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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

March 20, 2001

Via Hand Delivery

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th Street, SW
Washington, D.C. 20554

Re: Supplement to Comments in ET Docket No. 00-258; RM-9920 and 9911

Dear Ms. Salas:

The National ITFS Association ("NIA") hereby supplements its Comments, filed February 22, 2001 and its Reply Comments, filed March 9, 2001, to provide the following additional information relating to the type and amount of costs that would be incurred if the FCC were to relocate incumbent ITFS operations in the 2500-2690 MHz band to some other frequency band. This information is responsive to Paragraph 64 of the *Notice of Proposed Rule Making and Order*, FCC 00-455 (released January 5, 2001), and to certain FCC Staff inquiries.

I. Relocation Questions in NPRM

Paragraph 64 of the NPRM asks for comments on how incumbent ITFS users could be accommodated in other frequency bands in the event that some or all of the band is made available for advanced services and incumbent users have to be relocated. In particular, the FCC asked that commenters identify which frequency bands could accommodate incumbent ITFS and MMDS services. Assuming that such bands could and would be identified, the NPRM goes on to ask about the relocation that should be applied and the costs of relocation.

II. Reality Checks

NIA is going to be blunt. It's time to bring reality to the "Alice in Wonderland" – like discussion of a relocation band and the costs to move ITFS to such a band.

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List A B C D E

A. Reality Check No. 1: There Is No Relocation Band

The reality is that there is no relocation band.

The record of Comments and Replies in this proceeding makes clear that there is no available alternative frequency band that can accommodate ITFS and MMDS operations and replicate the technical characteristics and licensing structure of ITFS and MMDS in the 2500-2690 MHz band. The ITFS community and its partners in the MDS and fixed wireless industry have not been able to identify such a band. The Commission did not identify or propose any relocation band in the NPRM, and no 3G advocate has seriously suggested any appropriate relocation band. Quite frankly, ITFS/MMDS/Fixed Wireless is quite certain that no such band exists, and that both the Commission and the advocates of 3G mobile services are fully aware of that fact.

B. Reality Check No. 2: Without A Band, Relocation Costs Are Irrelevant

The reality is that, in the absence of an identified relocation band, any discussion of procedures and costs of relocating the ITFS service is a theoretical discussion of no practical value. At worst it is a wasteful distraction to resolution of the *real* issues in this proceeding, which are (1) whether demand has been shown by 3G advocates that would justify new frequency allocations for 3G mobile services, and if so, how much spectrum has been shown to be needed; and (2) where such spectrum, if any, can be made available that does not disrupt valuable—indeed *more* valuable--incumbent services.

C. Reality Check No. 3: The Real Cost of Losing ITFS Is Both Incalculable and Vastly Too High

The reality is that, in the absence of a relocation band, the real issue if the 2500-2690 MHz band is taken is not relocation dollar costs, but the cost of the loss of ITFS-based distance learning and fixed wireless broadband services to students, to adult learners, to educators, to businesses, to competition, to equity, and to the United States economy. NIA, other ITFS operators and virtually the entirety of the educational community of the United States have shown in their Comments and Replies how incalculably and devastatingly high this cost would be. The relocation dollar costs reflected below, although massive, pale in comparison with the costs to education and the economy of the loss of ITFS.

III. But Assuming There Is A Band, What Are The Relocation Dollar Costs?

Despite the foregoing, because it has specifically been asked to do so, NIA outlines below what it believes the likely dollar costs would be if ITFS were to be relocated to some other band.

For this purpose, NIA assumes that any such band would be above 3 GHz and that the propagation characteristics of the band would be unfavorable as compared to the 2500-2690 MHz band. This would undoubtedly necessitate numerous additional transmission sites to serve areas now covered by single transmission sites. NIA also assumes that equipment would have to be developed to operate in such band, and that the cost of such equipment would be significantly higher than current equipment for video and data transmission and reception in the band. Costs would further increase if the 2500-2690 MHz band were segmented and the new transmission and reception equipment required dual band capabilities. If dual band operations was not feasible, costs would increase by another multiple, as fully separate operations would be required for each of the bands of ITFS operation.

