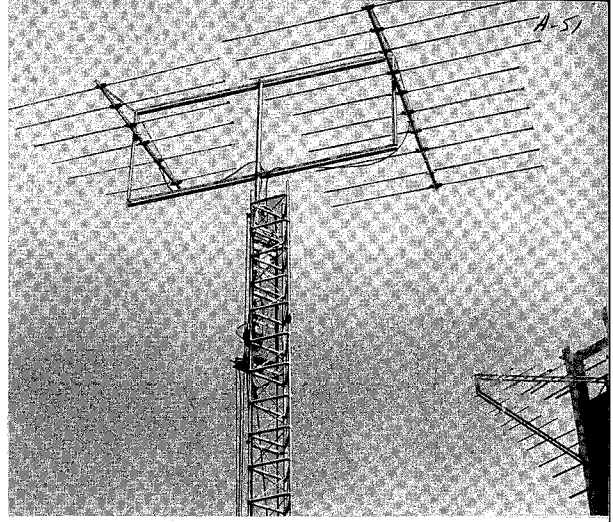
Model SC80 VHF/UHF/FM Coupler-Splitter/ Combiner **$7.95 list**

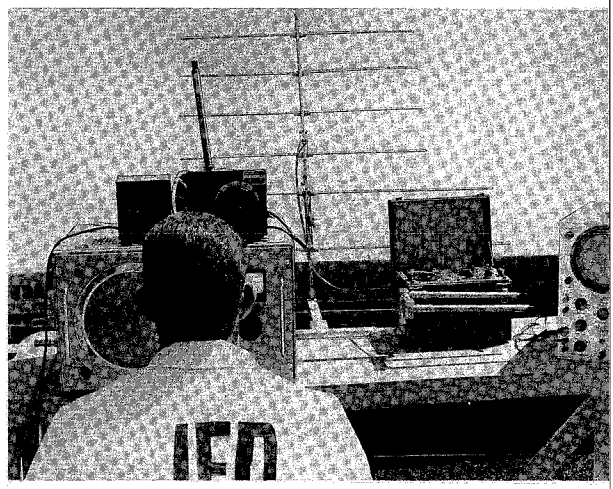


Made especially for use with JFD LPV-VU 82-channel TV/FM Log Periodic antennas. **Splits** combined VHF/UHF/FM signal coming in on **single** downlead so it can be fed individually into converted or new all-channel 2-83 receiver and FM tuner. Also joins the output of individual VHF antenna, UHF antenna, and FM antenna into **one** downlead. Ends unsightly multiple antenna installations.

FORM NO. 919 LITHO IN U.S.A.







NEW from the JFD Research and Development Laboratories of Champaign, Illinois

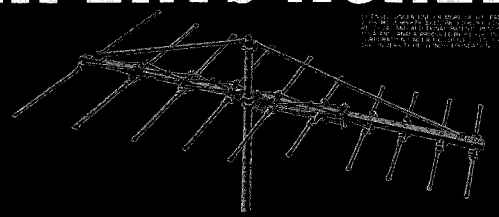
STEREO

featuring the new FULL-WAVE Log-Periodic L-Dipole system

developed from research performed at the University of Illinois Antenna Research Laboratories

JFD LOG-PERIODIC DESIGN DELIVERS THE WIDE-BAND RESPONSE REQUI

FM EXPERTS AGREE ON THE JFD



NATIONALLY ACCLAIMED LPL-FM LOG PERIODIC ANTENNA

"I would like to take this opportunity to tell you how pleased I am with the new JFD-LPL-FM 10 antenna."
Geoffrey M. Nathanson—Editor and Publisher
FM & FINE ARTS

"The Log-Periodic FM 8 has brought the signal in with amazing clarity, and strength."
Seymour N. Siegel, Director
STATION WNYC-FM

"We have just finished a thorough test of your LPL-FM 10 and can confidently state that it is all that you have said."
A. L. Stewart, Chief Engineer
STATION WEKZ-AM-FM

