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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Before the

Federal Communications Commission

Washington, D.C. 20554

In the Matter of

Amendment of Parts 21 and 74 to Enable	)	
Multipoint Distribution Service and Instructional	)	MM Docket No. 97-217
Television Fixed Service Licensees to	)	
Engage in Fixed Two-Way Transmissions	)	

COMMENTS OF THE CATHOLIC TELEVISION NETWORK ON EX PARTE SUBMISSIONS

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July 3, 1998

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SUMMARY

In recent ex parte submissions, Petitioners have proposed numerous revisions to the rules and engineering methodology initially proposed in this proceeding. In these further comments, the Catholic Television Network shows why the proposed revisions do not go far enough in extending protection to ITFS systems, and suggests proposed rules which will provide the needed protections without hampering the ability of MDS or ITFS licensees to deploy two-way systems.

This proceeding is unlike others in which the Commission has facilitated the development of innovative broadband, interactive data services because here the Commission is not writing on a blank slate. Instead, as a result of the rules and policies developed by the Commission over the past 30 years, educators have deployed a robust network of ITFS transmitters and receivers using the same frequencies that are the subject of this proceeding.

CTN has attempted to balance the clear need for rules to promote the deployment of two-way services on ITFS and MDS frequencies against the need for educators to be assured of interference-free operation and the ability to expand their educational services in the future. CTN demonstrated in its comments and reply comments that the proposed rules (i) do not adequately protect ITFS licensees from co- and adjacent-channel interference caused by the blanket deployment of response station transmitters; (ii) do not guard against brute force overload of ITFS receivers that can occur when response station transmitters are placed too close to ITFS receive sites; and (iii) are unduly preclusive of new ITFS facilities and modifications to existing facilities. Despite Petitioners' efforts to address these concerns, their recent proposals do not remedy these defects.

In these further comments, CTN suggests modifications to the rules that will restore the balance between commercial and educational interests. Modifications are required in three areas:

Frequency Separation. CTN strongly recommends that within 35 miles of an ITFS transmitter, the Commission adopt a requirement that there be 6 MHz of frequency separation between "upstream" transmissions on any response station and "downstream" transmissions to ITFS receive sites. As CTN has demonstrated in prior pleadings, frequency separation solves two of its principal concerns. On the one hand, it virtually eliminates the risk of co- and adjacent-channel interference at ITFS receive sites. On the other hand, it mitigates the potential for preclusion of modifications to existing ITFS facilities and introduction of new ITFS service.

Notification and Testing. CTN recommends that the Commission adopt a notification and testing procedure for installation of all response station transmitters to alleviate the risk of brute force overload. CTN's proposal is narrowly tailored to limit the scope of these procedures to response station transmitters near receive sites most at risk from introduction of "upstream" transmitters.

Secondary Status For Response Station Hubs. CTN recommends that the Commission grant secondary status to response station hubs greater than 35 miles from an ITFS transmitter to ensure that such distant hubs do not preclude the modification of existing ITFS facilities.

CTN has provided engineering support for each of these modifications and drafted specific rules to implement the modifications.

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COMMENTS OF THE CATHOLIC TELEVISION NETWORK ON EX PARTE SUBMISSIONS

In response to the Commission's Public Notice released on June 12, 1998,[1] the Catholic Television Network ("CTN"), by its attorneys, hereby submits further comments on the recent ex parte filings made by the Petitioners in the above-captioned proceeding.[2] The Petitioners' filings propose numerous revisions to the rules and accompanying engineering methodology originally proposed in the Notice of Proposed Rule Making in this proceeding.[3] As demonstrated herein, Petitioners' proposed revisions fail to adequately address CTN's concerns, and modifications to the proposed revisions are necessary to protect the integrity and future growth of ITFS.

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1. Public Notice, DA 98-1119 (rel. June 12, 1998) (establishing 20-day comment period on ex parte presentations filed subsequent to February 9, 1998 in MM Docket No. 97-217).

2. *See* Letters from Paul Sinderbrand to Magalie Roman Salas, MM Docket No. 97-217 and RM-9060 dated May 15, 1998 ("May 15 Ex Parte"); May 19, 1998 ("May 19 Ex Parte"); May 22, 1998 ("May 22 Ex Parte"); and June 5, 1998 ("June 5 Ex Parte").

