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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

VIA HAND DELIVERY

Magalie Salas Roman, Esq.
Office of the Secretary
Federal Communications Commission
445 12th Street, S.W., Room TW-A325
Washington, D.C. 20554

Re: **Comments**
ET Docket No. 00-258
The Catholic Television Network

Dear Ms. Salas:

On behalf of The Catholic Television Network, please accept an original, four copies, a stamp-return copy and a 3" diskette in Word 97 format of the attached Comments in ET Docket No. 00-258. These Comments are filed in response to the *Notice of Proposed Rule Making*, which was released on January 5, 2001.

If you have any questions, please contact the undersigned at (202) 639-5603. Thank you for you attention to this matter.

Respectfully submitted,

Edwin N. Lavergne

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FEB 22 2001

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

In the Matter of:	)	
	)	
Amendment of Part 2 of the Commission's Rules to	)	
Allocate Spectrum Below 3 GHz for Mobile and	)	ET Docket No. 00-258
Fixed Services to Support the Introduction of New	)	
Advanced Wireless Services, Including Third	)	
Generation Wireless Systems	)	

COMMENTS OF THE CATHOLIC TELEVISION NETWORK

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The Catholic Television Network

Dated: February 22, 2001

SUMMARY

The Catholic Television Network ("CTN") is an association of Roman Catholic archdioceses and dioceses that operate many of the largest parochial school systems in the United States. For over thirty-five years, CTN's members have used ITFS channels in the 2.5 GHz band to provide educational programming to children in some of the nation's most impoverished neighborhoods; distance learning to students in rural areas; training to teachers, doctors, and nurses; and other services that enhance education and build strong communities. Collectively, CTN's members serve over 600,000 students and 4,000,000 households throughout America.

The ability of CTN's members to deliver these services is possible because of unique strategic partnerships they have forged with commercial operators. The Commission has encouraged these partnerships for years on the theory that permitting ITFS licensees to lease transmission capacity to third parties would further education and promote efficient spectrum use. Today, CTN's members lease ITFS transmission capacity to companies such as Sprint and WorldCom in return for equipment, services, and funding that is used to further their educational missions. These partnerships, which enable CTN's members to deliver high-quality educational services at a reasonable cost, are absolutely *essential* to the success of ITFS.

In 1998, the Commission adopted new rules to permit the 2.5 GHz band to be used for a host of new, two-way broadband services. Significantly, in a two-way broadband environment, ITFS licensees often have even more of an incentive to lease spectrum to a commercial operator because greater spectrum efficiencies can be achieved if a single entity coordinates the channels of several ITFS/MMDS entities so as to create a shared network than can be used by educators and commercial operators alike. Thus, the amount of spectrum leased by an ITFS licensee cannot be used as a gauge to measure how well the spectrum is being used. Frequently, spectrum can be put to its highest and best use for educational purposes through lease agreements.

This proceeding is of tremendous concern to CTN because any reallocation of the 2.5 GHz band to 3G mobile services would eliminate the strategic cooperative alliances that CTN's members have worked so hard to create. Moreover, any reallocation would jeopardize the continued deployment of new fixed advanced wireless services over ITFS and MMDS frequencies. These services, including streaming video, video-on-demand, wide area networks, and high-speed Internet access, must not be sacrificed or disrupted to find a spectrum home for new, unproven commercial mobile services.

The Commission has explored the possibility of sharing the 2.5 GHz band with mobile 3G services and concluded that sharing is not technically feasible under the interference protection rules governing the use of the band. As shown in the engineering statement prepared by CTN's engineers, even if less conservative interference protection standards are used, sharing with mobile services is not feasible. Moreover, even if some type of spectrum sharing plan could be devised, the implementation of such a plan would cause substantial delay and promote continued uncertainty in the roll out of fixed broadband wireless services.

The Commission also has explored the possibility of segmenting the 2.5 GHz band by moving some incumbent users elsewhere. However, if some ITFS spectrum were to be reallocated for 3G use, educators who use the reallocated spectrum would lose the essential benefits of ITFS lease agreements. Indeed, *all* ITFS licensees would be jeopardized because any band segmentation plan would force commercial operators back to the drawing board in an effort to re-engineer their broadband deployment plans which are dependent on the use of the entire 2.5 GHz band. Such re-engineering would cause further delay and uncertainty, and there is no assurance that a viable

broadband service could be launched in the band. CTN is deeply troubled by this possibility because if commercial service providers fail in their broadband deployment plans, ITFS licensees will fail as well in their plans to use new broadband technologies to improve academic achievement.

The Commission has gone to great lengths to encourage ITFS licensees to lease spectrum and to deploy fixed broadband services. In reliance on the Commission's policies, commercial service providers have invested *billions* of dollars in this spectrum, and CTN has devoted significant resources to ensure that the spectrum will serve the needs of educators and students. It would be a travesty for the Commission to change course now as the demand for technologies to ensure access to educational resources is increasing dramatically.

This is the only spectrum set-aside for formal educational purposes. Protecting this set-aside is vital because ITFS systems that are owned, managed and controlled by schools themselves empower educators to use technology in ways that best meet their students' needs. In the words of one prominent Senator during the confirmation hearing for Secretary of Education Roderick Paige: "At a time when knowledge and information are at the core of our lives and livelihoods, there is no task more critical than assuring the best possible education for all our students."[1]

The Commission should end the uncertainty created by this proceeding and continue to encourage the rapid deployment of fixed broadband services by incumbents in the 2.5 GHz band. If there is a demonstrated need for 3G spectrum, ample spectrum can be found elsewhere. CTN urges the Commission not to reallocate any portion of the 2.5 GHz band for 3G mobile services.

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[1] Statement of Senator James M. Jeffords at confirmation hearing for Dr. Roderick R. Paige (Jan. 10, 2001), http://www.senate.gov/~labor/107hearings/011001wt/011001wt.htm.