"I have found the LPL-FM 6 log periodic antenna to meet all these requirements. I am very happy with this antenna and I highly recommend it.
Robert M. Kanner,
Engineering Maintenance Supervisor
RADIO STATION WMCA

"Our tests indicate that the full wavelength elements used in this new line provide twice the gain of the best 10-element f-m yagis."
Ed Walter, Editor
ELECTRONIC DISTRIBUTING MAGAZINE

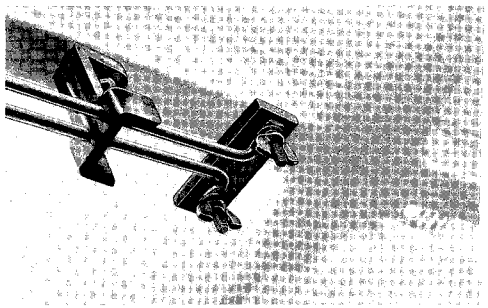
"I now know there really is a Santa Claus, because he brought me the best FM reception that I have ever had with my JFD LPL FM 10 Antenna."
Paul Dean Ford, Licensee
WPFR (FM)

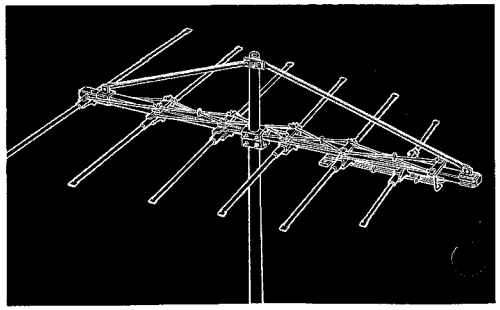
"We have been testing your new LPL-FM 10 Log Periodic antenna with very good results."
Guy Dryden, Chief Engineer
WTBC AM-FM

"I wish to thank you for the opportunity of trying the new JFD FM 10. As you know, in this area we have a severe multi-path problem and I feel this new JFD antenna will help this problem in many locations."
MUSI-CAL PLANNED MUSIC PROGRAMMING
W. T. Jones

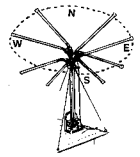
ACKNOWLEDGED

- Stainless steel take-off terminals that never corrode.
- Gold alodized ½" o.d. aluminum tubing. Exceeds U. S. Air Force corrosion specifications MIL-C-5541 and MIL-S-5002.
- Top-suspension boom supports (one inch outer diameter) permit close-up mounting of antenna to rotator. Provides rigidity against 100 mile per hour winds.





FULL CIRCULAR 360° DIRECTIVITY PATTERNS OF JFD STEREO-CONE RECEIVES FM FROM **ALL** DIRECTIONS!



Obsolete turnstile antennas do not have equal gain in all directions—thus cannot pick-up many stations.

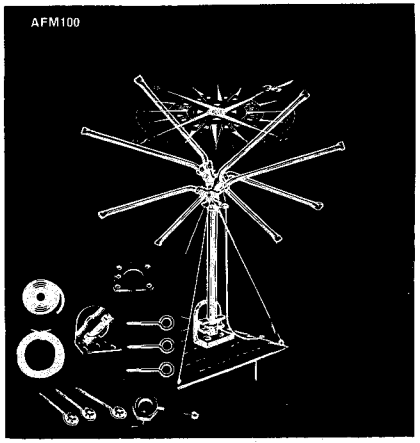
The new JFD 8-dipole stereo-cone fills in these blind spots—provides more uniform gain in all directions.

model	description	list
AFM100	STEREO-CONE KIT FOR ALL NEW INSTALLATIONS	$15.95

CONTENTS:

- One preassembled Stereo-Cone antenna.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base mount.
- 50 ft. 300 ohm twin lead.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.