3. Notice of Proposed Rule Making in MM Docket No. 97-217, FCC 97-360 (rel. Oct. 10, 1997) ("NPRM").

I. BACKGROUND

Several months ago, CTN hired three independent engineering firms to review and analyze the complex technical proposals contained in the NPRM. CTN's engineers found two major interference-related problems with those technical proposals. First, they found that the proposed rules would create "an unwarranted risk of interference to existing ITFS stations."[4] Second, they found that the proposed rules could have an "unacceptable preclusionary effect on ITFS licensees."[5] Because of the importance of these concerns to the ITFS community, further explanation is warranted before turning to an analysis of the proposed revisions contained in Petitioners' ex parte submissions.

A. The Rules As Initially Proposed Would Create a Significant Risk of Interference.

The risk of interference to existing ITFS stations would arise from the deployment of a large number of response station transmitters -- the "upstream" transmitters in a two-way market that carry communications from subscribers to the collection points known as "response station hubs" -- overlaid upon an area where incumbent ITFS licensees transmit educational programming to schools. The interference risk from the blanket deployment of response station transmitters is twofold.

First, the blanket deployment of response station transmitters creates the risk that a response station transmitter (or a group of transmitters operating simultaneously) may cause interference to an ITFS receiver operating on the same channel or an adjacent channel which is being used by an

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4. Joint Engineering Statement attached to CTN's January 8, 1998 Comments at para. 9.

5. *Id.* at para. 19.

ITFS licensee to transmit programming to its receive sites.[6] Using typical operating assumptions, CTN's engineers have demonstrated that a single response station transmitter can cause adjacent-channel interference to an ITFS receive site more than three miles away.[7] Obviously, the ability of a response station transmitter to cause co-channel interference to an ITFS receive site is even greater.

The second interference risk from the blanket deployment of response station transmitters is the risk that a response station transmitter operating in close proximity to an ITFS receive site can cause a condition termed "brute force overload" in the receive site's electronics. This condition is not limited to situations in which the desired and undesired signals are co- or adjacent-channel to each other. An ITFS receiver may suffer brute force overload caused by a response station transmitter operating on *any* frequency in the ITFS/MDS band, as long as that response station transmitter is close enough to the receive site.[8]

B. The Rules As Initially Proposed Would Preclude the Future Growth and Development of ITFS.

In reviewing the NPRM, CTN's engineers also found that the deployment of a two-way system in a market could result in a de facto "freeze" on modifications to existing ITFS facilities or

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6. *See id.* at para 22-23.

7. Joint Engineering Exhibit attached to CTN's April 9, 1998 Ex Parte Letter at para. 9.

8. Since ITFS receive sites operate with directional antennas, the proximity required to produce brute force overload varies with the antenna geometry. A transmitter with an EIRP of 48 dBm (63 Watts) operating at 6 MHz bandwidth can produce brute force overload in a typical receive site with a 24 dBi antenna gain at a distance of about 300 feet on the side and back lobes of the antenna and about 2,000 feet in the main lobe of the antenna. *See id.* at para. 4-7.

applications for new ITFS facilities.[9] This preclusive effect applies both to modifications to ITFS transmission facilities and to the addition of new ITFS receive sites.

The preclusion of modifications to ITFS transmission facilities arises from the proposed requirement in sections 21.909(h) and 74.939(h) of the originally proposed rules that response station hubs -- the receiving stations that would be deployed in a cellular-like architecture to collect and manage communications with all of the response station transmitters operating in the area -- be afforded protection from interference caused by new or modified ITFS facilities.[10]

While those seeking to modify or apply for new ITFS facilities have always been required to demonstrate protection to existing and applied-for facilities, the requirement to protect response station hubs is *qualitatively different* from the requirement under the current rules to protect ITFS receive sites. ITFS receive sites employ directional antennas oriented towards a single transmitter.[11] Response station hubs, in contrast, will employ antennas that are omnidirectional, or nearly so, in order to serve subscribers located throughout the surrounding response service area.[12] ITFS licensees may be precluded from making ordinary modifications such as increasing coverage to new receive sites, establishing new facilities, relocating due to the cancellation or expiration of a tower site lease, or even simply replacing an antenna that has exceeded its service life.

