new feature...!
TRANSPORTATION SYSTEMS

also... AM STEREO.... MORE ON CB....
THE PRESIDENT'S MESSAGE

Your Administrative Committee (Adcom) had an extremely productive set of meetings during the week of June 17th in Chicago. The full Adcom meets three times a year, normally, and through the years, there has been an inconsistent attendance for these meetings. The poorly attended meetings were generally meetings not associated with our Annual Conference. I am extremely pleased at the last meeting, which followed our well attended Annual Conference Adcom Meeting in Orlando, we had an attendance of 14 out of the 16 elected Adcom members. To the best of my recollection, I have ever had an Adcom Meeting with a better percentage ratio during the years. This shows that we have this is indicative of the commitment and dedication of your Adcom members to actively participate in the activities of the Society, and the sharing of the chores of administering the Vehicular Technology Group's business. I believe we now have a very conscientious group of individuals presently serving on the Adcom. The general membership should review, through the past VTG Newsletters, the attendance of the various Adcom members when it comes time to electing representatives to serve on Adcom in future years.

In addition to just showing up, your Adcom members have, indeed, reported on their busy schedules of activities to improve the organization. One of the many items for our consideration is our Transactions, and I am sure the general membership will agree with the improvements that have been made in this area. The May, 1977 issue featured many articles on electric vehicles and automotive electronics. Some of which were obtained through the very successful Convergence '76 Conference. The August issue, which you should be getting about now, will contain articles on communications, and will have approximately 100 pages. Coming up in November of this year, we will have the special issue for Mobile Radio Propagation. Some of the leading experts from around the world are contributing to this issue, and for the convenience of the practicing engineer, we have included the landmark issue originally published by Kenneth Bullington. This will certainly be a key issue of the Transactions that should be read for many years to come by the practicing engineer in Land Mobile Communications. Also, in August, you will receive a copy of the first Newsletter, which will be a special issue on Maritime Communications, and will contain approximately 100 pages. Coming up in November of this year, we will have the special issue for Mobile Radio Propagation. Some of the leading experts from around the world are contributing to this issue, and for the convenience of the practicing engineer, we have included the landmark issue originally published by Kenneth Bullington. This will certainly be a key issue of the Transactions that should be read for many years to come by the practicing engineer in Land Mobile Communications. Also, in August, you will receive a copy of the first Newsletter, which will be a special issue on Maritime Communications, and will contain approximately 100 pages. Coming up in November of this year, we will have the special issue for Mobile Radio Propagation. Some of the leading experts from around the world are contributing to this issue, and for the convenience of the practicing engineer, we have included the landmark issue originally published by Kenneth Bullington. This will certainly be a key issue of the Transactions that should be read for many years to come by the practicing engineer in Land Mobile Communications. Also, in August, you will receive a copy of the first Newsletter, which will be a special issue on Maritime Communications, and will contain approximately 100 pages.

Many other publications exist today in various trade and industry areas, however, the VTG Transactions continues to be the authoritative source for the professional researcher and practitioner in the Vehicular Technology Field. A constant effort by participation by the broad membership will continue this successful and enviable position for our Transactions.

Our Annual Conferences have been a highlight of many of our previous Adcom meetings, however, the last Adcom meeting devoted considerable time to improving and expanding our future conferences. We were all extremely pleased at the results of our recent Orlando Conference, and it now appears that the financial success of this conference will support further activities. The 1978 Conference in Denver,Colorado, will be the best conference to date of the Vehicular Technology Group. The conference committee report was presented by John Terry and reflects an efficient organization which has developed an significant program for the membership. Some interesting to the Denver Conference will be the co-location of our conference with other industry functions. The very successful Microwave Symposium, usually held in Boulder, will be co-located in Denver, coincident with our conference. This will provide a basis for many participants to congregate for both conferences. The practicing engineer in the Land Mobile Communications business should find both of these events extremely important to his business. In addition, the organizing committee has worked with the National Association of Radio Communication Organizers, and have reported that they will have their 1978 Conference at the same time as our VTG Conference, just prior to our conference. This will encourage exhibitors to participate in both conferences and many participants of one conference will be attending some portion of the other conference. One of the key factors regarding this coordinated effort was Fred Link, and he is working on some additional items to ensure a concentrated attendance of all the professionals in Denver, during the week of the VTG Conference.

Our plans for our 1979 Conference ran into some road blocks. The committee tentatively established the Dallas Chapter for this Conference and for the May Conference management positions previously identified. Some key people were very concerned of different responsibilities which prevented them from serving on the conference committee. The Adcom reviewed the situation in detail, and also by an extended conference telephone call, Adcom approved our options for the 1979 Conference. It was felt that the Dallas-Ft. Worth area would be far better suited in a few years to hold a conference, as they are going to have major industrial expansion in the communications area, and would have a significant increase in active participants in their area. Consequently, in 1979 there will be some significant communications developments in the Chicago area, and it would lend itself to an independent examination and presentation for the entire VTG membership. With these factors in mind, the Adcom selected Chicago as the site location for the 1979 Conference. Martin Cooper was designated as the conference coordinator, responsible for the establishment of a conference committee, who will then develop a conference plan and program. A 1979 Conference schedule, it appears that in 1980, we will be returning to Detroit for the 30th Anniversary Year of the VTG Conference. Detroit will again serve as host site in 1990.

During the extensive deliberations by the Adcom regarding future conference sites, it became quite obvious that there is a need for an active base of individuals in a concentrated geographic area who can plan and manage a conference. The obvious conclusion is that an active VTG Chapter will be the best source for managing and hosting an Annual Conference. It also appeared that many of the past regional organizations are not broad enough, nor active enough to provide a continuing and well diversified series of site selection options. As of now, your Adcom is still considering the future in spending more time and more effort, on helping to establish chapters, and working our programs to improve chapter organizations. It is essential that we have strong and active chapters who are capable of hosting our annual conferences.

Elsewhere in this issue, you will see a report by Sam McInoughey, our Chapters Advisory Chairman, who will be reporting on activities of all of our chapters, as well as making some significant announcements about our new Speaker of the Year, and other speakers available for individual chapters to utilize. It is through these special programs, and the availability of knowledgeable people in our organization, that our local chapter activities, that creates the basis for a strong clean for our group are. I would urge all of you, who are in areas where you have not had active chapter participation, to contact Sam McInoughey and see if your area can qualify for a special chapter segment. We collect our very best to publicize this meeting, and encourage all of the people within your chapter to participate. Adcom member doesn't necessarily have to have a meeting every month. Several meetings throughout the year could be extremely beneficial for your members who are not able to travel long distances to attend our National Conferences, but wish to exchange information and be updated on developments in a timely fashion. We are looking forward to a very active chapter program in the forthcoming year, and starting in September, we will be publicizing very heavily, all activities, to encourage all areas to participate.

Again, I would like to extend to all of you, an invitation to actively participate in all of our activities. I realize that there are different suggestions you may have in improving our organization. We are looking forward to your comments and suggestions.