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To the Commission:

COMMENTS OF
THE CATHOLIC TELEVISION NETWORK

The Catholic Television Network ("CTN") hereby submits these comments in response to the Notice of Proposed Rulemaking in the above-captioned proceeding.[2] The Notice seeks comment on ways to support the introduction of new advanced wireless services, including third generation ("3G") mobile wireless services, in bands below 3 GHz. These comments focus on the Commission's proposals concerning the possible use of the 2500-2690 MHz band (the "2.5 GHz band") for the provision of advanced wireless services. The 2.5 GHz band is currently allocated to the Instructional Television Fixed Service ("ITFS") and Multichannel Multipoint Distribution Service ("MMDS"). For the reasons discussed below, CTN urges the Commission not to reallocate any portion of the 2.5 GHz band for 3G mobile wireless services.

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[2] Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Services, including Third Generation Wireless Systems, *Notice of Proposed Rulemaking*, FCC 00-455 (rel. Jan. 5, 2001) ("Notice").

I. Introduction And Statement Of Interest.

CTN is an association of Roman Catholic archdioceses and dioceses that operate many of the largest parochial school systems in the United States. CTN's members use ITFS frequencies to distribute educational, instructional, inspirational, and other important services to schools, colleges, parishes, community centers, hospitals, nursing homes, residences, and other locations. Collectively, CTN's members serve over 600,000 students and 4,000,000 households throughout America.

Members of CTN have a long tradition of ITFS use, and have struggled for years to build the necessary infrastructure and financial support mechanisms to make the service a success. CTN has participated in virtually every major ITFS-related rulemaking proceeding, and CTN's views have helped frame and shape important communications policy issues related to ITFS. CTN values the achievements and promise of ITFS, not only for Catholic education, but also for public and private education throughout America.

This proceeding is of tremendous concern to CTN because any reallocation of the 2.5 GHz band to 3G mobile services would eliminate the strategic commercial alliances and intricate educational infrastructure that both CTN and the Commission have worked so hard to create. Moreover, any reallocation would bring to a sudden halt CTN's plans to use ITFS channels for new distance learning, interactive instruction, video-on-demand, wide area network, Internet access, and other services that are necessary to meet the educational challenges of the 21st century. The very existence of this proceeding has created a cloud of uncertainty that threatens the future of ITFS. It is within this context that CTN offers its views on the issues posed in the Notice.

II. Members Of CTN Have A Long Tradition Of Effective ITFS Use.

At paragraph 20 of the Notice, the Commission asks for comment on the types of services offered to the public in the 2.5 GHz band.[3] Set forth below are descriptions of how members of CTN are using the 2.5 GHz band. Each description is supported with formal declarations and supporting documentation from persons with first hand knowledge of the facts.

A. Archdiocese of Los Angeles. The Archdiocese of Los Angeles is the largest archdiocese in the United States serving approximately 5.0 million constituents in three Southern California counties covering 8000 square miles. The Archdiocese's school system is comprised of 278 schools, and is one of the three largest school systems in the state of California. The Archdiocese has been using ITFS frequencies since 1967.

Initially, the Archdiocese had four analog ITFS channels, which were used to capacity for educational programming. Over time, as the demand for distance learning increased, the Archdiocese added two additional analog channels. In 1996, with the help of its commercial partner, the Archdiocese's channels were converted to digital operation.

Today, the Archdiocese uses ITFS channels to provide educational programming to over 50,000 students. Teachers have access to a wide variety of courses including science, language arts, math, social studies, religion/values, technology, art, and physical education. Approximately 100

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[3] *See also* Notice at ¶ 62 which seeks comment on all aspects of the FCC Staff Report entitled "Spectrum Study of the 2500-2690 MHz Band: The Potential for Accommodating Third Generation Mobile Systems," Interim Report, ET Docket No. 00-232, DA 00-2583, rel. Nov.15, 2000 ("Interim Report"). Section 3 of the Interim Report discusses incumbent use of the 2.5 GHz band, and finds that ITFS licensees make extensive use of the spectrum to provide formal classroom instruction, distance learning, and videoconference capability to a wide variety of educational users throughout the nation. Interim Report at 17. CTN concurs with this finding.

of the Archdiocese's schools are located in inner-city communities, and are struggling financially. These schools have a significant number of students from multi-ethnic backgrounds.

The Archdiocese has learned that integrating technology into the classroom helps to fine-tune the curriculum to meet the individual learning styles of different students. For this reason, the Archdiocese has taken an active role in guiding its schools to develop and implement technology plans that will assist them in providing a better education. ITFS spectrum plays a critical role in these technology plans.

The revenue the Archdiocese receives from leasing channel capacity is the sole source of income for the operation, expansion and improvement of its ITFS system. David G. Moore, Director of Telecommunications Services for the Archdiocese, summarized what would happen without lease revenue as follows:

> Without such revenues and the technical assistance from our commercial partner, the Archdiocese would not be able to implement its technology plan, would be forced to eliminate instructional technology from its schools, and the Department of Telecommunications Services will undoubtedly have to close down. Such possibility would have a detrimental impact on the education of our students, the professional development of our teachers, and the achievement of our technology plan for our schools. It would also create a tremendous disparity between our inner city schools and those located in wealthy districts.[4]

B. Diocese of Brooklyn. The Diocese of Brooklyn serves approximately 70,000 students and 4.0 million people in Brooklyn and Queens, New York. The Diocese started using ITFS channels in 1965. Over the years, in addition to providing educational services, the Diocese's ITFS network has been instrumental in assisting suicidal persons, families facing eviction, and others facing crisis situations. Today, the Diocese's channels are used to deliver educational, training, and

[4] Declaration of David G. Moore included as Exhibit A at 2.

instructional programming to 250 schools, parishes, and other locations in Brooklyn and Queens. The channels are also used to provide medical training to New York area hospitals and nursing homes.

Pursuant to the Commission's new two-way rules,[5] the Diocese filed applications with the FCC in August 2000, seeking permission to operate its own independent broadband Internet access system. The applications are expected to be granted as early as April 2001. Once constructed, the new broadband system will significantly extend the Diocese's coverage area and ability to offer high-speed Internet access and other data services. It also will enable the Diocese to provide improved high-quality educational services at reduced costs. This is particularly important in the tuition-based Catholic school system where the Diocese has been forced to close over 50 schools, in part, because those schools could not continue providing a quality education at a reasonable cost.