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9. Joint Engineering Statement attached to CTN's January 8, 1998 Comments at para. 19-21.

10. *See* NPRM at C-15, C-35.

11. 47 C.F.R. § 74.937(a).

12. *See, e.g.,* NPRM at C-15 ("In making such demonstration [of interference protection to a hub], the applicant shall assume installation of an omnidirectional unity gain plane-polarized receive antenna mounted with its centerline as specified in the application for the response station hub. . .").

The second preclusive effect is the difficulty or impossibility of adding new receive sites after the deployment of response station transmitters in an area previously unserved by an ITFS licensee with no protected service area. This problem arises from the requirement under proposed sections 21.909(c)(3)(vi) and 74.939(c)(3)(vi) that response station transmitters demonstrate protection only for those registered receive sites existing at the time of the response station hub application.[13]

C. CTN Has Proposed Solutions to These Interference Concerns.

CTN has voiced its dual concerns over potential interference to ITFS operations and preclusion of new or modified ITFS facilities throughout this proceeding.[14] CTN also has proposed and refined solutions to these problems -- (i) frequency separation to prevent co- and adjacent-channel interference and the preclusionary effect of response station hubs and their associated transmitters; and (ii) notification and testing zones to anticipate and alleviate the risk of brute force overload.

II. ANALYSIS OF PETITIONERS' EX PARTE FILINGS

As demonstrated in the accompanying Joint Engineering Statement and explained below, although Petitioners have attempted to predict and avoid co- and adjacent-channel interference to ITFS receive sites, the proposed engineering methodology is unduly complex and fails to provide adequate protection to all ITFS receive sites. In addition, Petitioners' ex parte submissions do not

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13. *See* NPRM at C-12, C-32.

14. *See* CTN's January 8, 1998 Comments at 8-23; CTN's February 9, 1998 Reply Comments at 1-23; CTN's April 9, 1998 Ex Parte Letter.

adequately address the problem of brute force overload. Finally, Petitioners have failed to address the preclusionary effect of response station hub deployment. CTN's proposed solutions to each of these problems are described below, and proposed rules are included as Attachment 1.

A. The Ex Parte Submissions Fail to Protect All ITFS Receive Sites from Co- and Adjacent-Channel Interference.

Petitioners' proposed rules for attempting to ensure that ITFS receive sites are protected from co- and adjacent-channel interference caused by the blanket deployment of response station transmitters suffer from two defects. First, the proposed rules specify the use of an engineering methodology that is overly complex. This complexity both prevents the reasonable evaluation of the predictive ability of the methodology, and places an undue burden on ITFS licensees who must analyze numerous applications based on the methodology. Second, the proposed rules and the associated engineering methodology fail to properly predict co- and adjacent-channel interference to ITFS receive sites located within a response service area. This failure means that the two-way rules must specify some other method of ensuring that such ITFS receive sites receive adequate protection from interference.

1. The Proposed Rules Purport to Maintain the Current Protection Standards for ITFS Receive Sites, but the Protection Offered by the Rules is based Upon a Flawed Engineering Methodology.

In proposed sections 21.909(c)(3) and 74.939(c)(3), Petitioners set forth the requirements on applicants for response station hubs for the protection of co- and adjacent-channel ITFS facilities.[15] Those sections require that the combined signals of simultaneously operating response station transmitters shall result in a D/U ratio of at least 45 dB (in the case of co-channel transmitters) and

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15. June 5 Ex Parte, Attachment 2 (Proposed Rules) at 1-2, 4-5.

0 dB (in the case of adjacent-channel transmitters) at each registered receive site and throughout the protected service area of any ITFS station within 100 miles.

These proposed rules *appear* to maintain the current protection standards for ITFS facilities.[16] However, for purposes of compliance with the proposed rules, interference calculations are to be performed according to the Petitioners' proposed "Method for Predicting Accumulated Signal Power From a Multiplicity of Statistically-located Transmitters."[17] Therefore, whether ITFS facilities are *actually* protected under the proposed rules depends critically upon the methodology used to predict the combined signals of the response station transmitters.

