

spectrum utilization, vis a vis private radio applicants who must only show eligibility and a minimum need requirement."

**ANS Comment:** Please note that the ANS petition proposes making the rules the same for both common carrier and private users. The CTI comment seems to place the common carrier right to use the spectrum above that of the private user merely because the common carrier typically carries more circuits than does the private user. ANS does not concur that more is inherently better. Both users have a legitimate right to adequate spectrum.

**CTI Comment (6/2):** "At best ANS pays lip service to the FCC's study which shows that presently only in a few instances are there not a sufficient number of higher frequency channels available to meet all needs."

**ANS Comment:** As CTI may note in the next paragraph of their comments, the study was performed by the OET, not the FCC. If CTI would read our public comments regarding 92-9, we took the OET study to task for its inaccurate assessment of available frequency. The study's results at 4 GHz and lower 6 GHz clearly do not represent the facts. In several cases the study overestimates the available frequencies. CTI has microwave systems which enter both Los Angeles and San Francisco. Could CTI agree with the OET study on available frequencies in those two cities?

**CTI Comment (7/1,2):** "It is thus ironic to note that it was ANS, the proponent of this revolutionary transformation rulemaking, that had an exhibit at the recent industry Supercom convention in Chicago, at which exhibit, ANS demonstrated Fiber optic electronics capable of transmitting 10 G-bits (192 DS-3's) of information over 150 km (90 miles) without the necessity to use a single repeater. ANS' proposed rulemaking would introduce into the present highly volatile world of microwave telecommunications the specter of the rechannelization ANS proposes without any recognition of the impact of such new technologies - not even considering even the larger King Kong's of spectrum capacity in fiber that may exist ten years from now. Such a revolutionary proposal as set forth by ANS introduces the element of uncertainty to those planning to build new microwave systems or expand their present systems to meet present needs. Such uncertainty drives away potential lenders such as banks, who finance the utilization of such construction."

**ANS Comment:** This issue was addressed by ANS in its comments regarding 92-9. As CTI notes, ANS is also a world leader in fiber optics communication equipment. As a major supplier of both microwave and fiber optic equipment, we are in a unique position to observe trends in both markets. Bulk transmission suppliers (such as CTI and others) typically migrate toward fiber optics as the cost effective method of high capacity transmission. The subject petition addresses the needs of the soon to be displaced 2 GHz users. This group, also customers of ANS, need low density point to point circuits. Unlike the high density cross country users, the 2 GHz users typically have low density systems characterized by star concentrations connected by single route backbones. Microwave is significantly more cost effective than fiber optics when initial installation cost is considered. The MCI comments on the ANS petition address this issue briefly. Fiber optic cable cuts, an unfortunate fact of life for such systems, typically take several hours to repair. The 2 GHz user's system topology does not provide for redundant circuits necessary to provide fast restoral. ANS notes that the CTI system has high capacity with redundant routes. Many of those routes are already fully expanded with no growth potential. The CTI system would be a candidate for fiber optics.

**CTI Comment (8/2;9/1):** "Adoption of this proposal would in one instant render useless the data base used for common carrier frequency coordination that took decades to perfect. It would take many months, if not some years to update this data base to add the private radio users. ... ANS does not address the issue of where the millions of dollars necessary to combine and update both user data bases ... ANS does not address where the funds are to be found for the FCC to be to resolve a situation ... the ANS petition could, if adopted, impose a heavy financial burden on both the applicants and the FCC."

**ANS Comment:** The CTI comments are totally without merit. As noted in the Comsearch comments on the subject petition, the data bases currently exist. ANS proposes changing eligibility of users who may be added to the existing data base. The additions would be made as the licenses are considered and granted - as is done today. The cost of data base additions are part of the cost of new license applications - as they are today. ANS did not address funding for updates - that would be handled as it is today. ANS did not address funds for the FCC (it is funded by public taxes ). In general ANS does not understand the basis of these comments. ANS suggests CTI pursue this subject with Comsearch, the industry leader in this area.

**CTI Comment (9/3):** "The standard of system reliability a carrier, such as CTI, contractually guarantees to provide to its customers in 99.98% or less than one hour of outage a year. If the carrier cannot meet that standard then the customer is free to move to an alternative media, such as fiber."