SAM LANE
Magazine Advertising Corporation
5547 Satsuma Avenue
North Hollywood, California 91601
(213) 877-2791
EDITOR'S NOTES

OLIN GILES

The IEEE Vehicular Technology Group Newsletter is published quarterly by the Vehicular Technology Group of the Institute of Electrical and Electronics Engineers, Inc., Headquarters: 345 East 47th Street, New York, N.Y. 10017. Sent automatically and without additional cost to each member of the Vehicular Technology Group. Printed in U.S.A. Second-class postage is paid at New York, N.Y. and at additional mailing offices.

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28th ANNUAL VTG CONFERENCE

DENVER, COLORADO
MARCH 22 THROUGH 24, 1978

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2. Quoted prices are net with no allowance for agency discounts.
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CLOSING DATES ARE AS FOLLOWS:

Month of Issue Closing Date*

November, 1977 October 3, 1977
February 28, 1978 January 9, 1978
May, 1978 April 3, 1978
August, 1978 June 26, 1978

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Frequency discount credit will be determined after the close of your advertising year and applied to the earliest future invoices.

*NOTE: Ready for camera artwork should be forwarded to: Olin S. Giles, Jr., General Electric Company, Mountain View Road, Lynchburg, Virginia 24502.

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THEME:
"Technology on the Move"

TOPICS:
Communications Voice, Data, Control, Compatibility
Propulsion Control of Combustion Engines Control of Electrical Motors Propulsion Advancements in Energy Conversion
Command and Control Discrete, Micro-Processor, Computer, Robot Systems
Safety and Security Collision Avoidance and Sensing Vehicle Sensing/Location Anti Skid Life Support

These are only suggested topics.

DEADLINE:
Six copies of a 500-word outline should be submitted by October 15, 1977 to:

JOHN F. SHAPER
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NATIONAL BUREAU OF STANDARDS
325 BROADWAY
ROCKVILLE, COLORADO 80302
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(303) 499-6855 (Home)

Outlines or summaries should be typed single-spaced with a two-inch left margin, in a 4 1/4-inch column with a 1 1/2-inch top and bottom margin. The title, name(s), and affiliations should be included, with complete address and telephone number.

Authors will be notified of acceptance by November 15, 1977. The complete text of accepted papers will be published in the Twenty Eighth IEEE Vehicular Technology Conference Record, which will be distributed at the conference.
LETTERS

Mr. Thomas A. McKeen
General Electric Company
Mountain View Road
Lynchburg, Virginia 24502

Dear Tom:

I read with great interest the results of the 1976 VDG membership survey published in the February 1977-News-
letter. Although I was not among the members surveyed,
I agree with many of the "choice comments" you received as responses, especially those related to papers pub-
lished in the VDG Transactions and Newsletter. Ken Gohrig's tutorial articles are always good and written in a refreshingly candid mode. More of these would be very welcome. In the past the VDG Transactions have been skippy and almost not worth the cost of receiving them. I'm very pleased to see the new approach to the Transactions where specific areas in vehicular technol-
ogy are covered by special issues.

I was amazed that 91% of the VDG membership have never submitted papers for publication. (I'm in this group),
but I can come up with a few obvious reasons why there has been such a lack of papers in the past:

1. The majority of the VDG membership is probably in private industry or government, not academic and
   there is no real pressure to publish or perish.
2. Because of the nature of the vehicular technology (mobile radio) industry, the engineer's scarce
   working day hours must be spent in a manner pro-
   fitable to the employer. Preparing papers for
   publication comes last in the order of priorities
   and many employers view papers as only marginally
   valuable in terms of corporate prestige (outstand-
   ing the statements in the company Policy
   Manual). Engineers therefore normally turn to
   writing papers only as a last resort to occupy
   their time and work on them only during lulls in
   the business cycle. The pressure to have a good
   "charge number" on his time is very real.
3. The poor quality and volume of the Transactions in the past probably bred apathy in the member-
   ship.

4. Good writers are scarce and all of them are prob-
   ably writing - proposals, bulletins, reports,
   manuals, company brochures, etc. - with no time
   left over to write papers.

I would like to offer the following suggestion for im-
proving the quantity, quality and orientation of the
papers submitted for publication by the VDG: the VDG membership could be asked (through notices or an arti-
cle in the Transactions and Newsletter) to submit sug-
gested titles of papers they would like to see pub-
lished. The titles should be augmented with brief
descriptions of the matter desired to be covered and its
orientation (tutorial, applications-oriented, theoretical, etc.). This information could then be
published in the Transactions or Newsletter and mem-
bers desiring to submit a paper could "bid" for the
bank of writing it. If more than one bid is received
for a specific paper the VDG editorial staff could
either select the most qualified writer or get the
two or more bidders together to work on a joint paper.
To ensure that papers are prepared and submitted with-
in a reasonable length of time the names of the mem-
bers awarded a paper could be published together with
a due date.

I believe that this suggestion for improving our litera-
ture would work because it would provide potential au-
thors with a list of desirable subjects to write about.
It would also provide a challenge and an incentive.
The overall product would be superior because authors
would be responding to specific requests for informa-
tion.

Another incentive to submit papers would be to honor the author(s) of the best paper published each year
with a plaque, a profile in the VDG Transactions, and
maybe an all expenses paid invitation to the Annual
DG Conference. The membership could be asked to vote
for the best paper by means of a tear-off ballot in the Transactions or Newsletter.

To follow-up the VDG Transactions I would like to sug-
gest reprinting in each issue one or more of the "classical" or "definitive" papers printed in the
past in any one of the IEEE publications. Perhaps a Special Issue of Classical Papers would be appropriate.

This letter itself could be reconfigured as an article or paper and I would be very willing to do the neces-
sary research and writing if you think it would be acceptable.

Hope to meet you in Orlando during the Annual Confer-
ence.

Patrick J. Dunn
Computer Sciences Corporation

Mr. S. H. Lane, President VDG
4015 Rantia Road
Santa Barbara, California 93110

Dear Mr. Lane:

During 1976, Dr. Joseph Biedenbach, EAS Chairperson
for Short Courses and Home Study programs, added a new dis-
cussion to our expanding Continuing Education pro-
grame. This new activity takes advantage of the tra-
vel arrangements that are normally scheduled by your
members in industry, government and universities. In
this matter we are able to extend low-cost education to
our members in our far-away regions. We urge you to
tally this information to your Newsletter Editors so
they can alert your membership. Many arrangements
have to be made in advance of the travel schedule so
we urge you to expedite your return to us.

We will need to know:

1. The members' biography.
2. His/her travel plans for the next 6
to 12-months. Exact dates and length
of the stay in the respective countries
would be of great help.
3. A brief statement describing the subject
in which they feel they are best quali-

fied to teach.

We include an honorarium of $300.00 per teaching day
plus the local travel expenses from his location in the
foreign country to the course site.

Vincent J. Gardina, Manager -
Continuing Education, IEEE

Editor's Note: If you are interested in participating, please contact Sam Lane, VDG President.
Transportation Systems

by Ronald Rule
Transportation Systems Editor

This new section of the Newsletter will cover the use of electronic technology in the area of ground transportation. The section will provide an overview but is not limited to developments in the following areas: traffic control systems, automatic vehicle identification, location, and monitoring systems; automated transport systems; moving walkways; and other people-movers.