Petitioners' engineering methodology, as modified in its ex parte submissions, is designed to give an approximation of the interference that may be caused by response station transmitters deployed *within* a response service area to ITFS receivers. As demonstrated in the accompanying Engineering Statement, it may not account for the interference that may be caused to ITFS receivers located within the response service area.[18]

Petitioners submitted the most recent version of their proposed methodology in the June 5 Ex Parte. In simplified form, the steps involved are as follows:

> ***Define response service area.*** A response service area (RSA) is an area served by a response station hub in which a potentially large number of response station transmitters may be deployed. The simplest RSA is a circle with the response station hub at its center.[19]

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16. 47 C.F.R. § 74.903(a)(1)-(2).

17. *See* Note 1 to Proposed Section 21.909 and Note 2 to Proposed Section 74.939 (May 22 Ex Parte at C-19, C-42).

18. Joint Engineering Statement, included as Attachment 2, at 7-8.

19. *See* June 5 Ex Parte, Attachment 1, at 1-2.

Construct analysis line. The "analysis line" is an imaginary line drawn one-half mile outside the RSA boundary. This line will be used to test whether the grid points inside the RSA have been adequately laid out by imagining hypothetical receivers located along the analysis line.[20]

Lay out grid points. Next, a square grid of points is defined beginning at the hub, with the hub at the center of one of the squares and the grid points at the corners. Hypothetical response station transmitters will be assumed to be located at each of these grid points.[21]

Check spacing of grid. The grid is divided into two overlapping sets of points, checkerboard-style. The spacing of the grid is considered to be accurate if the aggregate signal strength from all the transmitters located on one set of points is within 3 dB of the aggregate signal strength from all the transmitters located on the other set of points, as viewed from the analysis line one half-mile outside the RSA boundary. The grid is refined (*i.e.*, the points are brought closer together) until this test is satisfied.[22]

The remainder of the methodology is devoted to determining the details of the response station transmitters that are assumed to be located at each of the grid points. However, the defect in this model is visible in the steps described above. The "analysis line" one-half mile outside the boundary of the response service area is key to the model's accuracy. The methodology is designed, at best, to assure accurate prediction of interference to receivers located on the analysis line, and by extension, outside the analysis line. Inside the analysis line, the model provides no assurances of accuracy.[23] Accordingly, even if the methodology accurately predicts the effect of response station transmitters on an ITFS receive site located one-half mile away or more from the response service area, it does not necessarily predict the effect of response station transmitters on an ITFS receive site

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20. June 5 Ex Parte, Attachment 1, at 2-3.

21. June 5 Ex Parte, Attachment 1, at 3.

22. June 5 Ex Parte, Attachment 1, at 3-4.

23. Joint Engineering Statement at 8.

located inside the response service area or up to one-half mile outside the boundary of the response service area.

2. Protection From Co- and Adjacent-Channel Interference For *All* ITFS Receive Sites Must Be Incorporated into the Rules.

Since Petitioners' proposed methodology cannot be relied upon to protect ITFS receive sites *inside* a response service area or near the boundary of a response service area from co- and adjacent-channel interference caused by the blanket deployment of transmitters in the response service area, the rules must be designed to build in the necessary protection for such receive sites. Moreover, the rules must be designed to ensure protection not only for receive sites that exist at the time a hub application is filed, but for *future* receive sites as well Without such protection, an ITFS licensee could be precluded from transmitting its programming to additional schools as they are constructed or added to its system, because of co- or adjacent-channel response station transmitters operating in the vicinity.

To achieve this protection without limiting flexible two-way deployment, CTN has proposed that frequencies used for response station transmitters be separated by at least 6 MHz from those used for the transmission of ITFS programming to receive sites.[24] This proposal, in effect, creates a 6 MHz "guard band" between response station transmissions and ITFS programming. The guard band may be used for the "downstream" transmissions to subscribers that are necessary in any two-way system, but not for "upstream" transmissions from subscribers to hubs.

