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October 4, 2001

VIA COURIER

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

Re: Mountain Telecommunications, Inc. Experimental License 6120-EX-PL-1998 as Modified on April 10, 2000 (0041-EX-ML-1999)

Dear Ms. Salas:

Transmitted herewith on behalf of Mountain Telecommunications, Inc. are an original and four (4) copies of its annual progress report regarding its operations pursuant to the above-referenced Experimental License to operate in the 3.4 GHz band to serve customers located on the Salt River Pima Maricopa Indian Community at Scottsdale, Arizona. If there are questions regarding this report, please communicate directly with undersigned counsel.

Sincerely,

Mitchell F. Brecher
Counsel for Mountain Telecommunications, Inc.

cc: Mr. James Burtle

Saddleback Communications
A Division of the Salt River Pima-Maricopa Indian Community

MTI
Mountain Telecommunications, Inc.

10190 E McKellips Road, Scottsdale, Arizona, 85243

Tel : 480 850 7000 / 7500 Fax : 480 850 7010 / 7599

October 3, 2001

James Burtle
Chief - Experimental Licensing Branch
Federal Communications Commission
445 12th Street SW
Washington, DC 20054

Dear Mr. Burtle

We are pleased to present the third annual progress review under the 3.4GHz Experimental License **(6120-EX-PL-1998)** granted by the FCC on 22nd September 1998 and modified on 10th April 2000 **(0041-EX-ML-1999)**. We continue to provide a full quality "wireline equivalent" service via Fixed Wireless Access (FWA) to approximately 300 customers on the Salt River Pima Maricopa Indian Community (SRPMIC) while we negotiate the acquisition of the incumbent copper grid from Quest (formerly US West). Many of these customers were previously unable to obtain any service (or an acceptable) service from Quest and it will have taken more than three years for the Community to implement its chosen policy of taking over the responsibility for telecommunications services for the Community, during which time the FWA system has been the vital (and only feasible) solution.

All 300 current customers continue to be regular users of the service for full speed fax or modem access, and we have introduced an additional three RF bearers to increase the airlink capacity of the system to cope with the data demand. Even so, we occasionally have to restrict data access in order to manage our radio capacity efficiently because of the uncertainty over long-term licensing possibilities and the implications for any additional investment in this frequency band.

As with the previous two years' reports, we have not observed any interference from other spectrum users (e.g. airborne radars) over the past twelve months, and have not been notified of any interference to other spectrum users as a result of our operation under this License.

We were very disappointed to note the Commission's decision[1] (based on a letter from NTIA[2]) to deny our Petition[3] for a permanent FWA allocation in the 3400-3700MHz band. We now have less than two years to develop and implement alternative solutions for continuing to economically meet the needs of our Community for access to both basic and advanced telecommunications services.

The FWA solution continues to meet our service, technical and cost / commercial expectations, however, as noted last year, the rest of the World is now deploying later versions of our FWA system which deliver digital packet-based Internet access at speeds greater than 100kb/s. With the Commission's denial of our Petition, our vendors will not make the necessary upgrades / investments to make these versions available for our customers, who will remain limited to the existing 56kb/s analog modem data access.

We continually review the US progress on other FWA and spectrum licensing issues, but still cannot identify any other appropriate / available wireless solutions for our needs, including Cellular, WCS, PCS and MMDS and LMDS bands / technologies. We now have no choice but to carefully limit our further investments in FWA technology, and start planning the deployment of more expensive and less appropriate solutions based on fiber and copper to meet our service and community needs. Meanwhile, we will continue with the Experiment as described in the attached report. Please let us know if there is any additional information or clarification that you require.

Yours Sincerely

Jack Pleiter *Mike Scully*

(signed)
Jack Pleiter, Chairman & CEO
Mountain Telecommunications Inc

Michael Scully, President
Saddleback Communications

CC :

Mike Scully		General Manager, Saddleback Communications
Senator John McCain		US Senator, Arizona
William Hatch		Acting Director, Office of Spectrum Management, NTIA
Ray Strassburger		Director, Govt. Relations, Nortel
James Casey		Counsel

[1] FCC ET Docket No. 98-237 : First R&O and 2nd NPRM (FCC 00-363) at 14

[2] See letter dated June 30th, 2000 from William Hatch (NTIA) to Dale Hatfield (FCC)

[3] *See Fixed Wireless Access*, Petition for Rulemaking of Mountain Telecommunications, Inc. and Saddleback Communications Company (filed Sept. 30, 1998).

