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FEDERAL COMMUNICATIONS COMMISSION
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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Rulemaking to Amend Part 1 and Part 21 of the	)	CC Docket No. 92-297
Commission's Rules to Redesignate the 27.5 - 29.5	)	
GHz Frequency Band and to Establish Rules and	)	RM-7872; RM-7722
Policies for Local Multipoint Distribution Service	)	

COMMENTS AND REQUEST TO PARTICIPATE

The Wireless Cable Association International, Inc. ("WCAI"), by its attorneys, hereby responds to the Commission's February 11, 1994 *Public Notice* requesting comment on the wisdom of establishing an advisory committee under the Federal Advisory Committee Act and the Negotiated Rulemaking Act of 1990 in order to address the technical rules that should be adopted for the Local Multipoint Distribution Service ("LMDS") and the fixed satellite service so as to maximize the sharing of the spectrum among these services.[1] WCAI strongly supports the Commission's proposal to establish an advisory committee, and respectfully requests that Dr. Weston Vivian be placed on that committee as WCAI's representative.

As is evident from the *Second Notice of Proposed Rulemaking* ("*SNPRM*") released concurrently with the *Public Notice*, the Commission has become quite frustrated by the meager record developed to date in this proceeding regarding the viability of LMDS and

[1] "FCC Asks For Comments Regarding The Establishment Of An Advisory Committee To Negotiate Proposed Regulations," *Public Notice*, CC Docket No. 92-297 (Feb. 11, 1994).

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the ability of LMDS and fixed satellite services to co-exist.[2] WCAI shares that frustration. While the warring proponents for LMDS and fixed satellite services have submitted voluminous comments in this docket, the *SNPRM* recognizes that those comments are long on rhetoric and short on fact.

As the trade association of the wireless cable industry, WCAI and its members have participated extensively in this and related proceedings in the past.[3] Although the vast majority of the wireless cable systems operating today employ solely the Multipoint Distribution Service ("MDS") and Instructional Television Fixed Service ("ITFS") channels in the 2.1 GHz and 2.5 GHz bands, wireless operators have constructed systems incorporating Low Power Television Service and 18 GHz band facilities, and have explored the viability of the 27.5 - 29.5 GHz band (the "28 GHz band") and a variety of other bands for wireless cable and ancillary operations.

Perhaps the greatest challenge facing wireless cable operators is to address what the Commission has called "the increasing convergence of previously separate markets

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[2]*See Rulemaking to Amend Part 1 and Part 21 of the Commission's Rules to Redesignate the 27.5 - 29.5 GHz Frequency Band and to Establish Rules and Policies for Local Multipoint Distribution Service*, FCC 94-12, at ¶¶ 14-26 (rel. Feb. 11, 1994) [hereinafter cited as "*SNPRM*"].

[3]Reply Comments of Wireless Cable Ass'n Int'l, CC Docket No. 92-297 (filed April 15, 1993); Comments of Wireless Cable Ass'n Int'l, CC Docket No. 92-297 (filed Mar. 16, 1993); Comments of Wireless Cable Ass'n Int'l, RM 7872 (filed Jan. 15, 1992); Opposition of Wireless Cable Ass'n Int'l, PP-22 (filed Jan. 15, 1992); Letter of Paul J. Sinderbrand, Esq. to Donna R. Searcy, File No. 10380-CF-P-88 (dated June 14, 1989); Letter of Paul J. Sinderbrand, Esq. to Donna R. Searcy, File No. 10380-CF-P-88 (dated July 6, 1989); Letter of Paul J. Sinderbrand, Esq. to Hon. Alfred C. Sikes, File No. 10380-CF-P-88 (dated Nov. 1, 1989).

embracing voice, data, graphics and video" in an era of spectrum scarcity.[4] As coaxial cable system operators and telephone companies move steadily towards the provision of integrated video, voice and data services to the public, the wireless cable industry will have to keep pace with public demand for integrated broadband offerings. Because the 28 GHz band may provide the wireless cable operator with additional spectrum for the offering of the ancillary video, data and voice services it needs to add to remain competitive, WCAI's members have a vital interest in this docket.