CTN proposes herein to limit the geographic extent of the guard band to a circle with a radius of 35 miles centered at the ITFS transmitter. Thus, CTN's proposed rule would prohibit the

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24. *See, e.g.*, CTN April 9 Ex Parte Letter at 5-8.

operation of a response station transmitter within 35 miles of an ITFS transmitter on any channel that is co- or adjacent to a channel that is used for the transmission of programming to receive sites, without the consent of the ITFS licensee.[25] This proposal affords protection to all receive sites protected under the current rules[26] and future receive sites within an ITFS licensee's protected service area.[27] An ITFS licensee should be able to seek additional protection for those of its receive sites that are beyond 35 miles through an affirmative showing that those receive sites are actually receiving programming.[28] As CTN has demonstrated in previous filings with the Commission, this proposal gives both wireless cable operators and ITFS licensees ample flexibility and bandwidth to implement a two-way system in any market configuration.[29] Proposed rules are included in Attachment 1.

B. The Ex Parte Submissions Do Not Adequately Address the Threat of Brute Force Overload to ITFS Receive Sites.

In proposed sections 21.909(f)(8) and 74.939(f)(7), Petitioners set forth the proposed responsibilities of a response station hub licensee when a nearby ITFS receive site suffers brute

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25. Joint Engineering Statement at 8.

26. *See* 47 C.F.R. § 74.903(a)(5) ("No receive site more than 35 miles from the transmitter shall be entitled to interference protection.").

27. *See* 47 C.F.R. § 21.902(d), which defines the protected service area referred to in the ITFS rules, 47 C.F.R. 74.903(d).

28. *See* Amendment of Part 74 of the Commission's Rules With Regard to the Instructional Television Fixed Service, *Report and Order*, 10 FCC Rcd 2907 at para. 59 ("we will waive the rule [that no receive site more than 35 miles from the transmitter is entitled to protection] if an applicant can demonstrate that it is located within the educator's reasonable coverage area.").

29. *See* CTN Ex Parte Letter dated June 10, 1998 (Questions and Answers on Frequency Separation ("Guard Band") Proposal), included as Attachment 3.

force overload.[30] These proposed rules are inadequate because they place the burden on the ITFS licensee, *who actually suffers interference*, to identify and notify the licensees of nearby response station hubs and wait while those licensees together cooperate to remedy the interference. In other words, under Petitioners' proposal, a wireless cable operator could simply activate response station transmitters and wait for ITFS licensees to complain.

An ITFS licensee should not be made to suffer interference due to the deployment of a response station transmitter near one of its receive sites. The ITFS licensee would have no knowledge of the response station hub licensees' activities. Instead, all it would know is that a program intended for classroom study was unexpectedly garbled.

Moreover, an ITFS licensee should not be required to prove to a response station hub operator that brute force overload is occurring. The vast majority of ITFS licensees do not have the resources to monitor, identify, and record intermittent interference from unknown sources. Finally, an ITFS licensee should not be made to *continue* to suffer interference once it has been identified while neighboring response station hub licensees decide who is responsible and what remedy to undertake.

As an alternative to Petitioners' proposal, CTN reiterates its earlier proposal to establish notification and testing zones surrounding each registered ITFS receive site as a way of anticipating and avoiding brute force overload.[31] Prior to locating a response station transmitter within 1,960 feet of a registered ITFS receive site (the "notification zone"), a response station hub licensee would be

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30. *See* May 22 Ex Parte at C-17, C-39.

31. *See* CTN's January 8, 1998 Comments at 12-14 and attached Joint Engineering Statement at para. 7a-7d.

required to notify the affected ITFS licensee of the proposed deployment. Prior to locating a response station transmitter within the much smaller area that is 300 feet from an ITFS registered receive site in all directions except its boresight, and 1960 feet in the boresight direction, a response station hub licensee would be required to conduct a test of the response station transmitter before its commercial activation. A proposed rule is included in Attachment 1.

C. The Ex Parte Submissions Fail to Address the Preclusive Effect on the Growth of ITFS from the Deployment of Response Station Hubs.

In proposed sections 74.939(h)(1) and 21.909(h)(1), Petitioners set forth the requirements for protecting response station hubs imposed upon applicants for new or modified ITFS facilities.[32] These proposed rules make it likely that any new ITFS facilities, or any modifications to existing ITFS facilities to serve new receive sites, relocate a transmitter, replace an antenna, or add new channels of programming will be precluded once response station hubs are licensed within 100 miles of an ITFS transmitter site.