It costs the Diocese over $1.2 million annually to maintain and operate its ITFS system and to develop the necessary programming. In order to defray these costs, the Diocese has forged a strategic alliance with WorldCom, which leases a portion of the Diocese's channel capacity and pays the Diocese minimum monthly fees. WorldCom also provides ongoing technical and operational services to the Diocese. If these revenues and support services were to disappear, the Diocese would have to curtail dramatically or shut down its ITFS operation altogether.[6]

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[5] *Report and Order*, MM Docket 97-217, 13 FCC Rcd 19112, 19240 (1998), *recon.*, 14 FCC Rcd 12764 (1999), *further recon.*, 15 FCC Rcd 14566 (2000) ("Two-Way Order").

[6] *See* Declaration of Monsignor Michael J. Dempsey included as Exhibit B.

C. **Diocese of Rockville Centre.** The Diocese of Rockville Centre is the eighth largest Diocese in the United States, serving Nassau and Suffolk counties in Long Island, New York. The Diocese serves 1.4 million Catholics, which is roughly half the population of Long Island.

The Diocese started using ITFS channels in 1969, when a distance education network was constructed to improve the quality of education for students in elementary and high schools. Today, the Diocese's ITFS channels are used full-time during the day to educate 40,000 students in Nassau and Suffolk counties. The channels are also used to transmit on-demand instructional programming, in-service teacher training, family-value programming, and other services to schools, hospitals and other institutions. In addition, the channels are used to provide targeted programming to meet the needs of the large Hispanic community in Long Island. The Diocese also uses its ITFS system to educate newer immigrants, guiding them on social service issues, as well as health, housing and legal matters.

It costs approximately $3.2 million each year to program, maintain and operate the Diocese's ITFS system. A substantial portion of the Diocese's operating budget is derived from spectrum lease payments received from WorldCom. With the assistance of WorldCom, the Diocese is about to commence delivering high-speed Internet access to schools using its ITFS spectrum. This pilot program, which has been planned for three years, will allow teachers to preview educational programs using a video-on-demand Internet-based server. Teachers will be able to use "age appropriate" material at the time best suited for any given lesson, by scheduling specific times when they want programs shown in their schools.

The Diocese's symbiotic relationship with WorldCom is critical to the future success of its

educational initiatives. According to Monsignor Thomas Hartman, who is responsible for the Diocese's ITFS system:

> The funding we receive from WorldCom must be preserved if we are to improve the technology in our schools....We have worked hard to service the educational needs of the schools in the Diocese of Rockville Centre for the past 32 years. We are on the brink of moving into the next phase of two-way broadband use. We need to have this capability to ensure that all of our students are given the tools of technology to learn and work in the 21st century. [7]

D. **Archdiocese of New York.** The Archdiocese of New York serves three of New York's five boroughs and seven upstate counties covering 4,700 square miles. For 35 years, the Archdiocese has been using ITFS frequencies to deliver instructional programming to its schools. Currently, the Archdiocese provides instructional programming to nearly 47,000 students in more than 100 schools. More than 150 courses are offered each year at all levels.

School programming follows the New York State curriculum in order to provide teachers with an easy way to integrate ITFS programming into their daily lessons. One channel allows teachers to arrange for a particular program to be aired on the date and time of their choice. This feature has created a form of interactivity that further helps teachers plan their lessons.

In August 2000, the Archdiocese, in conjunction with its commercial partner, filed applications for two-way authorization on its ITFS channels. Once these applications are granted, the Archdiocese anticipates bringing to its schools high-speed wireless Internet access and other interactive educational opportunities.

As the importance of ITFS to the Archdiocese's schools has grown, so have the expenses. It costs the Archdiocese nearly $1.0 million each year to run its ITFS program. For that reason, the

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[7] Declaration of Monsignor Thomas Hartman included as Exhibit C at 2-3.

Archdiocese must rely on alliances with commercial partners to produce important revenue for its instructional television system.[8]

E. Diocese of San Bernardino. The Diocese of San Bernardino includes the counties of Riverside and San Bernardino covering over 27,000 square miles in Southern California. The Diocese has been using ITFS frequencies since 1984.

Currently, the Diocese provides educational programming to over 25,000 private and public school students in grades K-12. The Diocese has an extensive curriculum that includes courses in art, languages, math, science, social studies, and religion. In addition, the Diocese provides professional development training to teachers, and courses for adults in areas such as leadership, counseling, continuing education, skills development and health and human services.

Despite the success of its ITFS system, the Diocese has found that using ITFS for traditional one-way instructional video programming to classrooms is no longer sufficient to educate and prepare students for the future. Accordingly, the Diocese is now taking steps, with the assistance of its commercial partners, to upgrade to two-way capability. Classrooms are being upgraded to accommodate two-way interactive capabilities. In addition, new training programs are being implemented to teach instructors how to use interactive technology. Once two-way capabilities are implemented, classrooms will be connected to teachers using digital technology, and students will have access to high-speed Internet connections. Teachers and administrators will benefit as well from two-way interactive training and workshops. The Diocese has the potential of reaching nearly 500,000 K-12 students and 37,000 adult students in San Bernardino and Riverside Counties, and

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[8] *See* Declaration of Michael Lavery included as Exhibit D.

anticipates that a significant number of these schools will request access to its instructional programming once the digital two-way conversion is complete.

A significant portion of Diocese's revenues comes from spectrum leasing fees obtained from WorldCom, Sprint and others. The Diocese depends on these fees to maintain, operate, upgrade, and enhance its ITFS system.[9]

F. **Diocese of Orange.** The Diocese of Orange serves approximately 2 million people, and provides instructional programming to over 18,000 students in 36 schools and parishes throughout Orange County, California. The Diocese started using ITFS channels in 1983.

The Diocese uses ITFS channels to deliver pre-recorded instructional programming to students throughout Orange County in courses such as health, science, math, history and art. The Diocese's programming encompasses every subject for every grade level. In addition, live broadcasts in English, science and teacher professional development are broadcast to K-12 schools for interactive participation using a telephone call-back for audio. In the evenings, when its ITFS frequencies are not being used for educational programming, the Diocese broadcasts inspirational and educational programming aimed at adults. In addition, religious services and other events of importance to the community are broadcast live.