AFM100

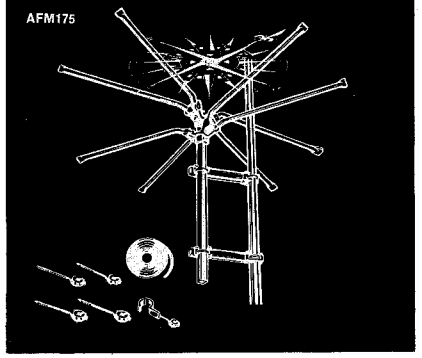


model	description	list
AFM150	STEREO-CONE KIT FOR ALL NEW INSTALLATIONS	$11.95

- One preassembled Stereo-Cone antenna.
- One pair gold alodized mast brackets.

ATTACHES TO ANY MAST IN MINUTES!

AFM175



model	description	list
AFM175	STEREO-CONE KIT FOR EXISTING INSTALLATIONS	$13.95

- One preassembled Stereo-Cone antenna.
- One pair gold alodized mast brackets.
- 50 ft. 300 ohm twin lead.
- Three 3½ in. and one 7½ in. wood screw eyes.
- One mast stand-off.

—today's most economical all-directional antenna
Attaches in seconds—to any mast! Also available as kit for new installations.

model	description	list
AFM400	"SUPER S" KIT FOR NEW INSTALLATIONS	$11.95

- One preassembled gold alodized AFM400.
- One 5 ft. gold alodized aluminum mast.
- One universal wall/roof base mount.
- 50 ft. 300 ohm twin line.
- Galvanized steel guy wire, guy ring, stand-offs and hardware.
- ½ inch seamless gold alodized element.

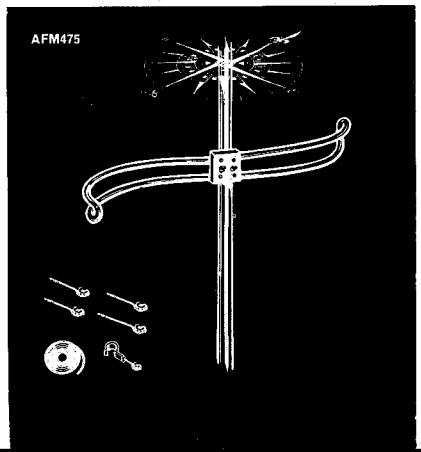
model	description	list
AFM 450	"SUPER S" FOR EXISTING INSTALLATIONS	$6.95

- One preassembled AFM450 "Super-S" antenna.

model	description	list
AFM475	"SUPER S" KIT FOR EXISTING INSTALLATIONS	$8.95

- One preassembled AFM450 "Super-S" antenna.
- 50 ft. 300 ohm twin lead.
- Three 3½ in. and one 7½ in. wood screw eyes.
- One mast stand-off.

AFM475



Model LPL-FM10; 5 Active Cells–5 co-linear directors

List Price: $49.95

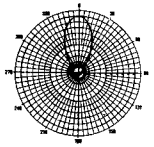
Overall Dimensions: 142.8″ L. x 140″ W.

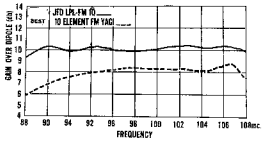
Weight: Approx. 9 lbs.

Gain is as much as 41% better than the best 10-element FM Yagi.

GAIN: 9.6 db. (± .6 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 37.5° (± 2.5°)
VSWR: Median 1.5:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 26.0 db





Model LPL-FM8; 5 Active Cells–3 co-linear directors

List Price: $39.95

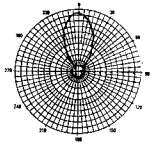
Overall Dimensions: 115.3″ L. x 140″ W.

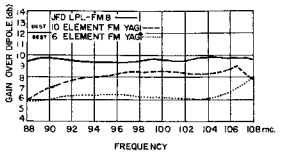
Weight: Approx. 8 lbs.

Gain is as much as 35% better than the best 10-element FM Yagi.

GAIN: 9.1 db (±0.7 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 40.5° (± 3.5°)
VSWR: Median 1.8:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 20 db





Model LPL-FM6; 5 Active Cells–1 co-linear director

List Price: $29.95

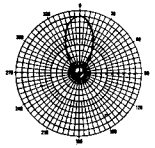
Overall Dimensions: 87.8″ L. x 140″ W.