**ANS Comment:** This is an interesting comment. CTI suggests one hour of system outage per year as the standard of performance. Earlier in their comments CTI suggested the displaced users use fiber communication. ANS' discussions with some current 2 GHz users reveal that typical private fiber optic systems (lacking diversity loops) have typical outage times of several hours per month. Since most 2 GHz users do not have the luxury of diversity routes, this option seems unusable for the migrating users.

**CTI Comment (10/1):** "... the ANS proposal is a nightmare that, if adopted, could produce catastrophic results both to carriers such as CTI and their customers."

**ANS Comment:** CTI offers this comment without support.

**CTI Comment (10/2):** "The ANS proposal presents potential interference problems that, even with frequency coordination, will produce harmonic interference conditions that will be extremely difficult, if not impossible to overcome. ... Even in this highly controlled environment interference occasionally occurs due to harmonic or reflection problems that could not have been reasonably anticipated."

**ANS Comment:** ANS is unaware of any aspect of the subject proposal which will affect harmonic interference to or from any microwave system. Interference caused by reflection problems are totally beyond the scope of the subject proposal. These problems can occur regardless of the user (as CTI knows from its own experience near Oklahoma City and Tulsa). The current proposal would not affect this fact of real telecommunications life.

**CTI Comment (11/2):** "... the ability of the carrier to grow as it serves greater market demand is largely eliminated by placing a common carrier in competition with a private radio applicant for the same spectrum, even if the mutually exclusivity is one caused by an adjacent channel rather than a co-channel problem or even one of harmonic interference. This conflict could only be resolved by the comparative hearing process at great expense to both the parties and the FCC ..."

**ANS Comment:** Again CTI evokes the spectre of an nonexistent problem. ANS merely proposes the same process used today. The process would be the prior showing process mentioned in the related Comsearch response. The common carriers would experience competition in their 500 MHz wide 6 GHz band but they would be allowed to compete for frequencies in the 350 MHz wide private band. The low to medium density frequency allocations are of considerable use to the highly active cellular radio common carrier group. If significant high density expansion is an issue, fiber optics is a natural expansion mode for common carriers (as MCI observed). Again CTI brings up the question of harmonic interference. Today modern microwave manufacturers produce equipment which radiates no significant harmonics of its transmitted signal. Private user radios are built by these same manufacturers and will not cause this problem. ANS is at a loss as to CTI's concern regarding this alleged problem.

**CTI Comment (11/3;12/1,2):** "ANS' proposed introduction of a number of low capacity channels now to be available to private radio licensees carved out of this 6 GHz common carrier band would greatly increase the problem of terrain scatter and frequency congestion ... While interference from these low capacity 6 GHz channel users would only "knock out" part of the carrier's operation it would still make the whole common carrier service provided useless to its customers. The carrier, at great expense, would have to add test equipment and staff to guard against such degrading interference on a 24 hour a day basis and search for the offender out of the morass of possible offenders. If the FCC's data base is not absolutely up to date that offender would be impossible to find."

**ANS Comment:** ANS does not concur. The above concerns are overstated.

**CTI Comment (12/2):** "However, ANS does not present one scintilla of evidence as to whether such coordination standards can even be achieved or at what cost."

**ANS Comment:** Revision of coordination standards, while a formidable challenge due to the large number of systems and interference standards to be addressed, is well within the capability of industry groups to accomplish. A member of ANS' technical staff chairs the TIA group which defines TIA Bulletin 10, the industry standard for private microwave point to point interference standards. ANS staff members participate with other industry members of the NSMA study group responsible for the common carrier

interference standards. ANS invites CTI to participate with us in this important industry activity. The revision could be handled by various industry agencies. This aspect of our proposal has been commented upon by various groups. CTI is referred to other comments, notably those of Comsearch, Harris-Farion and TIA.