CONCERNING - THE USE OF FIXED WIRELESS ACCESS (FWA)
TO PROVIDE BASIC & ADVANCED TELECOMMUNICATIONS SERVICES
TO RESIDENTIAL AND SMALL BUSINESS USERS
IN UNSERVED, UNDERSERVED AND COMPETITIVE APPLICATIONS

EXPERIMENTAL LICENSE ACTIVITY
TO INVESTIGATE THE FEASIBILITY AND VIABILITY OF USING
FWA "OFF-THE-SHELF" SOLUTIONS AT 3400-3700 MHZ
TO MEET SERVICE AND BUSINESS OBJECTIVES
AT SCOTTSDALE, ARIZONA

OCTOBER 2000 - SEPTEMBER 2001

REPORT PREPARED BY DAVID TRINKWON, TRANSCOMM INC

1) INTRODUCTION

As reported previously, after analyzing their service and business plan requirements, MTI and Saddleback determined that their needs could NOT be met by existing wireless technologies such as CMRS[4], BETRS[5], MMDS[6] or LMDS[7]. However, they DID find that appropriate solutions existed "off-the-shelf" outside the USA where regulators, spectrum management authorities and service providers were already deploying and planning FWA solutions from a number of competitive vendors. Further research identified that although several vendors, systems and frequency variants were in existence, a number of important steps had been taken (e.g. within CITEL[8], ETSI[9], ITU[10], Europe, Canada, Mexico and Australia) to harmonize these solutions around parts of the 3400-3700 MHz frequency band. An Experimental License was granted on 22nd September 1998 and the FWA system has been operating continuously at Scottsdale ever since.

This further annual progress report summarizes the activity, results and conclusions reached at the end of the third year, as required under the terms of the Experimental License. It also identifies the ongoing tasks to be carried out in the fourth year.

In parallel with this Pilot project, MTI and Saddleback have filed a petition for Rulemaking[11] which would lead to mutually agreeable sharing arrangements for (parts of) the 3400-3700 MHz frequency band, and a process for obtaining permanent licenses for FWA applications in rural and Indian communities. During this past year, the Dept of Defense, through NTIA, filed a determination[12] that spectrum in this band could NOT be allocated or shared with FWA, and the Commission accordingly denied the MTI / Saddleback Petition[13].

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[4] CMRS - Commercial Mobile Radio Service, include both Narrowband Cellular and Broadband Personal Communications Services (PCS) under FCC Part 22 and 24 Rules, respectively

[5] BETRS - Basic Exchange Telephone Radio Systems under FCC Part 22 Sub-part F Rules

[6] MMDS (including MDS) - Multichannel Multipoint Distribution Service and Multipoint Distribution Service under FCC Parts 74 and 21 Rules respectively.

[7] LMDS - Local Multipoint Distribution Service under FCC Part 101 Rules

[8] CITEL - A Telecommunications Consultative Committee of the Organization of American States (OAS). See particularly the Reports and Recommendations of sub-committee PCC.III (Radio Communications)

[9] ETSI - European Telecommunications Standards Institute. See particularly the Reports and Recommendations of Work Group TM4.

[10] ITU - International Telecommunications Union. See particularly the Reports and Recommendations of Joint Rapporteurs Group JRG 8A/9B

[11] *Id.* While the Commission has not assigned a rulemaking number to this Petition, it is available on the FCC Electronic Comment Filing System (ECFS) under proceeding number PRM98ET.