Downtown People Movers

The Urban Mass Transportation Administration (UMTA) has selected four cities for Downtown People Mover (DPM) demonstration projects. The wide range of climates, population densities, and economic conditions in Dayton, Columbus, Cleveland, and Salt Lake City will provide a broad assessment of the suitability of an automated people mover system. The UMTA's program’s purpose is to assess the economic benefits that might accrue from improved transportation services and to determine operating cost economies of an automated transit system, and to find out how people-mover systems might perform as substitutes for more expensive fixed guideway systems in high density, short-trip situations.

The Morgantown, West Virginia, Personal Rapid Transit System

The U.S. Department of Transportation's National Highway Traffic Laboratory (NHTL) has awarded a contract to W.T. Lewis and Associates, Inc., (a transportation engineering firm) to perform an assessment of the Morgantown Personal Rapid Transit System. The system currently consists of a guided transit system with only automated guideway in an urban area. The NHTL system is composed of 21 automated vehicles, each with capacity for 12 passengers. The system was installed by UMTA as a public demonstration project and is one of the most advanced in the U.S. in the business district with the widely separated campuses of West Virginia University.

Operation of the NHTL system can be summarized from the passenger's viewpoint. He arrives at the origin station on the concourse level and rides the Platform Assignment Display to determine which platform is serving his desired destination. He proceeds up the stairs or ramp to the platform level. In the case of a closed system, he inserts a coded card into the Fare Collection/destination selection unit and presses a button selecting his destination.

A display graphic illuminates informing him to proceed to the vehicle loading area. A Vehicle Destination Selection primary software control is provided, with compatible boarding instructions. If assistance is needed for any reason, a customer service operator is available.

On board, when his vehicle arrives at the loading gate and the door has opened. The door closes and the vehicle automatically proceeds under software control non-stop to his destination. At the destination station the vehicle stops at an unloading gate, the door opens and he leaves the station through the exit gate.

The entire Phase II NHTL system will have both heated power rails and heated on-board power collectors for improved cold weather operation. Subsystem design changes for improved reliability will be incorporated in existing systems and new vehicles will be equipped with a microprocessor subsystem.

A collision avoidance system is provided independent of the other automatic control functions. This system is essential for operation of a closed system. The system is designed for stopping vehicles or merger conflicts. This plan includes block systems implemented through dual logic paths starting from vehicle detection and ending with vehicle command. The dual logic paths are implemented in station microcomputers and in hardwired electronics. In Phase II NHTL the hardwired electronics will be replaced by a microprocessor subsystem.

Finally, the Phase II NHTL will provide a new cola/magnetic card fare collection system, improved radio encode/decode electronics, and modifications to dynamic displays, control consoles, and computer hardware.

Letter Continued

As your new Chairman of Chapter Activities, I've should be a means of getting acquainted.

Please, let me say that I'll do my best to help you in your job as Chapter Officers by offering assistance in obtaining good programs for the coming 7/78 season.

We are the time to begin planning for activities beginning this fall.

Second, you can help me and the VTO to support your

A. Keep informed of the names, addresses, and telephone numbers of your officers. Aside from the election of new officers, there are frequent changes when someone moves or resigns. We can't help if we have letters returned as undeliverable or can't locate an officer by telephone.

B. Send in your meeting reports promptly. We like to publish them in the Newsletter and they are needed in the selection of the "Chapter of the Year" award. Indicate by a asterisk if you believe you had an exceptionally good speaker or other chapters may wish to call upon.

We have a number of chapters we've not heard from in some time. Failure to report frequently may result in dissolution of your chapter. At the Chapter Chairman's breakfast in Orlando during National Convention, seven chapters were represented. During this meeting there were many suggestions made for improving programs. Some of these were:

For Program Speakers

Go to the authors of papers appearing in the Transactions or at the National Conference. I will try to obtain mailing addresses and telephone numbers for you but you should generally be able to track down authors as the bibliographic references usually indicate current affiliations (see "contributors") at the end of each transaction. I will also include a VTO Officer to an IEEE Membership Directory, usually have officers addresses are provided.

Try Workshop Seminars

Several chapters reported successful experiences with "how to" courses. Day-long field trips or workshop seminars. Typical subjects have been "Instrumentation", "CBR Education Seminar," Linking Protection," "How to Obtain Patents," Fees for these day-long sessions have been on the order of $25.00, and included lunch, dinner or transportation. Orange County, California, Boston and Cleveland chapters have held workshops and can give advice. Supplier industries and government agencies will often cooperate in setting up, conducting training seminars, and in furnishing course materials.

Plants Tours

Tours of public safety facilities, manufacturing plants, government laboratories and similar facilities were also reported as producing large attendance. Afternoon, evening and weekend meetings all appeared to be successful.

Meeting Dates and Times

Know your competition was the advice given. Don't pick a meeting time that conflicts with Monday night football on TV, or a local light entertainment or other major event or activity. If most of your membership lives in the suburbs an evening meeting downtown may work against you. Some chapters report better success with luncheon meetings than with dinner meetings. It's really up to the chapter officers to use a little care and judgment in picking the time and place to promote good attendance.

Publicity for Meetings

Check your community newspapers, trade publications and you may find those that carry "Meeting Notices". The IEEE "Section News" is also a good place to list meetings, but one of the best reminders is a direct mailing prior to each meeting. Some local radio stations may also mention your meeting as a public service announcement.

One very innovative approach used by the Cleveland Section of IEEE was mentioned. Dial area code (216) WHAT'S UP and you will be given a list of all upcoming meetings. If you have trouble dialing "WHAT'S UP", try 442-3287. The cost of a telephone answering device is nominal and you might get the Section to pick up the bill. You may not get as much as in Cleveland but by working with your telephone company and a little imagination you might come up with another way to remember things.

Work with Your Section

As above, the Cleveland VTO benefits from working with the Section. There are many such examples which benefitted the Group and the Section of IEEE. Another example which helps attendance is the Morgantown Personal Rapid Transit System. The system was installed by UMTA as a public demonstration project and is one of the most advanced in the U.S. in the business district with the widely separated campuses of West Virginia University.

Operation of the NHTL system can be summarized from the passenger's viewpoint. He arrives at the origin station on the concourse level and rides the Platform Assignment Display to determine which platform is serving his desired destination. He proceeds up the stairs or ramp to the platform level. He inserts a coded card into the Fare Collection/destination selection unit and presses a button selecting his destination.
New Copyright Law Affects IEEE Authors

A new copyright law takes effect in the U.S. next January changing procedures currently in effect under the existing 1909 law. Under the new law, extensive photocopying can no longer be done without the consent of the copyright owner. Copyright ownership of a paper rests with the author (or his institution) unless he transfers ownership to the publisher in writing.