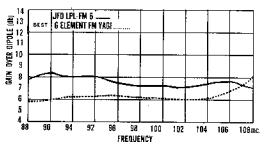
Weight: Approx. 6 lbs.

Gain is as much as 30% better than the best 6 element FM Yagi.

GAIN: 7.7 db (± 0.6 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 43° ± 2.5)
VSWR: Median 1.5:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 18 db





Model LPL-FM4; 3 Active Cells–1 co-linear director

List Price: $19.95

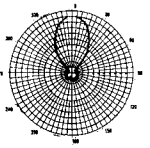
Overall Dimensions: 58.3″ L. x 140″ W.

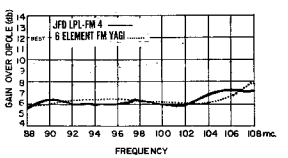
Weight: Approx. 5 lbs.

Average gain is equal to that of the best 6-element FM Yagi.

GAIN: 6.3 db (± 0.9 db/half wavelength dipole)

"E" PLANE HALF-POWER BEAMWIDTH: 46° (± 2°)
VSWR: Median 1.6:1
NOMINAL IMPEDANCE: 300 ohms
FRONT-TO-BACK RATIO: Median 16.6 db

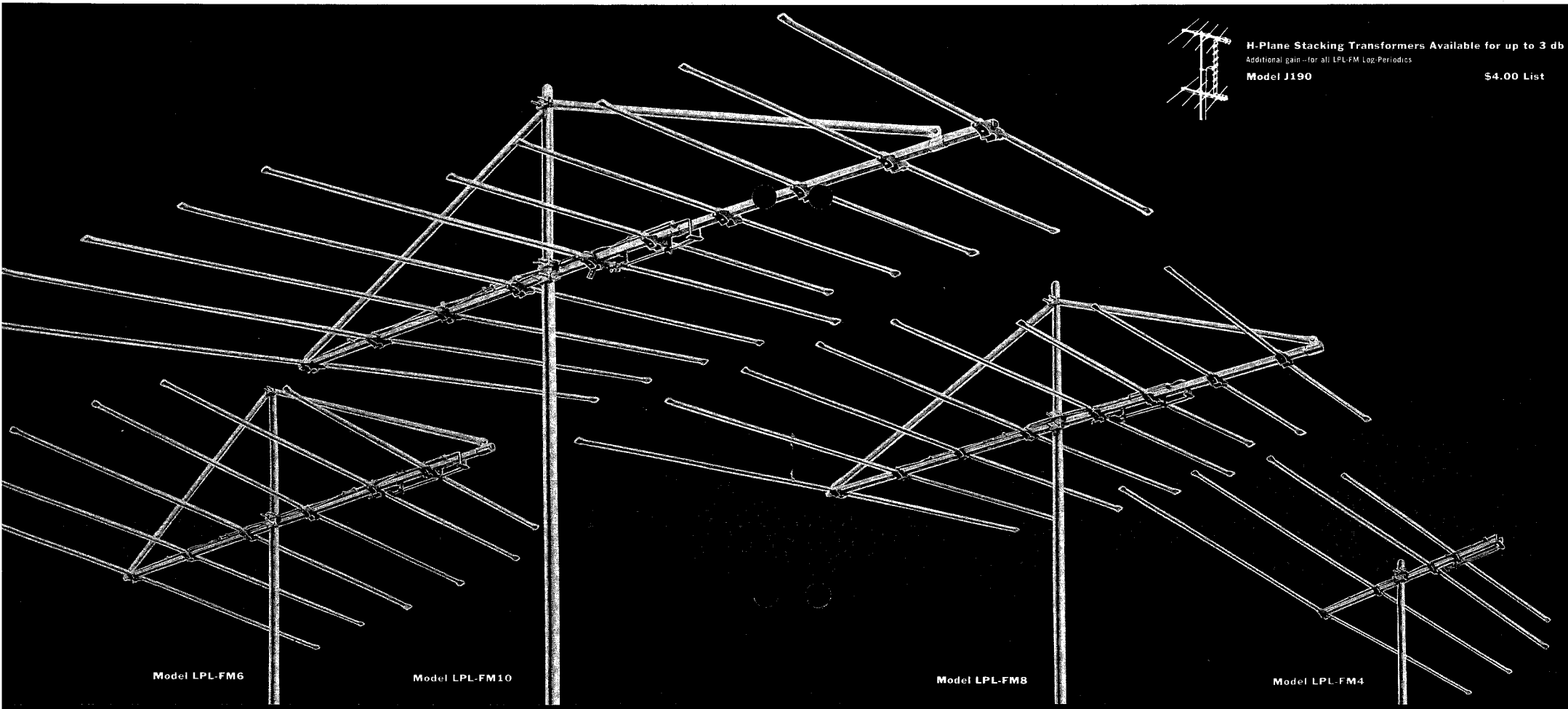




H-Plane Stacking Transformers Available for up to 3 db

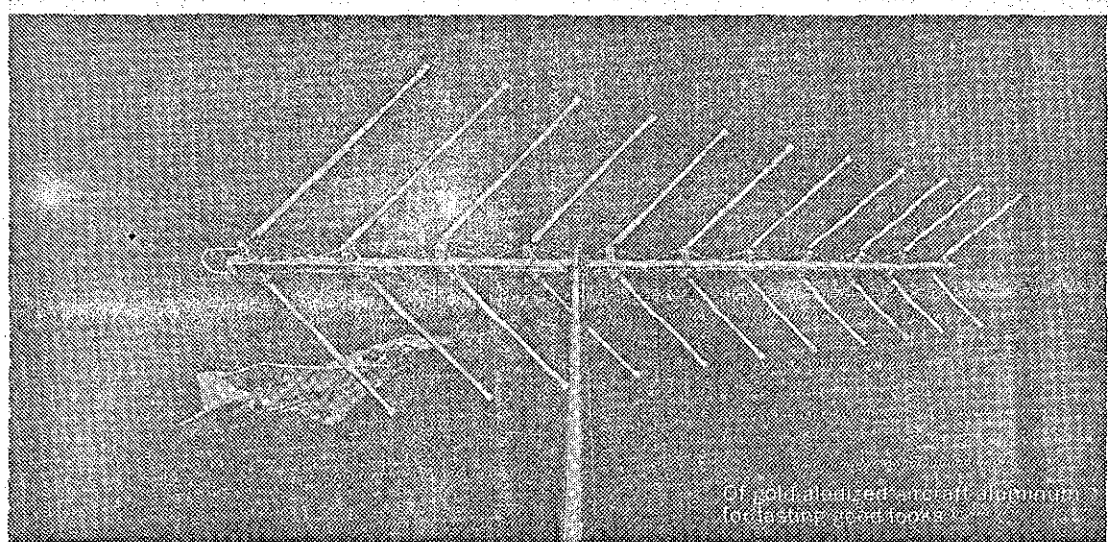
Additional gain–for all LPL-FM Log-Periodics

Model J190 **$4.00 List**



IF Your Antenna is More than Three Years Old...
Your Neighbors Get Better Reception than You Do...
Your Pictures Are Weak, Erratic, Hurt by Snow or Ghosts...

(7)



...THE JFD LOG-PERIODIC LPV MUST MEAN NEW DEPTH, MORE DETAIL ON YOUR TV SCREEN

This history-making new antenna pairs unprecedented power with unmatched directivity to bring in every picture detail. Gives you vivid, vibrant, studio-sharp reception—better reception than you thought possible with your present set. Developed by the Antenna Research Laboratories of the University of Illinois to meet rigorous Air Force space needs. Get full TV enjoyment in color, black-and-white, FM Stereo too—with the JFD LOG-PERIODIC LPV.

Call us for free check-up of your TV antenna

AUTHORIZED
JFD
DEALER

ALL OUR WORK IS GUARANTEED!