Proposed sections 74.939(h)(1) and 21.909(h)(1) set forth three alternatives for an applicant for new or modified ITFS facilities to demonstrate interference protection to response station hubs within 100 miles of the proposed facility. Since nothing in the rules prevents a response station hub from being licensed on all channels, including those that are co- and adjacent to channels licensed to ITFS operators, *all* ITFS applicants potentially are required to demonstrate protection to response station hubs within 100 miles through one or another of these alternatives.

First, the ITFS applicant may demonstrate that the new or modified ITFS facility provides at least a 45 dB desired-to-undesired signal ("D/U") ratio to co-channel response station hubs, and

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32. June 5 Ex Parte, Attachment 2 (proposed revisions to proposed rules) at 3,6.

at least a 0 dB D/U ratio to an adjacent-channel response station hub.[33] In fact, this demonstration is impossible to make given that Petitioners no longer propose to provide information regarding the desired signal level received by response station hubs, and if the desired signal level is unknown, the D/U ratio cannot be computed.[34] Even if the desired signal level were available, however, since response station hubs are designed to receive the signals of response station transmitters (which are relatively weak in comparison to primary ITFS transmissions) it is unlikely that any modified ITFS facility could demonstrate such protection in practice. Thus, ordinary modifications to existing ITFS facilities, such as relocating a transmitter or changing a transmitting antenna height, will likely not be permitted since applicants are unlikely to be able to demonstrate the required D/U ratios.

Second, the ITFS applicant may demonstrate that the proposed ITFS facility "will not increase the effective power flux density of the undesired signals generated by the proposed facility . . . at the response station hub antenna for any sector."[35] Any new ITFS facility will likely be unable to satisfy this requirement.[36] Moreover, any modifications to existing facilities such as relocating

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33. *See* Proposed Section 21.909(h)(1) ("An applicant for any new or modified MDS or ITFS station . . . shall be required to demonstrate interference protection to a response station hub within 160.94 km (100) miles of the proposed facilities.") (June 5 Ex Parte, Attachment 2, at 3). The interference protection standards are found in Sections 21.902 and 74.903 of the current rules.

34. *See* Appendix C attached to May 22 Ex Parte, stricken-out proposed sections 21.909(c)(2)(iii) and 74.939(c)(2)(iii) (first redline copy at pages C-15 and C-39) (removing information regarding received signal level at response station hub).

35. Proposed Section 21.909(h) (June 5 Ex Parte, Attachment 2, at 3).

36. *See* Joint Engineering Statement at 10-11.

a transmitter or increasing transmitting antenna height also will likely increase the power flux density in at least one direction.[37]

An applicant for new ITFS facilities would have one additional alternative under proposed sections 74.939(h)(1) and 21.909(h)(1) not open to applicants for modified ITFS facilities. An applicant for a new ITFS facility may demonstrate that the new facility "will not increase the noise floor at a reception antenna of the response station hub by more than 1 dB for co-channel signals and 45 dB for adjacent channel signals."[38] However, Petitioners propose that the noise floor for this calculation would depend upon the "bandwidth of the hub receiver."[39] Since the bandwidth is unknown to the ITFS applicant, this demonstration poses problems.

To avoid preclusion of new and modified ITFS facilities, CTN proposes that response station hubs be granted secondary status with respect to all ITFS facilities *more than 35 miles away*. Thus, any ITFS licensee applying for new or modified facilities would be required to demonstrate protection to response station hubs *within* 35 miles of the proposed facilities, but would not be required to demonstrate protection to response station hubs *more than* 35 miles away.[40] Proposed rules are included in Attachment 1.

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37. Joint Engineering Statement at 10.

38. Proposed Section 21.909(h) (June 5 Ex Parte, Attachment 2 (proposed rules), at 3).

39. June 5 Ex Parte, Attachment 1, at 10 (equation 2).

40. As described above, CTN also proposes that hubs within 35 miles of an ITFS facility would operate on non-co and adjacent frequencies unless the ITFS licensee consents. *See* Part II.A.2. Therefore, under CTN's proposed rules, as long as an ITFS licensee does not propose to relocate, it also need not demonstrate protection to hubs within 35 miles since none will operate on co- or adjacent channels without its consent.