#### **GE American Comm., Inc. (GEA)**

**GEA Comment (1/1):** "ANS' petition is unduly duplicative of the orderly consideration of the question of the relocation of 2 GHz operations that the Commission already has underway and, if adopted, will have an adverse impact upon the hundreds of millions of dollars in embedded investment by users in C-band satellite services. In addition, ANS' proposals make coordination between fixed operations and satellite services even more difficult than it already is, delaying the prompt initiation of services to users."

**ANS Comment:** To the contrary, the procedure proposed would simplify the process. By placing the satellite systems on secondary status in the proposed frequency bands, coordination could be limited to microwave point to point users. This is a much easier task. Coordinating with satellite earth stations typically requires several site surveys. Most coordination studies involving only point to point stations can be accomplished using established computer simulations.

**GEA Comment (2/2):** "Reallocation of the 4 GHz band would be disruptive and would adversely affect millions of dollars of investment."

**ANS Comment:** GEA offers this comment without supporting evidence.

**GEA Comment (3/2):** "ANS naively believes that this disruptive effect can be avoided if the reallocation were phased over a ten to fifteen year period. This assertion cannot withstand analysis."

**ANS Comment:** The analysis is missing.

**GEA Comment (4/2):** "C-band satellite service users made these investments in reliance upon the expectation that full use of the 3.7-4.2 GHz band for the provision of C-band downlink services would continue to be permitted."

**ANS Comment:** ANS proposes the rules to take effect after ten to fifteen years. All known and proposed facilities would be fully amortized by that time using any known accounting practice.

**GEA Comment (5/2):** "ANS' rechannelization proposal would only complicate coordination of earth stations."

**ANS Comment:** To the contrary, they simplify the process. See above comment.

**GEA Comment (6/2):** "... coordination between the two co-primary users of the 4 GHz band is already difficult ..."

**ANS Comment:** ANS strongly concurs.

#### **General Telephone Company (GTE)**

**GTE Comment (SUMMARY,i /3):** "GTE has considerable problem (sic) with the specific rule changes that ANS suggests for the 4 GHz band. ANS' proposal ... would create uncertainty in the market regarding the reliability and stability of satellite-based technologies."

**ANS Comment:** GTE offers these comments without supporting evidence.

**GTE Comments (SUMMARY,ii/2):** "GTE recommends that the Commission focus on improving frequency reuse rather than on restructuring the bands. Accordingly, GTE believes that would be appropriate for the Commission to consider upgrading its antenna performance standards at this time."

**ANS Comment:** ANS concurs with upgrading of FCC antenna standards. However, for most 4 GHz interference cases (e.g., study the examples in the ANS petition), improved antenna standards would not reduce interference to tolerable levels.

**GTE Comments (2/3):** "GTE agrees with the premise on which ANS' Petition is based."

**ANS Comment: ANS concurs.**

**GTE Comments (3/2): "The Commission must resolve any technical issues associated with relocating the 2 GHz band users prior to any reallocation and must deal with all 2 GHz users in an even-handed manner."**

**ANS Comment: ANS concurs.**

**GTE Comments (3/3): "GTE is generally supportive of the concerns ANS raises in its Petition."**

**ANS Comment: ANS concurs.**

**GTE Comments (5/2): "ANS' proposed rule changes for the 4 GHz band do not serve the public interest."**

**ANS Comment: Only the FCC can establish this. ANS supports the FCC in its deliberation regarding this matter.**

**GTE Comments (5/3): "GTE has no objection to private carrier use of common carrier frequency bands, as long as the private carriers comply with established industry practices for the band in question."**

**ANS Comment: ANS concurs partially. We propose modifying the established industry practices.**

**GTE Comments (7/2): "ANS recommends in its Petition that the 4 GHz band be made available for routine licensing in the Private Operational Fixed Microwave Service on a co-primary basis. GTE has no objection to such a proposal. However, ANS goes on to argue that the Commission should reallocate 80 MHz of the band to the Fixed-Satellite Service on a secondary basis over a 15-year transition period to promote "favorable frequency coordination between the fixed microwave and earth station users on this band." This is completely unacceptable."**

**ANS Comment: ANS does not concur.**

**GTE Comments (7/3;8/1): "As ANS effectively recognizes in its Petition, the 4 GHz band is already very congested in many parts of the country."**