[12] *Id.*

[13] *Id.*

2) OBJECTIVES

In its Experimental License Application, MTI specifically referenced the following types of operations (per section 5.202 of FCC rules governing the Experimental Radio Service) as being applicable:

(i) *Development of radio technique, equipment, operational data or engineering data related to an existing or proposed radio service.*

(ii) *Limited market studies*

(iii) *Other types of experiments that are not specifically covered under paragraphs (a) through (j) of this section*

MTI stated its intention to operate the system under conditions approximating those that would exist in full-scale commercial deployments of the system, in order to evaluate its technical and operational viability and its ability to satisfy the telecommunications service requirements of SRP-MIC members. Specific objectives were also stated in the MTI Application. These are summarized below, together with a statement of status / progress against each objective.

Mountain Telecommunications Inc. and Saddleback Communications Objectives

1. **Demonstrate economic and social benefits of Fixed Wireless Access technology**
   Almost 100 community members have now been provided with full quality "wireline" voice, fax and modem data service for the first time, at normal wireline tariffs and without payment of special construction charges. Prior to FWA these customers either had no telecommunications service at their home or place of business, or used cellular telephones, which were found to be expensive, unreliable or otherwise unsatisfactory. In addition,

   An additional 200 - 300 customers have been able to choose Saddleback's service in preference to the incumbent LEC service provided over traditional copper, and in advance of Saddleback's proposed acquisition of the ILEC's plant.

   Over the past year, the usage of fax and 56kb/s modem access to the Internet has continued to increase, at times puttinbg strain on the total RF airlink capacity deployed. An additional three RF bearers has been added (to the original six) to improve capacity for the data service.

2. **Evaluate customer acceptance of services provided**
   All customers continue to express complete satisfaction with the quality, reliability and feature transparency of the services provided via FWA. We peviously reported that few instances of interference from a local AM radio station had caused complaints. We have now found and implemented an improved RFI filter / noise suppressor in such cases[14]

[14] Samas Telecom Inc., 3425-F Pomona Blvd, Pomona, CA 91768 (Tel.714-598-0250 Fax 714-594-6212). Part No 000-143-626 set for subscriber side AM frequency band 1420 – 1650kHz.

Other complaints of intermittent or disrupted service during the year have been traced to one or more of the following circumstances :

- A leaking shroud on a masthead power cable termination blew fuses and caused intermittent operation for three of the original six RF bearers, causing interruptions to calls in progress and reducing the overall airlink capacity for all users. This situation had taken several weeks to develop and diagnose and was resolved by installing new cables and terminations to the masthead transceiver unit. An additional masthead unit (with an additional three RF bearers) was simultaneously brought into service to improve diversity and increase RF airlink capacity.
- New construction at a nearby State highway site has added large piles of sand and similar material which has caused additional obstruction / reflections on some RF links to customers at the Lehi part of the Community (4-5 miles from the base station). This has required some minor re-siting or re-pointing of the affected customer CPE antenna in order to improve service stability and reliability.

3. **Demonstrate progress towards becoming facilities-based CLEC**

At present all wireline customers in the community are served by the traditional incumbent LEC (Qwest). Saddleback Communications has been designated by the Community to be the (new) incumbent Local Exchange Carrier (LEC) and is in the process of finalizing the transfer of the wireline facilities and existing customers from Qwest. Meanwhile Saddleback offers the FWA (Experimental) service to Qwest customers in the Community, in the manner of a Competitive LEC (CLEC). As mentioned above, approximately 200-300 customers are currently served in this way. MTI itself provides CLEC service throughout Arizona, using a combination of its own facilities and leased fiber or copper through agreements with Qwest and other facilities providers. MTI would like to competitively serve customers off the reservation using FWA, but this is not permitted by the Experimental License, even though the FWA transmissions presently cover large areas of urban Tempe and Scottsdale. With the Commission's denial of the MTI / Saddleback Petition, MTI will not be pursuing any further FWA CLEC opportunities in the foreseeable future.

4. **Evaluate system performance in a real network environment**

Saddleback has trained local native staff who continue to carry out a complete, quality-assured, residential installation within 1 - 1.5 hours, including inside wiring and customer discussion time. Customer units are also removed or relocated to meet changing service requirements or priorities within the Community. Coverage had previously been provided using six pairs of (omni-directional) vertically polarized 307kHz radio frequency carriers, each providing ten 32kb/s traffic time-slots. As the result of last year's review / report, we have added an additional three pairs of 307kHz radio frequency carriers using a 120 ° horizontally polarized antenna[15] directed towards the Lehi part of the Community lands, approximately 3-5 miles from

[15] Andrew 120 ° Sector base Station Antenna Type LL5D3F-035HA-214, Horizontal Polarization, 14dBi 2 ° beamtilt Ser No. 9148-PP (Note : Mounted to give 0.2 ° effective downtilt for nominal six mile range)

the base station (see revised maps). The Table below summarizes the current installation after this addition.