Single photocopies may be made for personal use or for research by individuals or libraries under the new law, continuing the "fair use" doctrine, without the owner's consent but "certainly" not for reproduction "systemically." Reproduction without payment of royalties to the copyright owner is prohibited. A Copy Payment to the publisher is required. To administer the collection of royalties for excess copying, on a non-profit basis.

To function under the new law, and to be able to grant permission for reprints as in the past, the IEEE has proposed to its Board of Directors that authors of papers to be published by IEEE journals (except newsletters) shall transfer to the IEEE in writing any copyright they hold for their individual papers. Such transfer shall be a necessary requirement for publication, except for material in the public domain (e.g., papers by government employees) or which is reprinted from a copyrighted publication. The IEEE will copyright the complete publication. In return for the transfer of author rights, the IEEE shall grant the author and his employer blanket permission to make copies and otherwise reproduce the material for internal purposes, and to republish with appropriate credit to the IEEE source

Obtaining the written transfer of author rights should be the responsibility of the journal editor or conference publication committee chairman. The working to be used on the form for effecting the interchange of rights with the author will be supplied by the IEEE Publications Board if this procedure is approved by the Board of Directors at its July meeting.

Authors of papers submitted for the Transactions or the annual conference should receive a certificate for the transfer of rights with respect to copyright to the IEEE, to be executed and signed before a paper is accepted for publication. In the case of the VT Transactions, agreement to the transfer may be received on a contingent basis before the paper enters the review cycle. If the paper is not accepted, the agreement would be returned to the author.

MOBILE RADIO PROPAGATION TO BE FEATURED IN NOVEMBER

In November, the IEEE Transactions on Vehicular Technology will publish a special issue on Mobile Radio Propagation, with Neal Shepherd and John McCormick serving as Guest Editors. The contents of that issue are shown below.

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EVEN WANTED TO BE AN AUTHOR?

LIKE TO SEE PAPERS ON A CERTAIN SUBJECT?

VEHICULAR TECHNOLOGY TRANSACTIONS NEEDS YOUR HELP!

Increasing the number of papers published in the Transactions on Vehicular Technology can perform for its members. More pages means more coverage is possible in all three of our interest areas -- automotive technology, mobile communications, and transportation systems. This year the Transactions will approach 400 pages. To sustain this level of publication and foster further growth we need a continuing input of quality papers reporting work being done in colleges, government, and industry research laboratories, in systems planning, and in applications affecting vehicular technology.

Papers sought include those describing design, development, and applications, theory and analysis, plus tutorial or survey papers dealing with topics of interest to the VT. Authors of Transactions papers gain the recognition of their colleagues, the satisfaction of acquitting a larger audience with their work, and consideration for the Paper of the Year award.

Prospective authors may suggest ideas for papers, submitting summaries or outlines to the Transactions before the papers are written. The editors and reviewers may suggest changes at this stage to the approach or emphasis of the paper, making it of wider interest or focusing attention on specific new developments of interest to our readers, thus avoiding time spent in later extensive revisions.

Some topics for which papers are especially sought now include:

- Data Communications in a Mobile Environment
- Emerging 900 MHz Technologies
- Automation in Land Mobile Radio Services
- Loran-C Developments and Applications
- Strategies and Designs for Urban Mass Transit
- Electronic Control Systems and Power Sources
- Electronic Applications to Vehicle Pollution Control
- Electronics for Vehicle Safety, Braking, and Collision Avoidance
- Automatic Test Systems for Vehicle Monitoring and Diagnostics
- System Design and Control for Light Rail Transit
- Tactical Vehicle Electronic Design for Military Applications
- Vehicle Traffic Control Systems
- Electronic Control of Engine Combustion for Fuel Economy
- System Innovations in Land Mobile Radio Communications (e.g., channel sharing through time division multiplexing or spread spectrum techniques)
- Uses of Communications Satellites for Mobile Communications and Position Locating

As a reader, you might suggest other subjects to be added to this list, so you could find papers dealing with them in the VI Transactions, drop a note to the editor. If you can suggest an author for such a paper, he will be contacted.

Ideas for papers may be discussed with the Transactions staff by phone or letter. Full addresses are inside the cover of each Transactions. Information for Authors appears on the back cover of each issue of the Transactions.

Copies of the Author's Check List for the preparation of papers are available on request from:

Georgie H. Fowler, Technical Editor
Martin Marietta Aerospace
Box 5837, MP-1
Orlando, Florida 32805
(305) 352-3702
Dr. Dave Howarth, Assoc. Editor, Automotive Technology
(313) 575-2869
Bill Christy, Assoc. Editor, Communications
(202) 940-6533
Dr. Jim Bender, Assoc. Editor, Transportation Systems
(313) 575-8430

10

11
AUTOMOTIVE ELECTRONICS

DATELINE: DETROIT
By BILL FLEMING

AUTOMOTIVE ELECTRONICS EDITOR

WHAT'S OF INTEREST?

Having just received a reminder letter on the approaching deadline for Newsletter subscription renewals, I asked myself what's happening now in automotive electronics which would be of interest to V&G readers. My colleagues convinced me that the hot subject continues to be CB radio and related in-car entertainment systems.

As I've done before (see the August 1976 issue of the V&G Newsletter), let me give you a summary of what can be learned by doing some homework on this subject. All the following information is taken from recently published articles and appropriate references are cited.

THE 1.5 BILLION DOLLAR AUTOMOTIVE RADIO BUSINESS

Automotive Industries trade journal predicts that sales of new car sound equipment, consisting of AM-FM radios, tape players, CB radios, etc., will probably exceed $1.5 billion this year. Factors contributing to this growth are:

- Recently demonstrated tendencies for new car buyers to upgrade their sound systems.
- Availability of more expensive systems in more cars.
- Expected allure of improved radios in the future, particularly those in youth-oriented vans and light trucks.

Here are some facts of interest: (1) last year 55% of all GM radios sold provided AM-FM reception, and (2) prices of add-on CB mobile units have fallen to unprecedented low levels.

For example, the original CB-channel, Johnson Messenger 123A, CB radio which originally sold for $159.99 for a mere $38.88 in closeout sales. Today's CB radio is 1089 state, has electronic speech compression, automatic noise limiting, and an acoustically isolated speaker.

FORECAST FOR AUTOMOTIVE RADIO DEVELOPMENTS

AM Stereo. An important new opportunity for automotive entertainment manufacturers is the arrival of AM stereo. High-fidelity stereo music can be broadcast for hundreds of miles by AM stations, contrasted to the 20 to 30 mile range for regular AM stereo. The main limiting factor is the type of receiver which is currently in use nationwide. The radio must be sensitive to AM signals and have AC coupling.

General Motors Radio Developments. The product bulletin in this business was dropped last fall when the GM divisions announced two new radio systems:

- An in-dash AM-FM-CB stereo radio with two-way CB controls.
- A new stereo radio which digitally displays either the time, date, elapsed trip time, or station frequency.

Both radios, shown in adjacent photos, are manufactured by Delco Electronics Division of General Motors. Delco Electronics has responsibility for design, development, and manufacturing of GM radios. For the 1977 model year, GM has dropped the 21-channel, on-car CB radios and shifted to 40-channel in-dash CB radios.