**ANS Comment: ANS concurs.**

**GTE Comments (9/2): "Such policy changes harm the satellite industry in its efforts to compete with other service providers that employ different transmission media."**

**ANS Comment: ANS does not wish to comment on this. However, GTE has offered no evidence to support this claim. One may observe that the same argument holds true for many of the common carriers and private users being displaced from 2 GHz to make way for the Emerging Technologies.**

**GTE Comments (12/1): "... it is not at all clear to GTE that the 4 GHz band can be restructured as proposed by ANS without having a severe impact on satellite users."**

**ANS Comment: ANS is willing to participate with other members of the telecommunications community in establishing appropriate interference standards to avoid any such problem. This is typically accomplished by NSMA and TIA. Satellite coordination procedures have been developed over the last twenty years and are mature. ANS is confident that appropriate coordination procedures can be developed.**

**GTE Comments (13/1,2): "GTE believes that improved frequency reuse can best be accomplished through use of improved terrestrial antennas. ... All new services ... should be implemented using state-of-the-art antennas. ... The antenna standards for other, currently less congested frequency bands should also be reviewed."**

**ANS Comment: ANS concurs with upgrading of FCC antenna standards. However, for most 4 GHz interference cases (e.g., study the examples in the ANS petition), improved antenna standards would not reduce interference to tolerable levels.**

### **Home Box Office (HBO)**

**HBO Comments (SUMMARY,i/1): "Home Box Office (HBO) ... opposes the proposal by Alcatel Network Systems, Inc. ("Alcatel") to reallocate 80 MHz of the C-Band**

satellite downlink spectrum at 4 GHz. HBO has attached a technical report demonstrating that the Alcatel proposal would eliminate four full downlink transponders at 4 GHz on all C-band domestic satellites."

ANS Comment: ANS' petition took that into account. Using any location other than the band edges would have eliminated six full downlink transponders.

HBO Comments (SUMMARY,i/1,2): "The Alcatel proposal would reduce the down-link spectrum available to C-band satellite users by 16%. There is no justification for such a massive reduction in the spectrum allocated to the fixed-satellite service ..."

ANS Comment: The "massive reduction" is less than the common carriers and private users are being forced to accept at 2 GHz.

HBO Comments (SUMMARY,i/2;3/2): "The Alcatel proposal would have an especially severe and unwarranted impact upon the television distribution industry ... cable television program services ... are distributed via C-band satellite ..."

ANS Comment: The proposal is offered because the 4 GHz band is the most logical technical choice for use by displaced 2 GHz users. The satellite earth stations have severely limited the use of the band by legitimate point to point users. It is not obvious why the television distribution industry interests should take precedence over the 2 GHz users. A portion of the 42% of transponder traffic currently used for occasional video could be moved to Ku or Ka band.

HBO Comments (SUMMARY,ii/2): "If the C-band frequencies do not have sufficient available capacity or 2 GHz users cannot use them in a compatible manner with existing users, then such frequencies should be removed from the reallocation plan."

ANS Comment: ANS does not concur. Microwave point to point users were the first to develop this band. The point to point users are coprimary at this time. They have a legitimate right to use of this band. Satellite earth station coordination procedures severely limit the exercise of their rights.

**HBO Comments (1/4):** "At the outset, HBO would like to underscore its support for the Commission's proposal in ET Docket No. 92-9 to establish a spectrum band for new telecommunications technologies."

**ANS Comment:** This is a question of public interest to be decided by the FCC.

**HBO Comments (2/1):** "Nor does HBO object to the Commission's proposal that relocated microwave users be permitted to become eligible users of, and to share, available capacity in the 3.7-4.2 GHz band with fixed-satellite users on a coprimary basis subject to existing technical requirements and the coordination procedures currently followed by satellite users and common carrier microwave licensees."

**ANS Comment:** ANS concurs with the coprimary comment but would propose to modify the current coordination procedures.

**HBO Comments (4/2;5/1):** "... Alcatel has failed to demonstrate that such a reallocation is necessary for existing fixed microwave users to have adequate spectrum for their services upon relocation from the 2 GHz band. ... the Alcatel proposal should be rejected out of hand. ... Alcatel has not even begun to compile the record necessary for the Commission to conduct a public interest inquiry to determine whether the needs of one group of users are so compelling that they justify a net reduction in available spectrum for other services. ... Alcatel's back-of-the-napkin proposal ignores so many essential factual and public policy issues that it warrants no further consideration by the Commission."