Obviously, it does the wireless cable operator no good for the Commission to reallocate the 28 GHz band for LMDS if LMDS technology cannot perform in the manner claimed by its proponents. Therefore, WCAI has aggressively sought (albeit to no avail) to have the champions of LMDS submit field test data from which meaningful conclusions as to the viability of LMDS can be drawn.[5] The *SNPRM* validates the fundamental premise of WCAI's initial comments in this proceeding -- the record is inadequate to permit the adoption of rules to govern the offering of LMDS. As is recognized in the *SNPRM*, although the Commission has granted twelve 28 GHz experimental licenses to date, the record is devoid of any evidence that those experiments have met with success.[6] While LMDS could prove a godsend to the wireless cable industry, WCAI has been

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[4]*Telephone Company-Cable Television Cross Ownership Rules, Section 63.54-63.58*, 7 FCC Rcd 300, 305-306 (1991).

[5]*See, e.g.* Reply Comments of Wireless Cable Ass'n Int'l, CC Docket No. 92-297, at 2-4 (filed April 15, 1993); Comments of Wireless Cable Ass'n Int'l, CC Docket No. 92-297, at 6-11 (filed Mar. 16, 1993).

[6]*See SNPRM*, at ¶¶ 24-25.

troubled by the aversion of 28 GHz proponents to providing the Commission and the public with an opportunity to scrutinize field data that would establish the technological capabilities and limitations of 28 GHz technology. Thus, WCAI applauds the Commission's efforts to employ an advisory committee to develop a more complete record regarding the capabilities and limitations of LMDS. The give and take inherent in the negotiated rulemaking process should cast far greater light on the current state of the art of 28 GHz band technology than has occurred to date.

As a general proposition, WCAI agrees with the Commission's desire to accommodate all potential uses of the 28 GHz band, both terrestrial and satellite, through shared use of the entire 28 GHz band.[7] Despite WCAI's skepticism regarding the current state of 28 GHz band technology, as the technology evolves over time, the LMDS could provide an efficient vehicle for linking wireless cable subscribers to the nation's developing information superhighway. Thus, the Commission's continuing efforts to

[7]*See id.* at ¶ 26.

allocate spectrum for LMDS -- whether at 28 GHz or at higher frequencies[8] -- should continue.

Unfortunately, given the positions staked out by the proponents of LMDS and the fixed satellite industry so far in this proceeding, WCAI fears the Commission may be correct in concluding that sharing of the entire 28 GHz band between satellite services and LMDS may not be possible. If, as seems inevitable, the advisory committee will be developing recommendations on the possible segmenting of the 28 GHz band, Dr. Vivian, as WCAI's representative, can provide invaluable assistance.

The wireless cable industry has a markedly different perspective on the future of LMDS than any of the parties tentatively identified in the *Public Notice* as members of the committee. Assuming that the entire 28 GHz band cannot be shared, the Commission will be faced with the difficult task of deciding how much spectrum it should allocate for LMDS. Although the rhetoric from Suite 12 Group ("Suite 12") and its allies suggests that the entire 2000 MHz must be reallocated for LMDS in order for the public to realize any benefits, that simply is not the case.

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[8]The National Aeronautics and Space Administration, for example, has proposed that the Commission reallocate the 41.5 GHz band for LMDS in keeping with European efforts to establish LMDS in that band. *See* "NASA: 28 GHz Spectrum Can't Be Shared, Satellites Will Interfere With LMDS," *Communications Daily*, at 4 (Feb. 28, 1994). Although it is far too early for WCAI to endorse that proposal, it certainly could yield economic benefits to this country. In a host of countries around the globe, wireless cable services are being provided in the same 2.5 GHz band used in America. As a result, there is a significant international market for equipment initially designed for the domestic wireless cable industry. Indeed, today virtually all of the equipment being used in these international wireless cable systems is manufactured in America. WCAI suspects that there could be similar benefits to American manufacturers if the United States and Europe adopt a common band for LMDS.