Ford Motor Company Developments. Ford Motor Company currently offers a 40-channel hang-on CB radio, plus three other models of hang-on units. These units are made by Kraus, Motolina, and Johnson.

Last year, Ford Motor came out with their first line of CB radios, marketed by their Parts and Service Division. Sales of $6.5 million were predicted, but Ford actually sold about $1 million worth, mostly of the Johnson CB radios. Ford Aeronautronics and Communication Corporation (formerly Philco- Japanese-made units. American car companies are responding to the CB craze. Ford's 21-channel, on-car CB radios have been granted an annual wholesale market of $250 million on a schematic diagram of one proposed system of the AM stereo broadcast and reception is shown adjacent to this article.

On-Car Information. An on-car entertainment microprocessor is not too far in the future. It would provide drivers with a wide range of additional information such as:

- Digital time
- Date
- Elapsed time
- Inside and outside temperatures
- Time cars arrive on trips
- Fuel mileage
- Distance to the next gas station
- Business and personal appointment schedules

On board cassette tape recorders are also likely to become popular. They typically are useful to a student, doctor, or salesman who wants to listen to a tape while in an interview or keep a daily activity log.

Another possibility is extension of the radio reception capability to pick up TV audio. Indeed, many GM CB radios already can pick up sound from the TV Channel 6 on the low end of the FM dial. If this function gains public acceptance, a TV audio reception band might be added to the automobile radio.

One more feature which might be added to car radios is weather frequency-band reception. This would be part of a national alert system for disasters. Once the government gets all television sets built into cars installed, it's possible that the weather Report, Michigan, has the necessary authority for radios made by suppliers.

Chrysler Radio Developments. Last year, Chrysler introduced a 77-channel Kraus hang-on CB radio that was marketed through its MOPAR Division. Chrysler has not yet intro-duced a 40-channel model, suggesting that they will "tread water" until a 40-channel built-in CB unit can be offered possibly next fall. Chrysler's electronics operation in Huntsville, AL is concerned with advanced radio product development.

FORECAST FOR AUTOMOTIVE RADIO DEVELOPMENTS

Chrysler's Electronics operation in Huntsville, AL is concerned with advanced radio product development.

Helmet, can clear up voice transmission. It picks up the wearer's voice through his or her cheek, thereby bypassing ambient noise. The microphone was developed by NMN Systems, Salem, NH.

Although the wearer's voice suffers distortion which a hand-held microphone through his cheek, the mike is designed to automatically compensate for the distortion as it is detected by the microphone and amplified by a built-in FET circuit. Microphone system cost is approximately $75.

Signal-Booster Antenna. An active signal-booster antenna, called a "solar hot rod," uses solar energy to power itself and to provide an additional 20 dB gain for the CB receiver. Eight solar cells, housed in a plastic case, produce about 20 mW of dc power, which is more than 60 times the level required to run the booster. Excess power is dissipated as heat. The booster can run the unit for six weeks. The active antenna costs approximately $150.

CB Frequency Synthesizer IC Chips. All semiconductor manufacturers are developing frequency synthesizers for 40-band CB radios. Three of the suppliers—Signetics, National Semiconductor, and Fairchild Semiconductors—are using bipolar technology which operates directly at the CB frequencies of about 27 MHz. Three other suppliers—NEC, Hughes, and Motorola—are using C-MOS technology which requires much less current drain. The chips generally operate by phase-locked-loop techniques. A representative chip is shown in an adjacent photo.

In quantity, these chips will sell for $2 to $3 each. Many of the chips have designed-in spares. Their synthesizers can be used to expand systems of up to 100 or more channels. This level of development is a logical step toward a complete-scale integrated circuits for frequency synthesis. The success of it is therefore of the confidence the semiconductor industry has in the market potential of CB radios.

References
2. Seebo, Buechely, and Co., "Johnson Messenger 123A," 123A, CB radio which originally sold for $159.99 for a mere $38.88 in closeout sales. Today's CB radio is 1089 state, has electronic speech compression, automatic noise limiting, and an acoustically isolated speaker.

Low-Noise CB Microphone. Normally, CB radios are used in high-altitude noise locations. A microphone initially developed for use in a high-altitude pressurized Navy
Editor’s Note

We are fortunate in this issue to have received a guest article submitted by Mr. Clark Quinn, a pioneer worker in the field of vehicle communications. Clark retired from General Motors Research Laboratories in 1972, but continues to keep abreast of developments in highway communications. While traveling in Europe this year, Clark observed that in each region there are a number of FM stations in the 88-108 MHz frequency band providing a network of emergency information stations. These stations in addition to their regular programs, encode an inaudible signal for identification and tones for turning on and off the speaker in the receivers.

When emergency information is received at the stations, the program is immediately interrupted by a chime and the information transmitted.

To keep drivers informed of the region and station frequency, there are road signs at frequent intervals such as seen in Figure 2. A region card is also carried in the car for reference.

Any AM car or home radio can tune in to these information stations. However, to make it more convenient and acceptable for the driver, he can take advantage of the encoding system by obtaining a decoder and an adapter for his AM radio (Figure 3) or can purchase a complete unit with the decoder built in as in Figure 4. The advantages of having the decoder are as follows:

1. When an information station is tuned in, the identification signal is decoded, lighting a light on the panel or on the adapter or region selector knob.

2. After the station is tuned in, a touch of a button silences the speaker.

3. The speaker is silent until the station sends the unmuting signal, a chime and the announcement is made and the speaker silenced again.

4. Some receivers have a buzzer to warn you when you are out of range of the station. You then tune until the light comes on again, referring to your region card or the posted signs.

5. Some sets have a tuning scanner which stops on the identification signal.

Now you may ask, “What is different than traffic announcements in the U.S.A. sent on some AM and FM stations?” There are three important differences:

1. The program is interrupted to make the emergency announcement as soon as it is received at the station. Waiting for a program or musical number to end is not conducive to traffic jam.

2. You do not have to listen to the regular program to get the emergency reports. The speaker is silent until the reports are sent.

DRIVER INFORMATION BY FM RADIO IN WEST GERMANY AND AUSTRIA

by

Clark Quinn
General Motors Research Laboratories
Senior Research Engineer, Retired

We have just left the Frankfurt airport and are proceeding south to Hanheller, our destination in West Germany and “home” for the next ten days.

Suddenly the FM radio emits a three-tone chime and then several announcements in German (which I do not understand) and then silence. Our driver does not speak English so there I am in the dark. This radio sequence occurred several times during the trip. Could this be audio signage such as DIAL (Driver Aid, Information, and Routing) or HYCOM (Highway Communications) that we demonstrated at General Motors Research Laboratories over fifteen years ago? It was! It works! And has been in operation in West Germany for over two years and in Austria for a year.

The Federal Government of West Germany has over 3500 miles of autobahns (freeways) and some 20,000 miles of interstate routes. About 400 out of every 1000 persons own a car.

Twelve radio stations transmit on 34 different frequencies. They are financed by set owner fees, advertising and subsidies. Under such government control, there is very close cooperation with the police, road and helicopter patrol, and the radio stations in this network.