**ANS Comment:** Again, this statement is offered without supporting evidence. A less sarcastic but more technically oriented approach might serve the public interest better.

**HBO Comments (6/1,2):** "The Notice states (7 FCC Rcd at 1544) that the higher frequency bands were chosen because they have "adequate capacity" to handle existing users and fixed microwave users. ... If in fact there is no excess capacity in that spectrum band [3.7-4.2 GHz] for 2 GHz users, then it should be excluded from the reallocation plan altogether ..."

**ANS Comment:** ANS does not concur. As noted in ANS' 92-9 comments, OET has not proven adequate capacity currently exists. Excess capacity can only be assured if all of the ANS proposal is adopted.

**HBO Comments (7/2):** "the Alcatel proposal would seriously harm fixed-satellite users and the general public."

**ANS Comment:** ANS does not concur. HBO has not offered any evidence to demonstrate this statement.

**Harris-Farinon (HFD)**

**HFD Comments(SUMMARY,i/1):** "... Harris-Farinon does not believe the Commission must or should proceed to rule making at this time. ... Harris believes it is preferable at this time to form an industry advisory committee ... hold(ing) the Alcatel Petition in abeyance ... an industry advisory committee will result in a less contentious and shorter rule making proceeding."

**ANS Comment:** The need to proceed with "all deliberate haste" has been demonstrated. The Commission should proceed. An industry advisory committee might prove useful after the proposed NPRM process is finished.

**HFD Comments(1/2):** "Harris is interested in ensuring that ... the transition from "gerrymandered" private and common carrier bands to a coprimary sharing environment is implemented in an equitable manner."

**ANS Comment:** ANS concurs.

**HFD Comments(2/1,2):** "... Harris applauds Alcatel for taking the initiative to start the process of developing the rules necessary to effect a migration plan, should one become necessary. ... The groundwork laid in the Alcatel Petition provides a good starting point for the establishment of the necessary technical rules."

**ANS Comment:** ANS concurs.

**HFD Comments(4/2):** "The potential imbalance in spectrum availability between private operational-fixed and common carrier users must be addressed; Possible solutions include retaining exclusive Private Operational-Fixed access to the Upper 6 GHz band

and/or co-primary sharing of Part 74 frequencies. ... Part 94 users will lose four and one-half times more spectrum than Part 21 users (i.e., 180 MHz versus 40 MHz). When coupled with the fact that the cellular industry is the fastest growing segment of point-to-point microwave users, it is apparent that the potential exists for creating an imbalance in terms of the spectrum available for common carrier versus private operational-fixed usage."

ANS Comment: ANS does not concur. The common carriers need access to additional spectrum below 10 GHz. This would give them none at 6 GHz. The 4 GHz issue is still open. As you note, the cellular industry is the fastest growing segment of the point to point microwave users. They are common carriers.

HFD Comments(6/1,2,3;7/1): "the need for additional spectrum for terrestrial fixed use must be addressed. ... In short, the 6 GHz band will soon be saturated. ... the proliferation of TVRO satellite dishes in that [3.7-4.2 GHz] band makes it an unattractive relocation option. ... Alcatel offers a partial solution ... Harris supports this proposal but would urge consideration of an even more far-reaching solution, namely, the gradual relocation of all 4 GHz satellite licensees to higher satellite bands ..."

ANS Comment: ANS respects HFD's right to pursue this with the satellite users. We do not object.

HFD Comments(7/2): "Harris believes that all channelization plan should be in the rules. ... standard channelization plans allow for standard equipment design and economies of scale which, in turn, translates into lower equipment costs..."

ANS Comment: ANS concurs.

HFD Comments(8/2): "... the rules must be flexible enough to enable system planners and coordinators to use a transmit channel from one pair and a return channel from another if circumstances dictate ..."

ANS Comment: ANS concurs.