The conversion to two-way broadband is critical to the Diocese for two reasons. First, it will allow the Diocese to offer high-speed Internet access and other data services to its schools. The alternative would mean wiring historical old mission buildings and paying monthly charges to a telephone or cable company for broadband Internet access. This option is costly and would delay

[9] *See* Declaration of Clare Colella included as Exhibit E.

the introduction of new educational tools into the Diocese's curriculum. Second, some of the Diocese's schools are located in poor neighborhoods and do not have the necessary funds to provide courses that are critical to a young student's development. Two-way services can be used to create a virtual classroom in which students in schools without such courses can participate in a class with students in schools that do have such courses available. Therefore, while the Diocese has made significant use of its one-way analog ITFS system, it is now planning to file applications with the FCC to obtain two-way authorization.

It costs approximately $1.0 million each year to maintain and operate the Diocese's ITFS system. The Diocese leases ITFS channel capacity to WorldCom. In exchange for this capacity, WorldCom pays the Diocese minimum monthly fees and provides technical assistance to its schools. According to Monsignor Lawrence Baird, the Director of Pastoral Communications for the Diocese: "The funds and technical assistance we receive from our commercial partners have significantly improved the quality of our education.... The monthly fee the Diocese receives from WorldCom covers a significant portion of the cost of managing our instructional television program."[10]

G. <u>Archdiocese of San Francisco, Diocese of Oakland, and Diocese of San Jose</u>. The Catholic Telemedia Network provides educational programming to 38,000 students in more than 140 schools located in the counties of San Francisco, Marin, San Mateo, Santa Clara, Contra Costa and Alameda. These counties are served by the Archdiocese of San Francisco, the Diocese of Oakland, and the Diocese of San Jose.

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[10] Declaration of Monsignor Lawrence Baird included as Exhibit F at 2.

The Catholic Telemedia Network has been using ITFS frequencies since 1970, and was one of the first educational entities in the San Francisco area to use ITFS to transmit to distant classrooms. Today, the Catholic Telemedia Network has a tape library with over 4,000 programs available for educational and professional training. According to Shirley Connolly, the General Manager for Catholic Telemedia Network: "ITFS helps us to cover the 'last mile' into individual classrooms. And now our schools are able to benefit from 'any time, anywhere' resources to enhance learning."[11]

Schools served by the Catholic Telemedia Network have a significant number of students from multi-ethnic backgrounds. Many immigrant parents in the Bay Area look to Catholic schools to enable their children to receive a quality education. The schools, in turn, look to the Catholic Telemedia Network to help them meet the individual learning styles of this diverse student population.

The Catholic Telemedia Network also offers videotapes and interactive conferences for adults that vary from teacher training, to life-long learning, and staff education. Programs are also offered to assist individuals with special needs such as seniors, disabled persons, and health care agencies. The Catholic Telemedia Network also participates in annual grief teleconferences hosted by Cokie Roberts of ABC News and produced by the Hospice Foundation of America. These conferences have been delivered over ITFS channels to participating hospitals, Catholic parishes and retirement centers where groups are assembled and facilitators are available.

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[11] Declaration of Shirley Connolly included as Exhibit G at 1.

In 1999, the Catholic Telemedia Network collaborated with Sprint and other ITFS educators in the San Francisco and San Jose areas to implement a plan that would allow Sprint to offer two-way, high-speed data services to consumers and educators. Two-way applications were filed with the FCC in August 2000. Once complete, the two-way conversion will give local educators the capacity to transmit digitally compressed instructional material and improve the speed and quality of their broadcasts over the ITFS/MMDS spectrum. In September 2000, the Catholic Telemedia Network entered into a pilot program with Sprint, which has provided 16 parish schools with two-way high-speed Internet access.

The Catholic Telemedia Network operates on an annual budget of approximately $1.0 million. It receives a substantial portion of its funding and other important services from Sprint. Shirley Connolly described the significance of the Catholic Telemedia Network's relationship with Sprint as follows:

> Our Archdioceses do not have funding to support the cost of providing technology resources in our schools. Therefore, the revenue and other services CTN receives from leasing transmission capacity to Sprint has become the major source of income for the maintenance, expansion, and improvement of our ITFS services. Without such revenue and on-going technical assistance from Sprint, CTN would not be able to expand its operations and would be forced to eliminate many instructional programs. CTN would be unable to digitize its video library and to expand its distance learning/professional training programs. In the end, the ones most hurt by this loss will be our students.[12]

H. Diocese of Dallas. The Diocese of Dallas started using ITFS channels in 1988, and serves over 600,000 constituents. Currently, the Diocese uses a single ITFS channel to educate 1,500 children and young adults. However, with the help of WorldCom, the Diocese is in the

[12] Declaration of Shirley Connolly included as Exhibit G at 2.

process of expanding its services significantly.

The Diocese broadcasts math, science, language arts and English skills programming, and provides teacher programming guides and lesson plan assistance. The Diocese also has a programming library of over 1,000 instructional videos that can be distributed to any school at virtually any time, thus helping teachers keep student learning on schedule.

Through a strategic alliance with WorldCom, the Diocese obtains funding to cover some of the costs of its ITFS operation. It also obtains vital technical and operational support services from WorldCom. If WorldCom's revenues and support services were to disappear, the Diocese would almost certainly have to curtail dramatically or shut down its ITFS operation. With the help of WorldCom, the Diocese plans to expand its current service to all of its 37 parochial schools. It also plans to install digital receivers in all of its schools increasing the number of students served by the ITFS system to 8,000.

With 40% of the Diocese made up of Hispanics, the Diocese also plans to begin broadcasting bilingual programming to its schools. This will assist not only students but also parents, allowing them to become more actively involved in their children's education. It will also open the door to English as second language courses for adults.