Base Station Location = N33 ° 28.310 W111 ° 51.800

Antenna	Channel	BS Rcv MHz	BS Tx MHz	Pol	Direction	Tx Power
1	0	3425.2800	3475.9680	V	Omni	+24 dBm
1	18	3430.8096	3481.4976	V	Omni	+24 dBm
1	36	3436.3392	3487.0272	V	Omni	+24 dBm
2	6	3427.1232	3477.8112	V	Omni	+24 dBm
2	24	3432.6528	3483.3408	V	Omni	+24 dBm
2	42	3438.1824	3488.8704	V	Omni	+24 dBm
3	11	3428.6592	3479.3472	H 120 °	69 °	+24 dBm
3	29	3434.1888	3484.8768	H 120 °	69 °	+24 dBm
3	47	3439.7184	3490.4064	H 120 °	69 °	+24 dBm

Each Channel is 307.2kHz (10 x 32kbps traffic slots) in each direction

All other aspects of system performance are fully satisfactory. No instances of harmful interference to or from other users of the spectrum have been observed or notified.

5. **Investigate service, application and business opportunities**
As reported last year, in addition to meeting the needs of unserved residential and business customers on the tribal lands, the FWA system has enabled Saddleback to address demands for additional lines not available from the existing Qwest copper grid. Also to serve customers who prefer Saddleback, but needed switch features which are not available when Saddleback resells the Qwest service (but are available when Qwest sells the service).

   The significance of dsl or cable modem-like broadband internet access has increased over the year, and a few Community customers have subscribed to the wireless internet service offered by the local Sprint subsidiary using MMDS band licenses. Currently, this competing service does not offer voice capability and we understand that it is experiencing some capacity limitations in the greater Phoenix area. MTI / Saddleback is unable to compete with this service in the light of the denial of its Petition for permanent spectrum allocations, and will be forced to consider alternative solutions based on fiber and copper distribution.

6. **Develop staff knowledge on technology and associated functions / processes**
As reported last year, more than six MTI and Saddleback employees have been trained on the FWA technology, plus associated installation, planning and network management sub-systems. Vendor support is periodically provided from locations in Miami (Florida), the United Kingdom, Canada and Mexico City.

7. **Develop plans for product standardization, market introduction and deployment**
These plans are now cancelled, given the resolution of the FCC Petition. Saddleback must now develop plans for replacing the FWA in due course with more expensive fiber and copper access solutions.

8. **Address regulatory aspects of wireless technologies**
   MTI and Saddleback continue to urge the FCC, DoD and NTIA to resolve the issues that limit their access to appropriate spectrum for the use of these "off-the-shelf" global solutions to some long-standing and difficult telecommunications access problems. Meanwhile, they continue to monitor progress on domestic US spectrum and product availability (eg ISM, PCS, WCS, MMDS, GWCS and 3650-3700MHz bands) to watch for emerging alternative FWA solutions.

3) PROJECT DESCRIPTION

A summary of the MTI / Saddleback project was included in the first year's report.

4) INTERFERENCE ANALYSIS - RADIO FREQUENCIES

A specific objective of this Experimental License is to evaluate any interference to the FWA system from other users in the band (or emitting spurious signals into the band from lower frequencies). In particular, airborne high powered military radars such as AWACS. We are also obliged to remedy (or shut down the system) in the event that the FWA system causes interference to a primary user in the band (e.g. military radars). Luke AFB is located 30 miles west of the MTI Base Station (bearing 280°), but we were advised that none of the platforms normally assigned there had any of the radars which had been analysed by the DoD-Joint Spectrum Center. However, we could expect AWACS overflights occasionally as planes come over on training flights or with the radars switched on *en route* to their assigned missions. We would NOT be told when the flights would (or had) taken place.