HFD Comments(8/3): "... it is not clear how the expansion of such existing systems would be treated."

**ANS Comment: ANS supports clarifying this issue.**

**HFD Comments(9/2): "The process by which growth channels are protected should be formalized"**

**ANS Comment: ANS concurs.**

**HFD Comments(10/1): "Spectral efficiency limits should be implemented through a phased approach."**

**ANS Comment: ANS concurs if industry agreement is reached that the proposed limitations should be imposed. We agree in concept with increasing spectrum efficiency. This must be balanced against adequate system gain for long paths subjected to rain and multipath fading. ANS suggests that users comment after reviewing typical system gains for the systems proposed.**

**HFD Comments(12/1): "Alcatel proposes ... stacking of multiple contiguous channels in all bands as long as the minimum payload capacity requirements are met. ... Harris agrees that such flexibility should be incorporated into all channelization plans, but the scope of such flexibility should be better defined."**

**ANS Comment: ANS concurs. Comments on the scope of channel stacking are enthusiastically solicited.**

**HFD Comments(12/2;13/1,4): "More extensive rule changes are needed to implement automatic transmitter power control [ATPC] ... ATPC should be incorporated into the rules regardless of whether rules are ultimately adopted ... Contrary to Alcatel's assertion, however, it is not clear that use of ATPC is currently permitted under Part 21. ... Harris notes for the record that ... the staff of the Private Radio Bureau has stated that while ATPC "may have laudable features," the licensing of microwave systems utilizing ATPC may not be done under the existing Part 94 rules."**

**ANS Comment: ANS concurs except for the Part 21 comment. Many vendor's radios are current licensed by the FCC under Part 21 for ATPC use.**

HFD Comments(13/3;14/1): "Power mask and other obsolete rules should be reexamined ... they are inconsistent from band to band ... The industry advisory committee should examine all such obsolete rules."

ANS Comment: ANS concurs with the comment regarding the power mask but again questions the feasibility of injecting a advisory committee at this time.

HFD Comments(14/2,15/1): "The Alcatel Petition provides a good starting point ... the most prudent course is to temporarily hold the Alcatel Petition in abeyance while an industry advisory committee considers the many issues ..."

ANS Comment: See first HFD comment above.

### **Hughes Comm. Galaxy (HCG)**

HCG Comments (3/2): "HCG strongly opposes Alcatel's proposal to reduce the amount of 4 GHz spectrum that is available to the burgeoning satellite industry."

ANS Comment: ANS does not concur.

HCG Comments (3/3): "... Alcatel's complaints about the availability and reliability of satellite communications are unfounded."

ANS Comment: The claim in not supported by fact.

HCG Comments (4/1): "This reallocation would effectively result in the loss of 16% of the spectrum currently available to C band satellite operators."

ANS Comment: ANS concurs.

HCG Comments (5/3,6/1): "This [Alcatel Petition] would adversely affect the industry in a number of ways. First, it would restrict the ability of current C band satellite operators to expand their satellite networks as their business expands. Second, it would impede the development of new services that otherwise might occur in an environment in which

sufficient spectrum is available. Third, it would limit the variety of video programming that can be delivered via C band to home dishes as an alternative to cable television."

ANS Comment: The restriction is only 16% of available bandwidth. This restriction applies to all of the above three points. It should be kept in mind that public utilities are being ask to vacate 18% of their available frequencies below 10 GHz. Two pages later in the HCG comments HCG claims "satellite transmission bandwidth is readily available for the same services that are carried on microwave." One might infer that the satellite industry is not so strapped for bandwidth if such a large amount is "readily available."

HCG Comments (6/3): "Any departure from this scheme will provide instability in a highly capital intensive industry. Such changes would shake the stability that has characterized the Commission's regulation of the satellite industry thus far."

ANS Comment: ANS proposes to phase in the changes over a ten to fifteen year period. This would be ample time to plan for the change.

HCG Comments (7/2,3): "Alcatel (the world's largest independent manufacturer and supplier of microwave telecommunications equipment) argues that the Commission cannot rely on these [fiber, cable, and satellite communications] alternatives in reallocating spectrum for emerging technologies ... Contrary to Alcatel's suggestion, satellite transmission bandwidth is readily available for the same services that are carried on microwave."