While the Diocese has made significant use of its ITFS channel, what is of crucial importance now is the conversion of its system to two-way, broadband use. Because of recent rule changes adopted by the FCC, the Diocese has the unique opportunity to provide improved educational services at reduced costs. With the assistance of WorldCom, the Diocese plans on updating its ITFS system by converting to two-way, fixed broadband use. This will give the Diocese the ability to offer

schools new services such as high-speed Internet access and other data services.[13]

III. All ITFS Spectrum Should Remain Allocated For Educational Use.

In 1963, the Commission found that it was in the public interest to allocate spectrum to further the educational mission of accredited public and private schools, colleges, and universities.[14] As demonstrated in Section II above, the Commission correctly found that such an allocation would be in the public interest. The allocation has created numerous educational and societal benefits. Today, ITFS is the only spectrum specifically set-aside for formal educational instruction,[15] and the need for the allocation is even more pressing now than it was in the 1960's. There are two reasons why this spectrum is so important to educators.

First, the spectrum itself serves as a critical and cost-effective wireless pipeline for the delivery of educational and instructional services throughout America. When plans for distance learning centered around the delivery of lectures and prerecorded programming, educators used ITFS for one-way video distribution to classrooms and other learning centers. Today, educators and students need more than one-way video. They need interactive two-way video; document and data

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13 Declaration of Michael McGee included as Exhibit H.

14 *See Report and Order,* Docket No. 14744, 39 FCC 846 (1963), *recon. denied*, 39 FCC 873 (1964). Originally, 186 MHz of spectrum was allocated to ITFS. In 1971, the Commission reduced the allocation by 18 MHz when channels H1, H2, and H3 were set aside for Private Operational Fixed Services. *Second Report and Order,* Docket No. 14744, 30 FCC 2d 197 (1971). The ITFS allocation was further reduced by 48 MHz in 1983, when channels E1, E2, E3, E4, F1, F2, F3, and F4 were set aside for commercial entities. *Report and Order,* Gen. Docket No. 80-112, CC Docket No. 80-116, 94 FCC 2d 1203 (1983).

15 Eligibility for ITFS licenses is generally limited to accredited educational institutions, governmental entities engaged in the formal education of enrolled students, and non-profit organizations whose purposes are educational and include providing educational and instructional programming to accredited institutions and governmental organizations. 47 C.F.R. § 74.932 (1999).

exchanges; broadband Internet access in the classroom, home and workplace; videoconferencing; wide-area networking; and a host of other technology tools. As noted by the Web Based Education Commission in its recent report to the President and Congress:

> For education, broadband access means the elimination of time and distance from the learning equation. Broadband carries with it powerful multimedia learning opportunities, the full interactivity of instructional content, and the quality and speed of communications. Broadband access today is 50 to several hundred times more powerful than its precursors. Broadband access tomorrow holds even greater promise.[16]

These findings demonstrate that the public/private partnerships developed by the FCC in the 2.5 GHz band support precisely the goals endorsed by educators as essential to preparing students for the future. ITFS systems that are owned, managed, and controlled by schools themselves empower educators to use this wireless pipeline in ways that best meet their students' changing needs. Replacing this wireless pipeline with fiber, wire, or cable is not adequate because wired technologies do not permit the ubiquitous delivery of educational services within a wide geographic area where local tariffs make these network costs prohibitive. Educators *need* to provide ubiquitous service because the traditional model of learning in the "classroom" is changing. Increasingly, educators need to take the "classroom" to the student. Teachers need access to professional development materials at home to improve their skills. Parents seeking advanced degrees need access to online degree programs in cases where they are unable to attend on-site classes due to work

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[16] Report of the Web-Based Education Commission to the President and the Congress of the United States, *The Power of the Internet for Learning*, (Dec. 2000) at 22.

or family obligations. Employees that want to upgrade their skills must be able to obtain high-quality training online.[17]

The second reason why ITFS spectrum is so important is that spectrum lease agreements generate significant revenues, facilities and services to support education. In the 1980's, the Commission took the unusual and creative step of encouraging ITFS licensees to lease transmission capacity to commercial service providers.[18] The theory underlying this decision was that leasing would further education, promote efficient spectrum use, and offer substantial public benefits.[19] The Commission's assumptions were correct. After the new rules were implemented, there was explosive growth in the deployment of ITFS systems. Whereas, previously, ITFS applications had trickled in at the rate of just a few per year,[20] by 1991, the Commission was receiving more than 400 applications per year, and the number was doubling each year.[21] The growth of ITFS continues today at an even greater pace, as educators and their commercial partners deploy two-way broadband systems in the 2.5 GHz band.

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17 The NEA has made the development of systems to support a decentralized approach to education a top priority, noting the importance of "the development of a user-friendly infrastructure which can accommodate a decentralized approach to program and product development so that the interaction among educators, students, researchers, and those outside of the educational community can occur." National Education Association Resolutions 1997-1998, http://www.nea.org/cet/briefs/brief10.html.

18 *Report and Order,* Gen. Docket No. 80-112, 94 FCC 2d 1203 (1983).

19 *Id.* at 1249-50 (¶ 114).

20 *Notice of Proposed Rulemaking*, 48 Fed. Reg. 29553, 29554 (¶ 10) (June 27, 1983).

21 *Notice of Proposed Rulemaking*, 8 FCC Rcd 1275, 1276 (1993).

IV. ITFS Licensees Should Not Be Penalized For Leasing Spectrum Capacity.

Despite the clear benefits of leasing, some parties have argued that educators do not need all of their spectrum because they lease capacity to others.[22] This argument is premised on the false assumption that the *need* for ITFS spectrum can be measured by the amount of spectrum reserved for educational use. This is not the case.

Current FCC rules require ITFS licensees to reserve at least 5% of their spectrum for their own use.[23] However, the amount of spectrum *reserved* by a licensee cannot be equated with how much spectrum is *used* by the licensee to further its educational mission. In addition to using their spectrum to generate financial support, ITFS licensees typically use or leverage their spectrum to obtain a host of facilities and services from their commercial partners such as discounted Internet access, video programming, studio equipment, high-speed connections among educational facilities, local or long-distance telephone service, and technical support. These shared network services are precisely what the Commission envisioned when it encouraged ITFS licensees to lease spectrum capacity.

In light of the success of the Commission's leasing policies, and the encouragement the Commission has given educators to take advantage of those policies, it would be patently unfair to *penalize* ITFS licensees now for leasing spectrum. As the Commission itself acknowledged just last year:

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22 *See e.g.*, Minutes of 2500-2690 MHz Working Group meeting held on January 16, 2001, included as Exhibit I.