Contrary to Suite 12's position, there is no need to utilize the 28 GHz band to relay traditional cable programming (*i.e.* Home Box Office, Cable News Network, ESPN, etc.) to subscribers' homes -- the 2.1 GHz and 2.5 GHz bands are today successfully being used to achieve that goal. Assuming that LMDS is proven viable, there will be a significant demand from the wireless cable industry to utilize the 28 GHz band to augment the wireless services already available to the public, without wasting spectrum on needless duplication of programming. The Commission has specifically charged the proposed advisory committee with exploring such critical issues as the proper definition of the product market and geographic market for the services proposed and the degree of competition anticipated within the relevant market (including the extent to which the proposed services are expected to compete with existing services).[9] If the committee is to accomplish that task properly, it must have input from the industry most likely to utilize the LMDS -- the wireless cable industry.

In addition, Dr. Vivian's participation will assure that the advisory committee properly considers the question of whether a digital modulation scheme should be prescribed for the 28 GHz band. As the Commission recognizes in the *SNPRM*, the prescription of a digital modulation scheme for LMDS could provide a mechanism for accommodating both LMDS and satellite interests within the 28 GHz band.[10] The wireless cable industry, through the work of the Wireless Cable Research & Development Center,

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[9]*See Public Notice*, at ¶ 6.

[10]*See SNPRM*, at ¶¶ 36-40.

has been at the forefront of exploring the digitization of video. And, few people in America are as qualified as Dr. Vivian to assist the Commission in evaluating the prospects for introducing digital technology to 28 GHz LMDS. Dr. Vivian -- the first person holding a doctorate in science or engineering to serve as a member of Congress -- is well-versed regarding digital television. Dr. Vivian has served as a member of three working parties of the Commission's Advisory Committee on Advanced Television Services and as an observer member of the Advanced Television Systems Committee. He also has authored *Wireless Cable and Compressed Video*, a report that has been relied upon by the Commission in establishing policies to govern use of the 2.5 GHz band as the wireless cable industry prepares to transition to digital compression technology.[11] Dr. Vivian recently represented WCAI on the Commission's Mobile Service Satellite Above 1 GHz Negotiated Rulemaking Committee. A copy of Dr. Vivian's summary biography, which provides a more complete statement of his qualifications to serve as a member of the 28 GHz advisory committee, is annexed as Exhibit A.

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[11]*See Amendment of Part 74 of the Commission's Rules With Regard to the Instructional Television Fixed Service*, 8 FCC Rcd 2828, 2831 n.11 (1993).

WHEREFORE, for the foregoing reasons, WCAI urges the Commission to establish an advisory committee as proposed in the *Public Notice* and permit Dr. Vivian to participate as WCAI's representative.

Respectfully submitted,

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INTERNATIONAL, INC.

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March 18, 1994

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1987 to date PRESIDENT, Vivian Associates, Inc., Ann Arbor, Michigan. Telecommunications consultants. Advise and assist major U.S. and foreign firms regarding telecommunications and telecomputing market opportunities, technical advances, and governmental policy trends. Principally engaged in forecasting prospective world market for advanced television services.

1973 to date ADJUNCT RESEARCH SCIENTIST, Institute of Public Policy Studies, University of Michigan; and 1978 to date, LECTURER, Department of Electrical and Computer Engineering. Conduct graduate seminar courses on public policy. 1982 to date, seminar on telecommunications policies of major nations; 1980 to date, industrial policies of major nations; 1974 to 1981, energy and environmental policies of U.S.; 1985 to 1987, transportation policies of U.S. states and communities. 1977 to 1981, conduct research on U.S. market trading of air pollution rights ("offsets"); 1985 to 1988, on consumer and business attitudes toward energy conservation policy alternatives.

1982 to 1988 1982 to 1986, VICE PRESIDENT, and 1976 to 1982, and 1988, SENIOR CONSULTANT, Kalba Bowen Associates, Cambridge, Massachusetts. Telecommunications consultants. 1983 to 1984, Acting Director, European Operations. Advised and assisted major U.S. and foreign firms and governments regarding telecommunications and telecomputing market opportunities, technical advances, and governmental policy trends.