ANS Comment: ANS is pleased to learn that HCG has transmission bandwidth "readily available." We propose reallocating part of it.

HCG Comments (8/2): "Alcatel's proposal ... would severely disrupt the satellite industry. ... this [4 GHz related] portion of Alcatel's petition should be dismissed without further consideration."

ANS Comment: ANS does not concur. Again, an unsupported statement is made.

## **Large Public Power Council (LPPC)**

**LPPC Comments (2/2): "LPPC is in general agreement with the thrust of Alcatel's Petition."**

**ANS Comment: ANS concurs.**

**LPPC Comments (2/3): "LPPC is in complete agreement, for example, with Alcatel's view of the incompatibility of the higher bands for use in private fixed microwave operations and the chaos that will result if the Commission follows its present course"**

**ANS Comment: ANS concurs.**

**LPPC Comments (2/3): "LPPC also agrees with Alcatel regarding the shortcomings of the Commission's staff study that provided the basis for the proposal in the NPRM, ..."**

**ANS Comment: ANS concurs.**

**LPPC Comments (3/2): "LPPC is unwilling to assume that the federal government would ... refuse to reallocate [its own] spectrum ..."**

**ANS Comment: At this time the government position is not clear. However, it is obvious that a decision will not be made in the near future. Emerging Users are pushing for a speedy resolution. New potential 2 GHz users are severely limited in their options. We need practical answers now.**

**LPPC Comments (4/2): "... LPPC agrees with Alcatel that the Commission's proposal to require 2 GHz fixed microwave users to relocate to higher frequencies simply will not work unless and until the Commission undertakes a complete revision of the rules governing the use of those higher frequencies."**

**ANS Comment: ANS concurs.**

## **MCI (MCI)**

**MCI Comments (1/3): "While MCI generally supports the Commission's intent to provide for the development of new technologies, MCI emphasizes that support of existing fixed microwave services must be preserved during the process. MCI believes that the Commission must adopt specific rules to govern provision of services in other bands that are compatible with current operations."**

**ANS Comment: ANS believes changes to the current rules and regulations are needed.**

**MCI Comments (4/2): "MCI agrees in principle with Alcatel's recommendation that specific channelization plans be established in those bands where spectrum will be shared among various services and bandwidths."**

**ANS Comment: ANS concurs.**

**MCI Comments (5/1): "Sharing of a band segment among numerous bandwidths, ranging from 400 kHz and 30 MHz, would not lead to efficient spectrum use."**

**ANS Comment: ANS does not agree. The low to medium density bands were specifically designed and grouped together to facilitate low to medium density operation while preserving high density expansion channels. This promotes the most efficient use of the available spectrum.**

**MCI Comments (5/2): "In areas where the required traffic loading could not economically utilize the tremendous capacity of fiber optic facilities, microwave systems remain and continue to be expanded."**

**ANS Comment: ANS concurs.**

**MCI Comments (6/2): "... MCI believes that common carriers and others may be substantially disadvantaged if Alcatel's proposal is adopted. ... the tremendous increase in spectrum available to private users must come at the expense of common carriers and satellite C-band users."**

**ANS Comment:** ANS does not concur. Common carriers will benefit from considerably more spectrum being available.

**MCI Comments (3/3):** "If under-utilized bands are added to the [available frequency band] pool, subject to sharing, however, some net gain could be expected. The Alcatel proposal to add the 3.6-3.7 GHz band is a move in the right direction. MCI recommends that the Commission, in cooperation with NTIA, identify any other [non-classified government systems] bands in the 3-11 GHz range ... and consider making those additional frequencies available for use ..."

**ANS Comment:** ANS concurs.

**MCI Comments (6/1):** "The bandwidth allocations proposed by Alcatel appear to be structured around its current product line."

**ANS Comment:** To the contrary, the ANS position favors more efficient spectrum use of current bands regardless of ANS product convenience. The bandwidth allocations are consistent with standard radio modulation schemes used by all current microwave suppliers. We would be pleased to review our current product line with appropriate MCI officials and compare them to the proposed channels. If MCI is aware of any significant limitation with the proposed approach, ANS would be pleased to discuss it.