23 Two-Way Order, 13 FCC Rcd 19112, 19240 (1998).

> We do not believe that there is any contradiction between an ITFS licensee performing its educational mission and that same licensee securing financial returns from the lease of its excess capacity. In fact, those financial returns can and do provide substantial resources to the ITFS licensee in the performance of its educational mission. ... [W]e believe that current ITFS licensees are striving to fulfill that mission and that they should be permitted to obtain the maximum return from their licensed spectrum to further that mission.[24]

Significantly, in a two-way broadband environment, spectrum efficiency considerations may make it more desirable for an ITFS licensee to lease a significant portion of its spectrum to a commercial operator rather than attempting to operate a stand-alone system. This is because in a two-way environment, greater spectrum efficiencies may be achieved if a single entity can take full advantage of new rules, which permit channels to be subdivided or combined.[25] Indeed, the Commission acknowledged these efficiencies in the Two-Way Order:

> Of course, the creation of superchannels will typically involve the participation of multiple licensees, each of whom will contribute some portion of the combined spectrum. These voluntary spectrum sharing arrangements will clearly benefit all of the parties, in that it will give all of them the means to communicate at the data rates optimal for their particular operations and at speeds greater than would currently be permissible within a single 6 MHz channel. We believe this flexibility to subdivide and combine channels is essential in order to take maximum advantage of [the new two-way rules] ...[26]

Thus, the amount of spectrum *leased* by the educational community cannot be used as a gauge to measure whether educators *need* spectrum. In some cases, leasing the maximum amount

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[24] *Report and Order on Further Reconsideration and Further Notice of Proposed Rulemaking*, MM Docket 97-217, 15 FCC Rcd 14566, 14569 (¶¶ 9-10) (2000).

[25] *See* Engineering Statement included as Exhibit J at 4.

[26] Two Way Order, 13 FCC Rcd 19112, 19120 (¶ 20).

of channel capacity permitted by the FCC may result in the spectrum being put to its highest and best use through the creation of shared networks.

V. It Is Not Feasible To Share The 2.5 GHz Band With 3G Mobile Services.

At paragraph 63 of the Notice, the Commission asks whether it would be feasible to add a mobile allocation to the 2.5 GHz band. In posing this question, the Commission appears to favor a flexible use approach that would allow licensees in the band to decide for themselves whether, when, and how to deploy mobile services.[27] CTN has no objection in principle to sharing or flexible use. However, any flexible use plan must protect the existing fixed uses of the band for which CTN's members have an immediate need.[28] After careful consideration, CTN has concluded that the risks of allocating the 2.5 GHz band for mobile use at this time far outweigh any benefits that may result.

In the adopting rules to permit two-way broadband service in the 2.5 GHz band, the Commission was faced with the enormously difficult task of engineering around the technical complexities associated with sharing spectrum between downstream and upstream operations.[29] The

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27 *See* Notice at ¶ 33 ("We believe that reserving spectrum in the United States exclusively for 3G mobile is not the best approach and that the determination of the best use of these bands should be left to market forces. ... [A] functioning systems of secondary markets could increase the amount of spectrum available to users, uses, and to new wireless technologies by making more effective use of spectrum already assigned to existing licensees."); *see also* Notice at ¶ 63 ("[W]e seek comment on allocating the spectrum for Mobile and Fixed services on a co-primary basis. An allocation for Mobile service would allow for additional flexibility in the use of this band, allowing the spectrum to be used for the introduction of new advanced mobile and fixed communications services, including 3G systems.")

28 While CTN's members have a real and immediate need for the deployment of fixed broadband services, no such need exists with respect to 3G mobile services.

29 *See* Two-Way Order, 13 FCC Rcd 19112, 19133-19135 (¶¶ 44-47).

rulemaking process succeeded, in part, due to the restriction of upstream transmitters to fixed locations.[30] If mobile upstream transmitters in the band were permitted to roam, protection of fixed receive sites at schools, colleges, community centers, hospitals, and other locations would be jeopardized.[31] This was recognized by the Commission in its Interim Report, which correctly concluded that sharing between mobile and fixed services in the 2.5 GHz band is virtually impossible.[32]

The Interim Report's analysis of sharing was based on the very conservative interference protection criteria set forth in the Commission's rules.[33] However, even if less conservative interference protection standards are assumed, sharing with mobile services still is not feasible because the interference potential from mobile transmitters is fundamentally different and more serious than fixed transmitters.[34]

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30 *See* Two-Way Order at Appendix C, §§ 21.2, 21.909, 74.901 and 74.939 (to be codified at 47 C.F.R. §§ 21.2, 21.909, 74.901 and 74.939); *see also* Reply Comments of Petitioners, MM Docket 97-217 at 53 n. 131 (filed Feb. 9, 1998).

31 *See* Engineering Statement included as Exhibit J at 2.

32 *See e.g.,* Interim Report at 42 ("[L]arge co-channel separation distances are needed between 3G systems and ITFS/MDS systems to avoid causing harmful interference to ITFS/MDS systems."); Interim Report at 50 ("Similar to MDS, it is clearly seen that the United States is heavily encumbered by ITFS operators..."); Interim Report at 53 ("Accordingly, based on the assumptions used for this initial analysis, sharing between 3G systems and ITFS/MDS operations is extremely problematic.")

33 *See* 47 C.F.R. § 74.903(a)(1) (45 dB co-channel); 47 C.F.R. § 74.903(a)(2) (0 dB adjacent channel). These interference ratios, designed for an analog environment, provide relatively conservative levels of protection when the desired to undesired signals are both digital. *See* Engineering Statement included as Exhibit J at 4, n. 2.

34 *See* Engineering Statement included as Exhibit J at 2-3 analyzing the use of a 30-dB D/U ratio.

Moreover, even if sharing were feasible, any plan to incorporate mobile services into the 2.5 GHz band would cause substantial delay and additional market uncertainty that would be detrimental to the interests of educators, students, consumers, and commercial operators. It took the Commission nearly three years to work through a myriad of complex technical issues associated with converting the band from one-way video to two-way broadband use. Any rule changes to accommodate mobile use would take many more years. In the meantime, the continued regulatory uncertainty regarding what rules would govern this band would only further delay the roll out of new two-way fixed broadband wireless facilities.