Figure 1 shows a map of West Germany divided into six regions, labelled A thru F. Note that in each region there are a number of FM stations in the 88-108 MHz frequency band providing a network of emergency information stations. These stations in addition to their regular programs, encode an inaudible signal for identification and tones for turning on and off the speaker in the receivers.

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ADCOM HIGHLIGHTS
GEORGE J. MITCHELL
ADCOM NEWS EDITOR

JUNE MEETING:
The June meeting of the VTC Adcom was held on June 14, 1977 at the Radada-O'Hare Inn, Des Plaines, Illinois.

** * * *

The following persons were present:

Nick Allegpich
Gaston A. Arredondo
James G. Bender
Arnold Bremer
Carl N. Brooks
John F. Cassidy
William H. Charles
Martin Cooper
Ken Cunningham
David S. Howarth
Sam Lane
Fred N. Link
Roger Madden
George F. McClure
Sam McConoughy
Tom McKee
Stuart Meyer
James Milolashi
D.L. Neal
Neal Shepherd
John Tary

** * * *

The following persons were unable to attend the meeting:

C.M. Robert H. Cassida, Jr.
Olin G. Giles
T.O. Jones
George J. Mitchell
J.R. Neubauer
David Talley

** * * *

During the President's report, Sam Lane again requested action plans from all Adcom members. He also announced that the Northeast chapter has been dissolved due to inactivity for the last three years. In addition, in response to a request from Mr. Bergallini that Adcom select people to review VTC transactions, the following names were submitted: Mears, Allegpich, Bremer, Shepherd, Cassida and Neubauer.

** * * *

Unfortunately, the current Treasurer's report was not available due to Roger Madden's recent move to Washington. However, it was reported that we are approximately $150 over budget at the present time. It was also reported that approximately $125 remains to be distributed to close out the Washington Conference. Total income to VTC is $1,150 net.

** * * *

Questions posed by T. Jones regarding Convergence '77 finances have been answered directly and a revised distribution plan is to be published in the Newsletter.

** * * *

The Finance Committee has prepared the 1978 budget without a VTC input. This budget was based on previous years' performance.

** * * *

During Fred Link's conference portion of the meeting, extensive discussion ensued concerning the problems being encountered by the people organizing the 1977 Dallas Conference. Following a telephone conversation between the Adcom members and the Dallas organizers, it was unanimously decided to cancel plans for the 1979 conference in Dallas, and proceed instead with plans for the 1979 conference in Chicago with Martin Cooper appointed as coordinator.

** * * *

The possibility of Radio Dealers holding an annual symposium at the same location as the VTC conference was discussed. Gaston Arredondo also discussed the possibilities of holding the Mobile Microwave Symposium at the same location as the VTC conference. It was decided to invite the Mobile Microwave Symposium organizers to join the VTC conference in Denver in 1978. However, three conditions must be met for this to take place: 1) Microwave Symposium be held on a day preceding or following the VTC conference; 2) Microwave Symposium must coordinate with the VTC conference to make arrangements convenient for conference attendees; 3) Microwave Symposium organizers encourage people who want to publish to fit into the format part of the VTC. Gaston Arredondo is to work out the details and coordinate with Fred Link.

** * * *

The next Adcom meeting will be held Tuesday, December 6, 1977 at the Marriott in Los Angeles. It will coincide with NTC.
CHAPTER NEWS
Sam McConoughey
CHAPTER NEWS EDITOR

CHICAGO
"Voice Scramblers for Mobile Radio Systems" by Tony Hennen, Engineering Manager of Motorola Inc. Held at Safari O'Reataurant, Elk Grove Village on June 8, 22 attending. Mr. Hennen gave a technical discussion, illustrated with slides of digital voice scramblers, including a demonstration of Motorola's RX900 hand-held portables employing digital voice scramblers.

"9-1-1 The Emergency Telephone Number" by Jeff Roserton of Illinois Bell Telephone Held at the Hungry Lion Restaurant, Oakbrook on May 11, 8 attending. Mr. Roserton discussed the history of 911 including the legal aspects and some of the systems configurations.

"The Job of the F.C.C. Field Operations Bureau" by Bill Metcalf of the Federal Communications Commission Held at the Safari O'Reataurant in Elk Grove Village on April 20, 18 attending. Mr. Metcalf discussed the role of the Chicago Field Office in the enforcement of the F.C.C.'s Rules and Regulations.

CLEVELAND
"Introduction to V-EAM" by Bill Skiles of RCA's Land Mobile Division Held at the Cleveland Engineering and Science Center on May 17, 23 attending. Mr. Skiles discussed the engineering features of RCA's latest land mobile product line called "V-EAM".

"Peak Load Shaving with Computerized Radio Control" by Karl Beckman of Motorola Held at the Cleveland E & C Center on April 11 with 11 attending. Mr. Beckman described a system employing computerized load management techniques in conjunction with radio-controlled switches. The system described is presently employed by the Buckeye Rural Electric Cooperative and provides significant energy and cost savings for the thousands of consumers.

"The Bell Boy 0 System in Northeast Ohio" by W. C. Brinkerhoff, Project Engineer with Ohio Bell Telephone Co. and Don Russell of Motorola Held at Ohio Bell's Conference Room on March 8 with attendance limited to 52 because of space limitations, 20 persons were left on the waiting list unable to attend this dinner meeting sponsored by Bell.

The speakers provided small group discussions of the equipment and operating characteristics and a complete tour of Bell's paging facilities. Paging receivers, programming equipment and transmitters were available for a hands-on display adding greatly to the speaker's presentations.

"Santa's Amateur Radio Shopping Bag" by Dennis Rad of Dentron, Inc. Held December 14, 1976 with 16 attending.

COLUMBUS
"Automated Automobiles" by Bob Myers of Ohio State University Held June 8, with 8 attending.

"Radio Communications Inside Structures" by Norm Payles of Columbia Gas System Service Corp. Held May 11, with 14 attending

Business Meeting held April 13 with 11 attending.

LOS ANGELES
"Automatic Vehicle Location (AVL)" by George Grover and Otto Belshe of Hoffman Information Identification, Incorporated. Held on April 12 with 30 attending. The speakers discussed the following AVL systems:

Huntington Beach Police Department L.E.A.P. Cargo theft prevention project in Los Angeles S.W.T.A. field tests in Philadelphia and upcoming pilot project in Los Angeles.

"Tour of Caltrans Freeway Operation Center" by Nazari, W. Winter and F. Murphy of the California Department of Transportation Held on June 14 at the Center with 28 attending. The speakers provided a tour and presentation on the application of electronics to traffic control and monitoring and how a portion of the Los Angeles freeway system is electronically monitored via a computer controlled lighted display Map and CRT Screens.

In addition to the program elections were held and signatures gathered on a petition to formally reinstate the Chapter. See below for election results:

NOTE TO CHAPTER SECRETARIES Send your "Meeting Reports" to your new Chapter News Editor, Sam McConoughey / Federal Communications Commission, 300 19th St., N.W., Washington, D.C. 20554. Tel. No. (202) 632-6400. Also report promptly the result of your Chapter elections.