Petitioners' ex parte submissions also do not address the preclusive effect of the deployment of response station hubs and transmitters in an area unserved by an ITFS licensee with no protected service area. Petitioners' proposed revisions to sections 21.909(c)(3) and 74.939(c)(3) require protection only of the ITFS receive sites that exist at the time of a response station hub application.[41] However, this problem is solved by CTN's frequency separation proposal described in Part II.A.2 above.

III. CONCLUSION

Consistent with the views expressed herein, the Commission should

(i) prohibit the operation of response station transmitters on frequencies co- and adjacent to those used for the transmission of ITFS programming to receive sites within 35 miles of the ITFS transmitter;

(ii) adopt notification and testing zones around ITFS registered receive sites to guard against brute-force overload; and

(iii) grant response station hubs secondary status with respect to all ITFS facilities more than 35 miles away.

CTN continues to be willing to work with Petitioners and the Commission's staff to find mutually acceptable solutions to the engineering issues raised in this proceeding. CTN remains hopeful that a dialogue with Petitioners can result in agreement on such mutually acceptable solutions, and that they can be presented to the Commission as such in the near future. In the

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41. See June 5 Ex Parte, Attachment 2, at 1, 4-5

meantime, CTN's proposals remain its best effort to develop rules for two-way services that will allow all MDS and ITFS licensees to take advantage of the benefits of such services, while protecting ITFS as an educational resource. Proposed rules are appended hereto as Attachment 1.

Respectfully submitted,

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ATTACHMENT 1

PROSPOSED RULES

Attachment 1

I. RULES FOR IMPOSITION OF 6 MHZ GUARDBAND

Part 21 Rules

§ 21.902(*l*) *Interference Protection for Response Station Hubs.* (1) Any applicant for an MDS station on the frequency bands 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz, and 2674-2680 MHz must demonstrate interference protection as specified in paragraph (b) above for any existing or previously proposed Response Station Hub on a co- or adjacent-channel within 56.33 km (35 miles) of the applicant's proposed transmitter site.

(2) Except as specified in paragraph (1), no licensee of a Response Station Hub operating on the frequency bands 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz, and 2674-2680 may claim protection from harmful interference from co- or adjacent-channel MDS or ITFS stations.

§ 21.___. *Use of Frequencies for Response Stations.* (a) No response station hub or response station transmitter may operate on the frequency bands 2596-2644 MHz, 2650-2656 MHz, 2662-2668 MHz, and 2674-2680 if it would be co-channel or adjacent-channel to an ITFS channel that is used or proposed for use for transmissions to an ITFS receive site from an authorized transmitter except as otherwise specified in this section. This restriction applies to all response station hub and response station transmitters located within the 56.33 km (35-mile) area defined at Section 21.902(d) of this chapter for the ITFS station to which the receive site is registered.

(b) The restriction on use of MDS frequencies set forth in paragraph (a) above does not apply if the licensee of the ITFS station to which the receive site is registered consents to receipt of harmful interference from the response station transmitter.

Part 74 Rules

§ 74.903(f) *Interference Protection for Response Station Hubs.* (1) Any applicant for a new ITFS station on the frequency bands 2500-2686 MHz must demonstrate interference protection as specified in paragraph (a) above for any existing or previously proposed Response Station Hub on a co- or adjacent-channel within 56.33 km (35 miles) of the applicant's proposed transmitter site.

(2) Except as specified in paragraph (1), no licensee of a Response Station Hub operating on the frequency bands 2500-2686 MHz may claim protection from harmful interference from co- or adjacent-channel ITFS or MDS stations.

Attachment 1

§ 74.___. *Use of Frequencies for Response Stations.* (a) No response station hub or response station transmitter may operate on a channel within the frequency band 2500-2686 MHz if it would be co-channel or adjacent-channel to an ITFS channel that is used or proposed for use for transmissions to an ITFS receive site from an authorized transmitter except as otherwise specified in this section. This restriction applies to all response station hubs and response station transmitters located within the 56.33 km (35-mile) area defined at Section 21.902(d) of this chapter for the ITFS station to which the receive site is registered.