VI. It Is Not Feasible To Segment The 2.5 GHz Band Without Seriously Compromising The Educational Services Provided By ITFS Licensees.

At paragraph 65 of the Notice, the Commission asks for comment on the possibility of relocating incumbents as a way to clear the band, or portions of the band, for 3G mobile operations.[35] At first blush, it may appear easy to segment the 2.5 GHz band to accommodate 3G mobile services by finding a proportionate share of equivalent spectrum elsewhere and moving ITFS licensees to a new home. However, segmentation is impractical because there is no block of spectrum that is large enough to accommodate relocation of all incumbents in the 2.5 GHz band with the propagation characteristics necessary to conduct existing and planned operations.[36]

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[35] Notice at ¶ 65 ("[W]e request comment on how incumbent users could be accommodated in other frequency bands. ... In particular, we request that commenters provide information about the type and the amount of costs to relocate incumbent MDS/ITFS operations.")

[36] *See* Engineering Statement included as Exhibit J at 5. Bands below 3 GHz have already been identified in the Notice at ¶ 1. Bands above 3 GHz do not have the propagation characteristics that lend themselves to the existing and planned operations. In the Matter of Redevelopment of Spectrum to Encourage Innovation in the Use of New Technologies, *First Report and Order and Third Notice of Proposed Rule Making*, 7 FCC Rcd 6886, 6889 ¶ 17 (1992).

Thus, any segmentation plan would necessarily have to be done on a site-by-site basis or in small spectrum blocks. However, if some ITFS spectrum is reallocated for 3G use, licensees of the reallocated spectrum and those they serve would lose the important benefits generated by ITFS lease agreements. These agreements have evolved over many years, and it is highly unlikely that the unique characteristics of the 2.5 GHz band, including interleaved commercial and educational spectrum, could be replicated in other bands. Without the revenues, facilities, and services generated by ITFS lease agreements, the ability of relocated ITFS licensees to continue providing educational services would be severely jeopardized.[37] Indeed, as discussed below, *all* ITFS licensees would be jeopardized because a reallocation would stop the roll out of broadband services in the 2.5 GHz band. This, in turn, would threaten the commercial viability of fixed broadband deployment in the band and the public/private partnerships that are so important to educators.

The deployment of fixed broadband services by commercial operators is based on the use of the *entire* 2.5 GHz band. Approximately two-thirds of the spectrum used by commercial operators comes from ITFS licensees. However, there is no uniform pattern of spectrum use from operator-to-operator or from one geographic area to another. There are 20 ITFS channels in the 2.5 GHz band which are generally licensed in interleaved groups of four channels per license.[38] For example, an operator may have rights to A and B group channels (2500 – 2548 MHz) in some markets, but not others. Given the significant differences in spectrum use patterns and the complex interference environment that already exists in the 2.5 GHz band, any piecemeal relocation plan would

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[37] As noted in Section III above, replacing ITFS spectrum with fiber, wire, or cable links is inadequate to ubiquitously deliver educational services.

[38] *See* spectrum chart included as Exhibit K.

necessarily require commercial operators to go back to the drawing board in an effort to re-engineer their networks. Leases would have to be re-negotiated, equipment specifications would have to be re-evaluated, financial assumptions would have to be re-calculated, and spectrum use plans would have to be re-worked.

Under these circumstances, it is questionable whether commercially viable broadband service could be launched in the 2.5 GHz band. Even if service could be launched, the process of re-engineering the band on a site-by-site basis or in small spectrum blocks to accommodate 3G mobile service would cause substantial delay and uncertainty. Given the already jittery capital markets, such delay and uncertainty would likely be the death knell to the continued roll out of broadband service in the 2.5 GHz band. That, in turn, would threaten the carefully crafted partnerships among educators and commercial operators causing the foundation upon which the Commission's leasing polices are built to collapse.

Relocation of incumbent ITFS licensees would turn the clock back nearly 20 years, destroying the important symbiotic relationships that the Commission has gone to great lengths to encourage through its leasing policies. All of the technology in the world is of little use to educators without the consistent financial support, technical expertise, and other shared network resources that lease arrangements generate.[39] Even if incumbent licensees are paid to move off their channels, such a payment would never make up for the loss of ongoing revenue streams, facilities upgrades, and

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[39] Since leasing was first permitted, the cost of education has risen, and advanced distance learning technology is even farther beyond the reach of school districts than television broadcast equipment was in the early 1980s. The engineering and legal resources alone necessary to design an interference-free two-way system far exceed the capabilities of most educators.

shared network services that are needed to meet the rapidly changing needs of educators with spectrum that is under their control. The costs of segmentation are incalculable.

VII. Ample Spectrum Can Be Found Elsewhere To Accommodate Mobile 3G Services.

There is no need for the Commission to engage in the difficult and lengthy administrative process that would surround any attempt to share the ITFS band between fixed and mobile services or to relocate fixed incumbents to make way for mobile uses. The Notice tentatively identifies many candidate bands that could be allocated to 3G mobile uses.[40] Accordingly, to the extent that the demand for 3G services actually develops, there should be sufficient spectrum available in other bands.[41]

Moreover, the United States does not have to adopt the same 3G spectrum allocation as Europe or other parts of the world. Indeed, there is no global consensus as to whether common global bands for use by 3G systems are achievable.[42] Other options are available. For example, dual-band 900 MHz cellular and 1900 MHz PCS mobile telephones have been used in the United States for years. The additional cost of such dual-band devices is not excessive, and because they

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40 *See* Notice at ¶ 37 (120 MHz in 1850-1910/1930-1990 MHz band); ¶ 38 (30 MHz in 746-806 MHz band); ¶ 41 (45 MHz in 1710-1755 MHz band); ¶ 52 (40 MHz in 2110-2150 MHz band). Although the CTN's members do not hold licenses for spectrum in the 2150-2162 MHz bands, this band, currently allocated to MDS Channels 1 and 2, is an essential component of the two-way systems now being designed and implemented by commercial MDS entities. Accordingly, neither this band, nor the upper 2 MHz from 2160-2162 MHz, should be reallocated for 3G mobile use. *See id.* at ¶ 55.