ELECTION RESULTS
Cleveland Chapter

Chairman
Karl Beckman
278 Baker St.
 Berea, OH 44017
(216) 234-4839

Motorola C & E
12055 Snow Rd.
 Parma, OH 44130
(216) 267-2210

Asst. Chairman
Carl Brooks
Antenna Specialists
1945 World Ave.
 Cleveland, OH 44106
(216) 791-1770

Secretary
William Skiles
2531 Brookpark Rd.
 No. Olmsted, OH 44070
(216) 777-8189

RCA-Land Mobile Division
3750 Warrensville Ctr. Rd.
 Shaker Heights, OH 44122
(216) 283-1792

Los Angeles Chapter

Chairman
Tom Rubenstein
333 Utah Ave.
 El Segundo, CA 90245
(213) 644-1101

Speakers Bureau
Following is a list of speakers who have indicated their willingness to speak at chapter activities. Contact speakers directly regarding arrangements. Only the "Speaker of the Year" obtains a budget for travel expenses from the VTO. Local speakers for the "Speaker of the Year" are normally provided by the local chapter, and Section, and student activity if a joint meeting. Arrangements for other speakers listed is by individual arrangements with that speaker.
THE WASHINGTON SCENE

By ERIC SCHIMMEL
WASHINGTON NEWS EDITOR

In deference to the automotive electromechanical contingent of the TTY, I think it is time to devote some space in this column to automotive related interests. Coincidentally, the FCC has recently acted upon two proceedings which will affect the design of AM broadcast radio. One of these, docket 20599, has established a new class of station to transmit "Traveler's Information" to motorists. The appendix of this report and Order is reproduced below. The other rulingmaking proceeding is a Notice of Inquiry in the salemberg, Illinois 60072
(312) 376-3737
"The Future of Land-Mobile Radio and High Capacity Cellular Mobile Telephone Systems"

"Marty" Cooper's enthusiasm about the future of mobile radio is infectious. She's a great speaker and while Fred Link would be a tough act for anyone to follow, Marty's sequel to Fred would be "You ain't seen nothing yet!" Marty's involvement with private and public mobile telephone systems makes her extremely well equipped to tell you all about the future systems now under development.

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of
Amendment of Parts 2 and 89 of the Rules to provide for the use of frequencies 530, 1606, and 1612 kHz by stations in the Local Government Radio Services for the transmission of certain kinds of information to the traveling public.

The FCC has recently acted upon two proceedings which will affect the design of AM broadcast radio. One of these, docket 20599, has established a new class of station to transmit "Traveler's Information" to motorists. The appendix to this report and Order is reproduced below. The other rulingmaking proceeding is a Notice of Inquiry in the Local Government Radio Services.

REPORT AND ORDER
Appendix C

In the Matter of
Amendment of Parts 2 and 73 of the Rules to provide for use of frequencies 530, 1606, and 1612 kHz by Community Access Non-Commercial Stations for Locally Produced Non-Commercial Programming.

REPORT AND ORDER
Appendix C

In the Matter of
Amendment of Parts 2 and 89 of Chapter 1 of Title 47 of the Code of Federal Regulations as amended as follows:

A. Part 2 is amended as follows:

(1) In Section 2.1, a definition is added in alphabetical sequence to read as follows:

Travellers Information Station A base station in the Local Government Radio Service used to transmit non-commercial voice information pertaining to traffic and travel advisories, traffic hazards and travelers advisories, directions, availability of lodgings, rest stops and service stations, and descriptions of local attractions.

(2) In Section 2.106, the Table of Frequency Allocation is amended in column 7 through 11 for the bands 510-535 kHz and 1605-1715 kHz; footnote US14 is amended and a new footnote US21 is added, as follows:

<table>
<thead>
<tr>
<th>Band (kHz)</th>
<th>Service</th>
<th>Class of Station</th>
<th>Frequency (kHz)</th>
<th>Nature of Service of Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>8</td>
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<td>US14</td>
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<td></td>
<td>530</td>
<td>Traveller's Information</td>
</tr>
<tr>
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<td></td>
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<td>11</td>
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<td>US14</td>
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<td></td>
<td>530</td>
<td>Traveller's Information</td>
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<tr>
<td>US21</td>
<td></td>
<td></td>
<td>1610</td>
<td>Traveller's Information</td>
</tr>
</tbody>
</table>
(11) A Travelers Information Station authorization may be suspended, modified, or withdrawn by the Commission without prior notice of right to hearing and without prejudice to further proceedings to resolve interference conflicts, to implement appropriate arrangements with foreign governments, or to other circumstances warranting such action.

(14) The transmitting site of each Travelers Information Station shall be restricted to the immediate vicinity of the following specified areas: air, train, and bus transportation terminals, public places, and historical sites, interstate highway interchanges, bridges, and tunnels.

(15) A Travelers Information Station shall normally be authorized to use a single transmitter. However, a system of stations, with each station in the system employing a separate transmitter, which is coordinated for a specified area provided sufficient need is demonstrated by the applicant.

(2) Travelers Information Stations shall transmit only non-commercial voice information pertaining to traffic and road conditions, traffic and travel advisories, directions, availability of lodging, rest stops, and emergency services and descriptions of points of interest. It is not permissible to identify the commercial name of any business or establishment whose service may be available within or outside the service area of a Travelers Information Station. However, to facilitate announcements concerning departures/arrivals and parking areas at air, train, and bus terminals, the trade name of identifiable carriers is permitted.

(3) Each application for a station or system shall be accompanied by:

(1) A statement certifying that the transmitter site is 150.000 meters (139.3 miles) measured orthogonally, outside the measured 0.15 meter (0.5 feet) radius contour of any AM broadcast station operating on a first adjacent channel (540 kilohertz or 1050 kilohertz). If this measured contour is not available, then the calculated 0.15 meter radius contour shall be acceptable. These contours are available for use by the concerned AM broadcast station and FCC offices in Washington, D.C.

(11) The applicant is advised that cross-modulation and intermodulation interference effects may result from the operation of the Travelers Information Station in the vicinity of an AM broadcast station and that the second third adjacent frequency. Accordingly, the applicant shall certify that he has considered these possible interference effects and, to the best of his knowledge, does not therefore foresee harmful interference occurring to broadcast stations or adjacent stations operating on 550 kilohertz, 1560 kilohertz, or 1590 kilohertz. The Commission, upon reconsideration of the status of any Travelers Information Station if such interference effects are caused to broadcast stations.

(14) Separation requirements.

(2) For co-channel stations operating under license, the following minimum separation distances shall apply:

- 0.50 km (0.31 miles) for the case when both stations are using cable antennas.
- 1.50 km (0.93 miles) for the case when both stations are using conventional antennas.
- 7.50 km (4.66 miles) for the case when both stations are using a conventional antenna and it is not feasible or is not practical to use a cable antenna.

(5) For a system of co-channel transmission, where the applicant is authorized to transmit certain information (see Section 89.102(c) (2) of this Part) to members of the traveling public.