(b) The restriction on use of ITFS frequencies set forth in paragraph (a) above does not apply if the licensee of the ITFS station to which the receive site is registered consents to receipt of harmful interference from the response station transmitter.

II. RULES TO PROTECT AGAINST BRUTE FORCE OVERLOAD

Part 21 Rules

§ 21.___. *Installation Procedures for Response Station Transmitters.* Applicants, permittees and licensees of Response Station Hubs must comply with the following requirements for response stations associated with each hub.

(a) An applicant for response station hub authorization must certify that:

(i) All response station transmitters will be at fixed locations. No mobile, portable or itinerant equipment will be permitted to be used with the hub.

(ii) All response station transmitters will utilize directional transmitting antennas.

(iii) All response station transmitting antennas will be installed by qualified technicians. No customer-installed equipment will be permitted.

(b) Response stations will be limited to a transmitter power output (TPO) of no greater than +33 dBm (2 Watts) and an EIRP of no greater than +48 dBm (63 Watts), as adjusted for the actual bandwidth used by the response station transmitter.

Note: For example, a response station transmitter employing a bandwidth of 3 MHz would have to reduce its allowable TPO and EIRP by 3 dB [10 $\log_{10}$ (3 MHz/6 MHz)]; a response station transmitter employing a bandwidth of 1 MHz would have to reduce its allowable TPO and EIRP by 7.8 dB [10 $\log_{10}$ (1 MHz/6 MHz); a response station transmitter employing a bandwidth of 100 kHz would have to reduce its allowable TPO and EIRP by 17.8 dB [10 $\log_{10}$ (0.1 MHz/ 6 MHz)].

§ 21.___. *Protection of ITFS Receive Sites from Brute Force Overload.* Permittees and licensees of Response Station Hubs must make every effort to protect ITFS receive sites from brute force overload, or blanketing interference. In addition to other requirements specified in these rules, permittees and licensees of Response Station Hubs must take the steps set forth below. For purposes of this section, each existing and previously proposed ITFS receive site shall be deemed to have the "notification zone" and "equipment test zone" identified in Figure 1.

Attachment 1

(a) Prior to installation of any response station transmitter within 1960 feet of an ITFS receive site, the permittee or licensee of the Response Station Hub must send a notice, by certified, return receipt U.S. mail, to the affected ITFS applicant or licensee regarding the location of the proposed response station. The "notification zone" is specified in Figure 1

(b) A Response Station Hub permittee or licensee will not be permitted to locate a response transmitter within the Equipment Test Zone outlined in Figure 1, unless it has completed tests to establish that no blanketing interference is caused to any ITFS receive site.

(c) If a Response Station Hub permittee or licensee intends to locate a response station within the Equipment Test Zone, the Response Station Hub permittee or licensee must notify the licensee of the ITFS receive site that it desires to conduct tests of blanketing interference at least 30 days prior to the date on which it would like to turn the response station equipment over to the customer. It is the responsibility of the Response Station Hub permittee or licensee to contact the ITFS licensee to arrange a date for testing. In the event that the ITFS receive site is merely proposed or otherwise not operational, the ITFS licensee shall have the right to follow the procedures set forth in paragraph (g) below within 30 days of the date the receive site becomes operational if brute force overload is present.

(d) For any such tests, all existing response stations within the entire notification zone must be on the air during the test to ensure that the worst case total power to the first active device of the downconverter is tested, or, alternatively, the tests must be performed at 6 dB in excess of the power proposed for the response station.

(e) The Response Station Hub permittee or licensee must send a certified report of the test results to the ITFS licensee. If the test results are negative, and the hub permittee or licensee intends to install the response station at the site, then it must deliver the certification to the ITFS licensee prior to the date for customer acceptance of the equipment. If the tests demonstrate a brute force overload event, the Response Station Hub permittee or licensee may not turn the equipment over to the customer until such event is resolved.

(f) For purposes of testing, brute force overload would be considered to exist if greater than a 1 dB degradation in the carrier-to-noise (C/N) ratio of the ITFS signal was observed when the response station was activated. In the event that the test demonstrates the presence of brute force overload, the Response Station Hub permittee or licensee must take all necessary steps to resolve the interference to the satisfaction of the ITFS licensee.