We have not experienced (or been notified of) any interference during the last year and have not carried out any further tests in this regard. We note that the DoD letter[16] confirms the "...relative lack of use ... *[in the Scottsdale area]...*by relevant DoD systems ..." and therefore conclude that interference to / from DoD systems in the area is non-existent.

5) MARKET STUDIES

The costs of the FWA solution remain as predicted, and significantly cheaper than the previously estimated wireline solutions. In the light of the Commission's denial of our Petition, we will not be carrying out any further Market studies.

[16] *Id* See NTIA Letter Attachment : Letter dated March 13th 2000 from Arthur Money (Dept of Defense) to Gregory Rohde (NTIA)

APPENDIX A

MAPS & CHARTS

Figure 1 : Location of SRP-MIC Community and Base Station

This Figure has been updated to include the additional (directional) 120 ° horizontally polarized antenna directed towards the Lehi part of the Community lands. The beam center and nominal ±60° paths are indicated. " **X** " indicates the intended focal point for the Lehi community coverage.

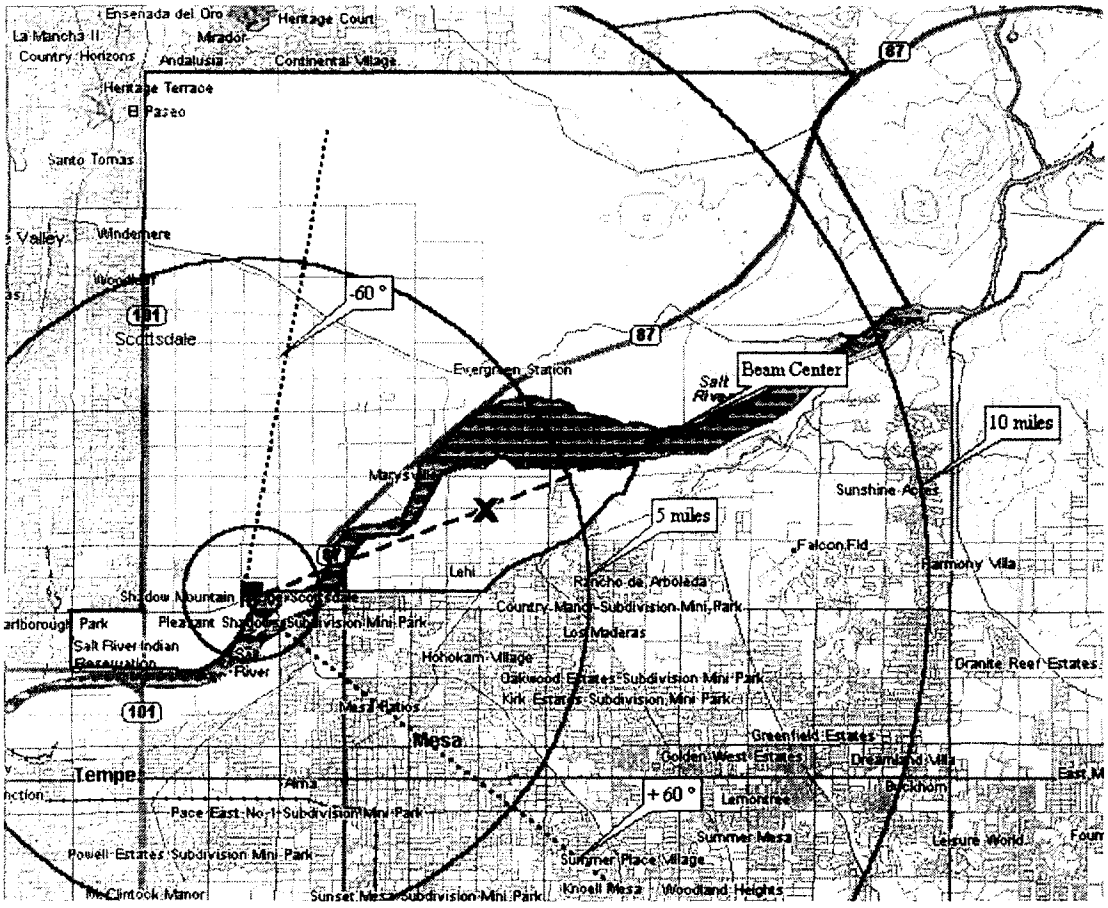


Figure 2 : Path Profile for Lehi Coverage (Base Station to " X ")