NIA also reasonably assumes, as the record makes clear, that any loss of spectrum in the 2500-2690 MHz band will result in the termination of the partnership of ITFS and the fixed wireless broadband industry. As noted above, this means, most importantly, that educators lose the ability to reach many learners in their homes and places of business with new broadband offerings, with the result of incalculable and impossibly high costs to education and the U.S. economy. However, for the purposes of a dollar calculation of relocation costs, this means that ITFS would lose essential operational and financial support for its operations in perpetuity.

In addition, NIA observes that the education community of the United States has been thoroughly roused to action by the threat to ITFS advocated by certain proponents of 3G mobile services and their apparent willingness to sacrifice education to the altar of ever more cell phones. If ITFS is to be relocated to some other band, the education community will demand – and work tirelessly for -- payment of ALL costs of the relocation, including costs relating to ITFS licensees' lost operational support and revenues. Moreover, they will urge that these costs be paid by the parties seeking to use the 2500-2690 MHz band as a condition to any movement of ITFS facilities, and not by the taxpayers, as suggested by certain 3G proponents.

That said, NIA believes the dollar costs of relocation would fall into the following categories: replacement of facilities; reimbursement for lost operational and maintenance

support; and reimbursement of lost excess capacity use revenues. All together, at a minimum, we estimate these costs would approximate $19 Billion over 15 years (and would of course continue to grow in perpetuity).

A. Facility Replacement Costs

The cost of replacing ITFS transmission and reception facilities and making them operational in such a way as to provide similar coverage as existing facilities would be well over $3.6 Billion.

NIA makes the following assumptions. There are 2400 existing ITFS stations, which would eventually migrate in the 2500-2690 MHz band to at least 600 transmitter sites (this does not include additional sites necessary for cellularization now being utilized by two-way operations).[1] There are about 8000 licensed ITFS channels, necessitating 8,000 transmitters, 2000 combiners (one for every four channels), and 1200 transmission lines and antennas (two for each site consistent with current practice). However, because of the poorer propagation characteristics above 3 GHz, NIA also assumes that at least 3 transmitter sites will be required to replicate coverage of each 2500-2690 MHz band transmitter site, thus increasing all costs relating to transmitter sites, as well as adding new tower costs and backhaul costs. NIA notes that equipment for a higher band would need to be developed, and that the costs will likely be considerably greater than current 2500-2690 MHz band analog transmission and reception equipment costs due to the technical challenges of the higher band and the lack of opportunity of joint development with MMDS/wireless operators. The costs reflected below may actually be low or high depending on the relocation band, but NIA believes they are a reasonable estimate. NIA also assumes that, due to the additional transmitter sites required, additional backhaul (STL) facilities will be required, at the cost of $50,000 each. In addition, at least 1/3 of the number of towers utilized will have to be built or strengthened to accommodate new or additional equipment, at the cost of $100,000 each. Finally, NIA assumes that there are approximately 700,000 ITFS receive sites.

NIA also assumes that substantial other costs would be involved for removal and reconstruction of existing sites, including engineering costs of $50,000 per transmitter site, $10,000 shipping and insurance cost per ITFS station, $60,000 removal and installation costs per transmitter site, and $1000 removal and installation costs per receive site.

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[1] This analysis does not attempt to place a dollar cost on replacement of two-way systems now being rolled out in places across the country. The costs to replicate comparable coverage by two-way facilities would undoubtedly be considerably larger than the costs to replicate more traditional ITFS technical facilities.

Based on these assumptions, which NIA believes are reasonable, and probably even conservative, the costs would be as follows:

Transmitters	8000 channels x 3 sites x $48,000	=	$ 1,152 m
Combiners	1200 x 3 sites x $30,000	=	$ 108 m
Trans. Lines	1200 x 3 sites x $37,500	=	$ 135 m
Antennas	1200 x 3 sites x $45,000	=	$ 162 m
Receive Sites	700,000 sites x $1500	=	$ 1,050 m
Engineering	2400 stations x $50,000	=	$ 120 m
Ship/Ins.	2400 stations x $10,000	=	$ 24 m
Remove/Install.	1800 sites x $60,000	=	$ 108 m
Receive Install	700,000 site x 1000	=	$ 700 m
Add. Backhaul	1200 sites x $50,000	=	$ 60 m
Add. Towers	600 sites x $100,000	=	$ 60 m
TOTAL			$ 3,679 m

B. Operation and Maintenance Costs

The cost of reimbursing ITFS licensees for the lost operational and maintenance support caused by the destruction of the partnership between education and the fixed wireless broadband would be nearly $8 Billion.