(1) For each transmitter site, the transmitter output power, the type of antenna utilized, its height (for a cable system), its height above ground, distance from transmitter to antenna, and the elevation above sea level at the antenna site shall be as follows:

- Single shaded radiotelephone technical specifications.
- Exceptions for Travelers Information Stations in the Local Government Radio Service, AM emission for radio-telephone is mandatory in all new radio-telephone systems operating on 1560 kilohertz or 1590 kilohertz after September 8, 1972 and in all other existing systems 5 years after that date.

(3) In Section 89.124, subparagraph (a) is amended as follows:

\$99.124 Single shaded radiotelephone technical specifications.

- Points of communication.

(4) Travelers Information Stations are authorized to transmit certain information (see Section 89.102(c) (2) of this Part) to members of the traveling public.

FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of

AM Stereophonic Broadcasting. Docket No. 21313

NOTICE OF INQUIRY

Adopted: June 22, 1977; Released: July 6, 1977

INTRODUCTION

The Commission has before it two petitions requesting the issuance of rulemaking proceedings looking toward the adoption of rules for the transmission of stereophonic programming by AM broadcast stations. One petition was filed by Kahn Communications, Inc. (hereafter identified as Kahn), a New York corporation engaged in research and manufacturing of electronic communications, telephones, and broadcasting equipment, and in development of audio sound effects for transmissions of binaural stereophonic signals for the AM broadcast service. The second petitioner is the Association for AM Stereo, Inc. (identified as AMARI), a non-profit corporation of a number of AM broadcast stations and one equipment manufacturer, founded for the purpose of encouraging the adoption of AM stereo television by AM stations. The National AM Stereophonic Radio Committee (NAMARC) filed comments requesting that no action be taken on the Kahn petition, to which Kahn filed a reply.

DESCRIPTION OF PRODUCING PETITIONS

Kahn states that the technology for compatible stereophonic transmissions by AM broadcast stations has been fully developed and tested over the past 16-year period, and that permitting use of this technology would allow radio listeners to enjoy stereophonic reception with little or no additional investment in receiving equipment. Kahn claims that his system for AM stereophonic transmissions is completely compatible with existing station transmitting equipment and with mono-aural receivers, causes no additional interference to other stations, will provide stereo reception using two conventional receivers, and could provide high quality stereo with receivers designed for AM stereo reception.

AMARI states that "AM stereo is an idea whose time has come" and requests that the Commission take a posture of leadership and active measures to promote the adoption of AM stereo standards. AMARI acknowledges the development of at least two systems for AM stereophonic transmissions without endorsing a specific technology, but does state that AM stereo is now at a competitive disadvantage as compared with the FM service that transmits stereo. The Association also believes that the public interest would be served by AM stereo even though recognizing such service may not have the full fidelity of FM.

The National AM Stereophonic Radio Committee (NAMARC), an organization sponsored by the Institute of Electrical and Electronic Engineers, the Electronics Industries Association, the National Association of Broadcasters and the National Radio Broadcasters Association, has opposed Kahn's request for a rulemaking proceeding, maintaining that it is in the process of planning and conducting a series of extensive tests on several systems, which have been submitted to it, for transmitting stereophonic signals by AM broadcast stations, and that the results of such tests will provide valuable information for the establishment of standards for an effective AM stereophonic broadcast service. NAMARC believes it is premature to proceed with rulemaking based on the limited information available on any of the proposed systems.

Kahn responded to the NAMARC's objections by stating that the foreseeable estate of effective AM stereo have been accomplished, that it is in the process of preparing the way for future procedures to expeditiously proceed to make this already developed technology available to radio listeners, and that the Commission should neither recognize, nor depend on the work of committees, such as NAMARC which may not be truly representative of all AM stations and stereo equipment manufacturers.

Kahn contends that such committees eliminate the rights of smaller companies to participate, in effect, to determine the outcome of the process, result in unnecessary delays in implementing proven technology.
THE INQUIRY

Kahn suggests several requirements for a compatible AM stereophonic broadcast service:

(a) No increase in adjacent or co-channel interference.
(b) No loss of AM monophonic coverage; i.e., full modulation capability.
(c) No increase in distortion when received by conventional monophonic receivers.
(d) Compatibility with conventional AM broadcast transmitters.
(e) Capable of good quality stereo reception in the home and in the car. (Up to 30 dB of stereo separation.)
(f) Allows stereo reception without the purchase of special receivers.

Others may believe different requirements should be considered or that some requirements should be given greater relative importance.

The Commission believes that there are basic public interest issues that it must consider prior to proceeding with rulemaking to establish technical standards for an AM stereophonic radio broadcast service. Among the Commission’s concerns are the following:

(a) The actual interest and need on the part of the public for an AM stereophonic broadcast service.
(b) The extent the broadcasting industry and the manufacturers of home and automobile receivers are interested in meeting the public’s interest in AM stereophonic radio.
(c) The impact an AM stereophonic service would have on the continuing development of FM broadcasting.
(d) The cost impact on broadcasters for installation of equipment and stereophonic programming and on the public for receiving equipment.
(e) The compatibility of AM stereophonic transmissions with all existing international radio regulations, terms of the North American Radio Broadcast Agreement (NARBA) and any other international agreements to which the United States is a party.
(f) The extent to which the Commission should regulate stereophonic broadcast system performance from studio through radiated signal to insure that the public is provided with a quality program service.
(g) The possibility of a "standard" response characteristic for AM stereo receivers to avoid the present problem in AM broadcasting where the stations use special processing of their audio signals to overcome limitations in many receivers.

We believe that the public, broadcasters and manufacturers of both broadcasting and receiving equipment should now have the opportunity to comment on the recommendations by Kahn, to respond to our questions, and to submit any additional information they believe should be considered in this proceeding.

Federal Communications Commission

MEETINGS

WESTERN ELECTRONICS SHOW (WESCON)
Civic Auditorium
San Francisco, California
September 20-23, 1977

OCEANS ’77
Bonaventure Hotel
Los Angeles, California
October 17-19, 1977

INTERNATIONAL ELECTRON DEVICES MEETING
Hilton
Washington, D.C.
December 5-7, 1977

NATIONAL TELECOMMUNICATIONS CONFERENCE
Marriott Hotel
Los Angeles, California
December 5-7, 1977

ADCOM NOMINEES

The VTG Administrative Committee has approved the following slate of nominees as candidates for the 1978 through 1980 ADCOM:

- Gaston Arredondo  Bell Telephone Laboratories
- Carl Brooks  Antenna Specialists
- Dennis Bodson  Office of Technology & Standards
- John Dettra  Dettra Communications
- Trevor Jones  General Motors Corporation
- Sam Lane  Magnasync-Moviola
- Fred Link  Consultant
- Sam McConoughey  Federal Communications Commission
- George Mitchell  RCA
- Jack Neubauer  Urban Sciences

The nominee names and resumes’ will appear on the VTG ballot in late August or early September. The five elected candidates will take office on January 1, 1978.

Nick Alimpich
Chairman, VTG Nominations Committee