BS Elevation = 1204ft BS Height = 160ft BS Antenna Height = 1364ft Lehi ("X") Elevation = 1250ft

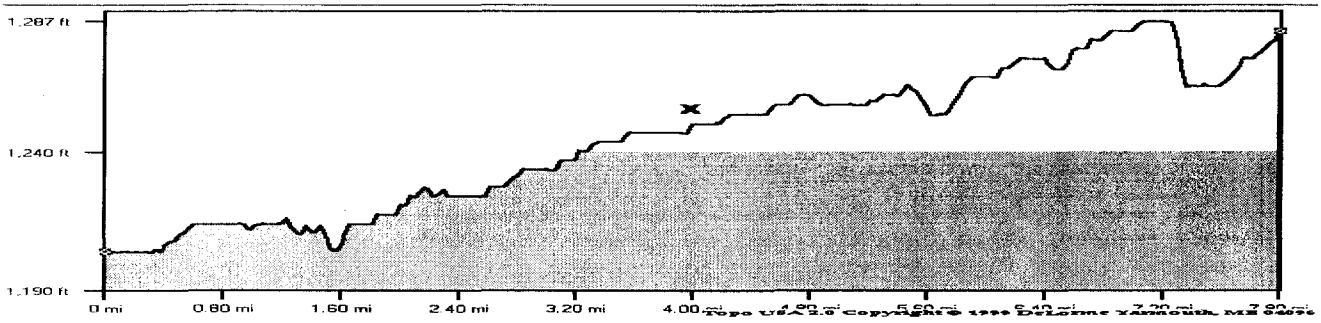
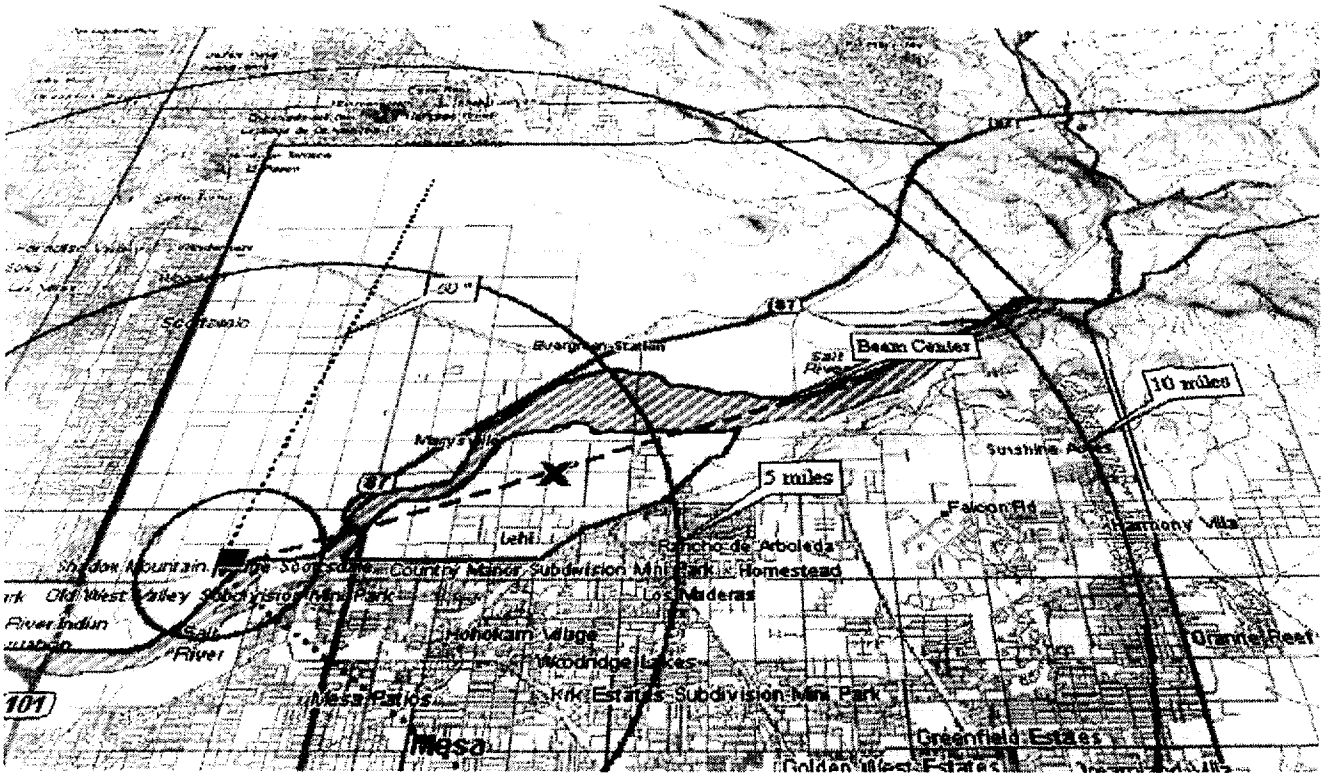