NIA makes the following assumptions. Site rental costs and utilities and other non-personnel and depreciation costs for ITFS transmitter sites would average about $5000 per month. It would take at least 2 operational/maintenance persons per system (composed of three sites) to operate and maintain facilities, at a cost of about $75,000 per person per year. Depreciation, repair and replacement costs would average about 10% of total equipment acquisition costs per year (which, based on the above numbers, would be about $1.185 per transmission site, plus additional backhaul and receive sites noted above). Finally, based on existing ITFS excess capacity agreements and those currently being negotiated and finalized, NIA assumes, and limits, its consideration to the typical 15 year lease period contemplated by such agreements.

Based on these assumptions, which NIA believes are reasonable, and probably even conservative as they do not account for inflation or other increases, the lost support over 15 years would be as follows:

Site Rent	1800 x $5,000/mo x 180 months	=	$ 1,620 m
Personnel	600 x $12,500/mo x 180 months	=	$ 1,350 m
Deprec/Transm.	1800 x $9,875/mo x 180 months	=	$ 3,199 m
Deprec/Backhaul	1800 x $417/mo x 180 months	=	$ 135 m
Deprec/Receive	700,000 x $12.50 x 180 months	=	$ 1,575 m
TOTAL			$ 7,879 m

C. Lost Lease Revenues

The cost of reimbursing ITFS licensees for the lost financial support for ITFS operations and other educational endeavors (such as the development of critical courseware for broadband distance learning) caused by the destruction of the partnership between education and the fixed wireless broadband would be over $7 Billion.

NIA makes the following assumptions. If any spectrum in the 2500-2690 MHz band is taken for 3G, there will be no fixed wireless broadband industry based on leasing of ITFS excess capacity. There are approximately 100 million households in the United States. The fixed broadband wireless industry nationally will achieve household penetration levels running between 2% in the beginning and 15% by the end of the customary contract period of 15 years (which is consistent with the HAI study suggesting penetration levels of 8-11% ten years out). Also consistent with the HAI study, NIA assumes that business subscribers will number about 11% of household subscribers. For purposes of simplicity, NIA assumes a linear increase between the early and later penetration levels. NIA also assumes that the average price per household customer will be $50 per month and per business customer will be $400 per month. Finally, ITFS licensees, collectively, will earn 5% of the revenues of the broadband wireless systems.

Based on these assumptions, which NIA believes are reasonable, and may even be extremely conservative because it does not account for increases in average monthly costs as new or improved fixed wireless services are rolled out and increases in the number of households, the lost revenues over 15 years would be as follows:

For Households:
At 2% penetration: 100 m x 2% x $50/month x 5% = $ 5 m/month nationally
At 15% penetration: 100 m x 15% x $50/month x 5% = $ 37.5 m/month nationally

For Businesses:
At 2% penetration: 100 m x 2% x 11% x $400/month x 5% = $ 4.4 m/month nationally
At 15% penetration: 100 m x 15% x 11% x $400/month x 5% = $ 33 m/month nationally

For Households and Businesses taken together:
At 2% penetration: $ 9.4 m/month nationally
At 15 % penetration: $ 70.5 m/month nationally

With even revenue growth over 15 years, average monthly national support would be $ 39.95 m

Thus, over 15 years (180 months), lost revenue would be $7,191 m.

Conclusion

There is no valid basis for the calculation of relocation dollar costs for ITFS, as every participant in this proceeding knows that a replacement band does not in fact exist, and that costs cannot be accurately calculated without a relocation band. More importantly, the *real* costs associated with any purported relocation of ITFS – the loss of broadband wireless service in the United States -- are both incalculable and unbearably too high. Nevertheless, having been asked, and based on the foregoing analysis, if ITFS were to be relocated to another band, NIA estimates that the dollar costs to ITFS licensees, and to the educational community that they serve, would be at least $18.749 Billion over the next 15 years. These costs would continue to grow ever larger over time, in perpetuity.

Respectfully submitted,

NATIONAL ITFS ASSOCIATION

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