1981 to 1985 CO-OWNER and PRESIDENT, Rent-A-Byte, Inc., Ann Arbor, Michigan. Company (now renamed) rents microcomputer equipment to local businesses and individuals. Founded company, oversaw management.

1976 to 1985 MEMBER, State Transportation Commission, State of Michigan. Commission, comprised of six members, establishes policy for public transportation facilities and services funded or controlled by the State, including highways, bus services, railroads, rail services, ship services, airports.

1974 to 1979 DIRECTOR, Program In Engineering For Public Systems, Graduate School, University of Michigan, Ann Arbor, Michigan. University graduate study program in public policy development and U.S. political practices, designed for individuals already trained (B.S. or M.S.) in science or engineering. Directed curriculum; faculty participation; recruiting, counseling, and financial aid for students; research activities; public lecture program.

1973 to 1978 ADJUNCT PROFESSOR, Department of Electrical and Computer Engineering, University of Michigan, Ann Arbor, Michigan. Instructed classes in telecommunications theory and equipment design.

1971 to 1973 PRESIDENT, Vicom Manufacturing Company, Ann Arbor, Michigan. Company developed and manufactured first comprehensive digital, audio, and video computer-controlled multi-service broadband cable television subscriber response systems. Installed systems in Michigan and Kansas. Responsible for all activities. 1969 to 1973, VICE-PRESIDENT, Vicom Industries, Inc., Ann Arbor, Michigan. Predecessor to above.

1969 to 1970 CHAIRMAN, Board of Directors, Spuntech Housing Corporation, Ann Arbor, Michigan. Company explored technology and market for residential housing fabricated using glass fiber reinforced plastic.

1967 to 1968 VICE PRESIDENT, KMS Industries Inc., Ann Arbor, Michigan. Company initially developed optical and aerospace products, then evolved to conglomerate. Directed initial research in optics and electronics.

1965 to 1966 MEMBER OF THE HOUSE OF REPRESENTATIVES OF THE UNITED STATES CONGRESS from the Second District in Michigan. Member, the Committee on Science and Astronautics of the House. First individual holding doctorate in engineering or science to become member of U.S. Congress.

1968, 1966, 1964 NOMINEE of Democratic Party for election to U.S. House of Representatives, Second District of Michigan.

1960 to 1964, and 1967 VICE-PRESIDENT, and MEMBER of the Board of Directors, Conductron Corporation, Ann Arbor, Michigan. Company developed and manufactured aerospace and electronics products. Participated in founding of company. Directed radar systems division, which grew to 120 persons, with electronics and optics laboratories in Michigan and California.

1951 to 1960 RESEARCH ENGINEER, and LECTURER, University of Michigan, Ann Arbor, Michigan. Supervised development, installation and test of experimental ground control facilities for major air defense system. Conducted research on synthesized-aperture radar surveillance systems, on microwave passive radiometer surveillance systems, on sensitive microwave amplifiers. Instructed classes in electronic circuit theory.

1949 to 1951 RESEARCH ENGINEER, Boeing Company, Seattle, Washington. Conducted research on radar systems.

1946 to 1947 ENGINEER, Sperry Gyroscope Company, Great Neck, New York. Performed research on gyroscope control equipment.

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1972 to 1974 MEMBER of Board of Directors, and CONSULTANT, International Automated Machines, Inc., Perrysburg, Ohio. Company packages condiments. Analyzed financial control practices.

1969 to 1971 MEMBER of Board of Directors, Gelman Instrument Company, Ann Arbor, Michigan. Company manufactures filtration membranes.

1968 to 1970 MEMBER of Board of Directors, and CONSULTANT, Information Control Systems, Inc., Ann Arbor, Michigan. Company developed and marketed early minicomputer multiuser wordprocessing workstation software. Supervised initial product marketing and delivery.

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1980 to 1981 CONSULTANT, ICF Incorporated, Washington, D.C. Company performs research on policy issues for U.S. government agencies. Collected data nationwide on effectiveness of U.S. policies governing market trading of air pollution rights. Assessed impact of policies on environment and on economy.