Figure 2 : 3D Topographic View of Community Coverage Area



ORIGINAL

UNITED STATES DEPARTMENT OF COMMERCE
National Telecommunications and
Information Administration
Washington, D.C. 20230

ET Docket No. 98-237

JUN 30 2000

EX PARTE OR LATE FILED

RECEIVED

SEP 19 2000

Federal Communications Commission
Office of Secretary

Mr. Dale Hatfield
Chief
Office of Engineering Technology
Federal Communications Commission
Washington, DC 20554

Re: Petition for Rulemaking - Fixed Wireless Access (FWA): Petition for Allocation of Radio Spectrum and Licensing Rules in the 3.4-3.7 GHz Band to Allow Carriers to Improve Deployment and Reduce Costs Through the Provision of Fixed Wireless Access

Dear Mr. Hatfield:

The Federal Communications Commission (FCC) has before it a Petition for Rulemaking on behalf of Mountain Telecommunications, Inc. and Saddleback Communications Company for allocation of the 3.4-3.7 GHz band for FWA. The band 3400-3650 MHz is allocated on a primary basis to the Government for radiolocation and aeronautical radionavigation services.

At the request of NORTEL, a limited study between a first-generation NORTEL manufactured FWA system and various military radar systems was performed by the Department of Defense (DOD) Joint Spectrum Center (JSC). Results of the study indicate that significant geographical and frequency separations are necessary for mutual compatible operation, and that these separations are very dependent upon scenarios and technical parameters of the systems studied. Other FWA systems are being similarly evaluated. We are seeking to have the final results of these evaluations as soon as possible. Therefore, the NORTEL FWA system analyzed may not be representative of other manufacturer's FWA equipment. Currently, there is no way to determine the extent to which these NORTEL results could or should be universally applied to FWA systems.

DOD is very concerned, as stated in their enclosed letter, about the potentially mutual harmful effects between present and future radar applications and FWA operations should the band be reallocated. The radars operating in the band are highly mobile and have large service areas. We are also concerned about possible effects of our systems on FWA reliability and performance. In addition, upgrades to some of the existing radar systems operating in this band are being considered for part of the National Missile Defense System. This could result in a major expansion of radar operations in this band. Furthermore, allowing FWA in this spectrum would reduce or eliminate any flexibility to incorporate new capabilities in these vital radars, potentially leading to compromises in

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the radar design that could adversely affect mission requirements. Loss of access to this band due to FWA systems would cause irreparable harm to the U.S. military's ability to perform critical surveillance tasks, testing, and training against hostile electronic threats, both present and in the future.

NTIA cannot concur with this petition for a co-equal primary status that would impose significant constraints on Government radiolocation systems and eliminate the flexibility needed to address current and future radiolocation needs. Therefore, NTIA requests the petition be dismissed.