41 It is worth noting that 120 MHz of the spectrum identified above is already allocated to PCS (1850-1910/1930-1990 MHz). However, it is anticipated that some of the demand for mobile 3G services will be satisfied through in-band migration of existing PCS systems to 3G. In addition, the PCS C and F blocks, constituting 40 MHz of this allocation have been re-auctioned. *Id.* at ¶ 37. Therefore, it is appropriate to count this spectrum towards the bandwidth for 3G.

42 *See* Interim Report at 13.

operate seamlessly, they have been accepted by consumers. A similar approach may be practical for 3G devices as well.[43]

VIII. There Are Compelling Public Policy Reasons For The FCC To Move Quickly And Decisively To Eliminate Uncertainty And Encourage The Rapid Deployment Of Fixed Broadband Wireless Services In The 2.5 GHz Band.

The prospect of a 3G mobile allocation in the 2.5 GHz band has caused great uncertainty. Compelling public policy reasons exist for the Commission to act quickly and decisively to eliminate the uncertainty and encourage the continued deployment of fixed, broadband wireless services in the band by incumbents.

First and foremost, rapid deployment of services will help ensure the success of the important educational initiatives currently underway. Educators and commercial operators are using the 2.5 GHz band to create classrooms for the 21st century. The use of the band for fixed, two-way broadband service is an "advanced wireless service" as that term is defined in the Notice.[44] Rep. Fred Upton, the new Chairman of the House Energy and Commerce Telecommunications Subcommittee, has emphasized that broadband services in our homes and schools can "vastly improve educational opportunities" for our children.[45] Under the current regulatory regime, CTN's members have the necessary capital, technical expertise, and spectrum to make this vision a reality.

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43 *See* Engineering Statement included as Exhibit J at 5-6.

44 Advanced wireless services are defined to include data and broadband services provided over fixed networks. Notice at ¶ 1. The Two-Way Order gives incumbents the flexibility to provide *any* voice, data, or video service to and from fixed locations, including high-speed two-way services such as broadband Internet access. Two Way Order, 13 FCC Rcd 19112, 19118 (¶ 15).

45 Letter from Rep. Fred Upton to President George W. Bush, (Jan. 23, 2001) at 2, included as Exhibit L.

Second, reaffirming the use of the 2.5 GHz band for advanced fixed wireless services will eliminate market uncertainty and bring renewed credibility to the Commission's spectrum management policies. The Commission *encouraged* ITFS licensees to lease spectrum to commercial service providers. The Commission *encouraged* commercial service providers to invest billions of dollars in acquiring MMDS channels and ITFS channel lease rights. The Commission *encouraged* educators, commercial service providers, and equipment manufacturers to invest in the conversion of the 2.5 GHz band from one-way video to two-way broadband service. If the Commission changes course now, its credibility will be damaged. Certainty and stability must be maintained in formulating and implementing spectrum management policies. By staying the course established in the Two-Way Order, the Commission will assure the highest and best use of the 2.5 GHz spectrum, and at the same time, send the signal that the marketplace can rely on the Commission's spectrum management decisions.

Third, rapid deployment by incumbents will result in immediate and concrete benefits to the American public. There is a huge demand for fixed broadband access. WorldCom, Sprint, Nucentrix and others have invested billions of dollars to reconfigure the 2.5 GHz band for two-way broadband use, and manufacturers such as Cisco have developed the necessary equipment. High-speed service has already been deployed in some markets, and many more will follow. As the roll out continues, homes, businesses, and educational institutions will benefit from the availability of these new broadband service options.

Fourth, rapid deployment in the 2.5 GHz band will provide a meaningful competitive alternative to incumbent local exchange carrier broadband offerings consistent with the mandate of the 1996 Telecommunications Act.[46] Section 706(a) of the Act requires the Commission to:

> [E]ncourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans (including, in particular, elementary and secondary schools and classrooms) by utilizing, in a manner consistent with the public interest, convenience, and necessity ... measures that promote competition in the local telecommunications market, or other regulating methods that remove barriers to infrastructure investment.

Currently, broadband competition is limited primarily to DSL, cable modem, and two-way satellite service, each of which suffers from significant limitations which restrict their ability to provide full broadband competition.[47] Nationwide deployment of fixed broadband systems in the 2.5 GHz band will provide Americans with another competitive option for high-speed access. Indeed, in rural areas, the 2.5 GHz band may provide the *only* option for access.[48]

Finally, rapid deployment by incumbents will help close the information technology gap. Through the continued deployment of fixed broadband services, students and adult learners in rural and traditionally underserved areas will have access to the same educational opportunities as those in better served metropolitan areas. In urban areas, the continued roll out of service in the 2.5 GHz band will provide students in all school districts with access to the latest instructional materials at all levels, helping to even the playing field and promote learning opportunities.

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46 Telecommunications Act of 1996, Pub. L. No. 104-104 ("Act").

47 Interim Report at 21, n. 27.

48 Interim Report at 22.

IX. Conclusion

President Bush has made education one of his top national priorities stating that if "our country fails in its responsibility to educate every child, we're likely to fail in many other areas. But, if we succeed in educating our youth, many other successes will follow throughout our country and in the lives of our citizens."[49] The President has encouraged schools to "use technology as a tool to improve academic achievement."[50] The 2.5 GHz band is one of the most valuable technology tools available to education. If that tool is taken away or compromised, the real losers will be the millions of students, teachers, and schools that rely on services provided by incumbents in the band. CTN urges the Commission not to disturb the existing allocation or use of the ITFS spectrum, and to choose an alternative that does not involve reallocation or displacement of ITFS or MMDS licensees.

Respectfully submitted,

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49 President George W. Bush, *No Child Left Behind,* (Jan. 23, 2001), at Forward, http://www.whitehouse.gov/news/reports/no-child-left-behind.pdf.

50 *Id.* at 22.

CERTIFICATE OF SERVICE

I, Shelia Wright, hereby certify that on this 22nd day of February, 2001, I caused copies of the foregoing Comments by the Catholic Television Network to be hand-delivered to the following:

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