1976 to 1981 CONSULTANT, Argonne National Laboratories, Argonne, Illinois. Collected and analyzed data on effectiveness of U.S. policies governing market trading of air pollution rights.

1973 to 1975 CONSULTANT, The Toronto Star Newspaper, Toronto, Ontario, and to McLean Hunter Cable Television Company, Toronto, Ontario. Assessed market for consumer videotext newspaper service. Supervised development of prototype consumer videotext receiver and system controller.

1975 CONSULTANT, Environmental Research Institute of Michigan. Ann Arbor, Michigan.

1974 CONSULTANT, Rose-Hulman Institute of Technology, Terra Haute, Indiana.

1973 CONSULTANT, Interactive Systems Inc., Ann Arbor, Michigan.

1968 CONSULTANT, Great Lakes Basin Commission, Ann Arbor, Michigan.

1967 CONSULTANT, National Council on Marine Resources and Ocean Engineering, Office of the President, Washington, D.C.

1960 CONSULTANT, U.S. Corps of Engineers, Evanston, Illinois.

1958 CONSULTANT, Bendix Corporation, Ann Arbor, Michigan.

1955 CONSULTANT, Massachusetts Institute of Technology, Bedford, Massachusetts.

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1959 Ph.D. in Electrical Engineering; University of Michigan, Ann Arbor, Michigan.

1949 M.S.E.E. in Electrical Engineering; Massachusetts Institute of Technology, Cambridge, Mass.

1945 B.S.E.E. in Electrical Engineering; Union College, Schenectady, New York.

- -

1988 to date MEMBER, three Working Parties, Federal Communications Commission Advisory Committee on Advanced Television Services.

1986 to date OBSERVER MEMBER, Advanced Television Systems Committee, Washington, DC. Industry advisory committee on technical standards for fine definition television programming.

1978 to 1981 MEMBER, Advisory Committee on Conservation of Energy in Buildings and Community Systems, Building Research Advisory Board, National Academy of Sciences.

1968 to 1970 MEMBER, National Advisory Council on Communicable Diseases, of Department of Health, Education, and Welfare.

1967 to 1968 CHAIRMAN, Committee on Administration of Training Programs, established in 1967, pursuant to law, by the Secretary of the United States Department of Health, Education, and

Welfare. Initiated and guided one-year nationwide study (staff plus contractor) of effectiveness of administration of federal manpower training programs.

1967 to 1968 MEMBER, Public Evaluation Committee for the State Technical Services Program, established in 1967, pursuant to law, by the Secretary of the United States Department of Commerce.

1980 to date FELLOW, American Association for Advancement of Science.

1976 to 1977 MEMBER, Organizing Committee, 1977 Telecommunications Policy Research Conference.

1969 NATIONAL LECTURER, Association for Computer Machinery.

1968 to 1976 MEMBER, National Committee on U.S. - China Relations.

1965, 1972 PATENT, radar system. PATENT, communications system.

1947 to date ARTICLES published: 6 in technical books or journals, 9 in conference proceedings, 10 in University reports.

1960 to date About 200 invited SPEECHES on political, social, technical and business issues.

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1975 to 1976 ORGANIZER, State of Michigan, Rep. Morris Udall for Presidency.

1968 ORGANIZER, State of Michigan, Senator Robert F. Kennedy for Presidency.

1965 to 1968 CHAIRMAN, Michigan Second Congressional District Democratic Committee.

1959 & 1960 CHAIRMAN, Ann Arbor City Democratic Committee; 1975 to 1977, FINANCE CHAIRMAN.

1970 to 1975 MEMBER, Ann Arbor Community Development Corporation Board.

1967 MEMBER, Ann Arbor Symphony Board.

1962 to 1964 MEMBER, Ann Arbor United Fund Board.

Past MEMBER, Sigma Xi and Tau Beta Pi professional societies.

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1943 to 1947 United States NAVY; 1945 to 1947, Ensign.

1946 to 1969 MARRIED (wife deceased). Four children.

1924 BORN. Hermitage Bay, Newfoundland (now part of Canada).