Sincerely,

William T. Hatch
Associate Administrator
Office of Spectrum Management

Enclosure: Asst. Secy of Def Ltr, Mar 13, 00

cc: Arthur L. Money, Asst Secy of Defense

ASSISTANT SECRETARY OF DEFENSE
6000 DEFENSE PENTAGON
WASHINGTON, DC 20301-6000

COMMAND, CONTROL, COMMUNICATIONS, AND INTELLIGENCE

March 13, 2000

Honorable Gregory L. Rohde
Assistant Secretary for
Communications and Information
U.S. Department of Commerce
14th Street and Constitution Avenue, NW
Washington, DC 20230

Dear Mr. Rohde:

We are forwarding to you as an enclosure to this letter the Department of Defense Joint Spectrum Center's (JSC's) analysis of the feasibility of sharing the 3400–3650 MHz spectrum between its current government uses and civilian fixed wireless systems. Our conclusion is that the requisite separation distances and other operating limitations are so onerous that sharing is not feasible.

The 3400-3650 MHz frequency band is being targeted for operation of Fixed Wireless Access (FWA) systems in many countries. One manufacturer of such systems, Northern Telecomm (NORTEL), is interested in deploying its system (the "Proximity I" system) within the United States and its possessions (US&P). This portion of the spectrum presently is allocated for Federal Government radiolocation (3400-3650 MHz) and aeronautical radionavigation (3500-3650 MHz) services on a primary basis. NORTEL sought the assistance of the JSC to determine if such sharing was feasible. The Department of Defense was willing to participate in this analysis and agreed to perform a NORTEL-funded study.

The January 2000 JSC assessment report documents the results of analytical studies and live tests. Based upon the JSC assessment and DoD's critical ongoing and future uses of this spectrum, we have concluded that there is a mutual incompatibility between the NORTEL Proximity I system, as currently configured, and several DoD systems, even when separated by distances of several hundred kilometers. Moreover, if the 3400-3650 MHz band were to become available within the US&P for FWA systems, other potential FWA designs with more sensitive operating characteristics could increase the potential for interference and thus require even greater separation distances.

The DoD radar systems that operate in the 3400-3650 MHz band are some of DoD's most important assets. DoD requires unfettered access to this spectrum over the full geographical area of the US&P. In the future, these radar systems and their successors are likely to require access to even more spectrum in order to meet new missions and increased responsibilities already assigned to them. Additionally, DoD must test, train, and conduct exercises against foreign threats that operate in this band. In the past, DoD has been able to conduct such critical operations in this band in the US&P only because the current primary allocation is

effectively limited to military use. Such training and testing is not possible elsewhere because other uses have been designated as primary in the band. Keeping this spectrum available for military needs, without limitations, therefore, has become increasingly important. FWA encroachment on radar spectrum would reduce or eliminate any flexibility we may currently have to incorporate new capabilities into these vital radars and would make the testing and training needed to meet new missions virtually impossible.

MountainTel and Saddleback Communications, Scottsdale, Arizona, operators of a Proximity I system, were granted a temporary, experimental license to transmit at a Native American community in Arizona. These operators petitioned the Federal Communication Commission (FCC) to modify the status of the 3400-3650 MHz frequency band, within the U.S., to a shared primary allocation between non-government fixed service and government radiolocation services, stating that they believe that it will be feasible to define reasonable technical coordination rules that will enable operators like MountainTel to deploy in a manner that will not adversely impact DoD's operations in this band. We disagree with their view. The results of the JCS assessment report indicate that no such sharing is feasible. The required geographic and frequency restrictions are not possible to achieve throughout the United States. Given the limited number of users in the Scottsdale experiment, and the relative lack of use of that area by relevant DoD systems, we do not believe the Scottsdale experiment addresses whether a system in a large metropolitan area could cause the various DoD systems much more interference, or, if a DoD operation could one day interfere with, for example, a critical emergency call put through an FWA system.

In conclusion, DoD is unable to accept any type of operational limitations to its radar operations to ensure compatibility with FWA systems and the JSC assessment report did not identify any means of sharing of spectrum that could be imposed without a major negative impact on national security. We believe that the current government-only allocation must be maintained and FWA operators limited to non-government or shared bands for the development of their systems.

Sincerely,

Arthur L. Money

Enclosure