**MCI Comments (7/2):** "MCI agrees with Alcatel's assertion that the antenna pattern standards in the current Commission rules are obsolete."

**ANS Comment:** ANS concurs.

**MCI Comments (7/3):** "Although MCI believes that the rules ultimately adopted by the Commission may differ in some important respects from those proposed by Alcatel, MCI agrees with the main thrust of Alcatel's petition."

**ANS Comment:** ANS concurs.

**MCI Comments (7/4):** "MCI notes that Alcatel suggests that the 40 MHz bandwidth is obsolete. However, another manufacturer has recently introduced a SONET-compatible

4 GHz radio with 40 MHz bandwidth and six DS-3 capacity (actually six STS-1 capacity)."

ANS Comments: "The approach MCI noted uses 512 QAM to achieve the digital density necessary to pack six STS-1 into the 40 MHz bandwidth. Because of this fragile modulation technique, the system has very unfavorable system gain. The typical common carrier 4/6 GHz path is 27 miles long. Private user paths are often ten miles longer. It is impractical to use this system for normal distance paths. The practical approach is to use 128 QAM and advanced coding techniques to put three STS-1 into 30 MHz bandwidth. This produces a practical system. That approach, in a typical 1:N multiline application, would use five 30 MHz channels (4:1). That approach was analyzed for the lower 6 and 11 GHz frequency plans. We confirmed appropriate stacking and intermodulation (2A-B) performance would be achieved with both approaches. If the 6 and 11 GHz plans are accepted, 6 GHz could be used for most long distance applications and 11 GHz could be used for urban entrance links. The approach offered allows 11 GHz to interface two full 6 GHz systems. With similar bandwidths, simple high speed I/Q ("rail") interconnects could be used at these repeaters without the complication and cost of multiplexing equipment.

#### **Microwave Radio Corporation (MRC)**

MRC Comments (2/2): "The private microwave bands at 2, 6 and 12 GHz support relatively long path length applications. A decade ago, the total amount of spectrum in the Part 94 bands at 6, 6 and 12 GHz was 1030 MHz. By eliminating the 12.2-12.7 GHz band, this was decreased to 530 MHz. The proposed elimination of 1850-1990, 2130-2150 and 2180-2200 MHz would cut this to 350 MHz. This is not adequate to support the future needs of the private microwave service."

ANS Comment: The ANS proposal would go a long way toward resolving this acknowledged problem.

MRC Comments (3/1): "These microwave bands at 4, 6 and 11 GHz are no longer essential to common carriers. Common carriers have devoted the bulk of their network expansion efforts to the deployment of fiber optics communications systems. This is well documented in the Common Carrier Bureau's periodic Fiber Deployment Studies and in recent NTIA studies. Consequently, they may be unable to argue that sharing these bands

with private microwave users will deprive them of capacity they need for service to their customers."

ANS Comment: ANS concurs.

MRC Comments (3/2): "Private microwave uses and common carrier microwave uses are operationally similar and administratively compatible. They use the same technology and carry the same kinds of traffic. There is no reason that they should not be permitted to share the same frequency bands."

ANS Comment: ANS concurs.

MRC Comments (4/1): "We support the Alcatel request that the Commission begin a rulemaking proceeding to allocate additional spectrum to the private microwave service. We specifically support the Alcatel proposal that current and future private microwave users should be eligible to use the 4,6 and 11 GHz bands, and that these bands should be added to Part 94."

ANS Comment: ANS concurs.

#### **National Spectrum Managers Association (NSMA)**

NSMA Comments (1/3): "The NSMA believes that careful development of microwave channel plans and their efficient utilization is important."

ANS Comment: ANS concurs.

NSMA Comments (2/1): "... the goal of efficient spectrum utilization and the needs of both narrowband and wideband operators would be served if the Commission were to establish rules that would encourage the displacees to first look for available frequencies in those bands (e.g., 6, 10, and 18 GHz) which already have narrowband channelization and may better match the bandwidth needs of the displacees."

**ANS Comment:** If adequate spectrum were currently available, ANS would concur. We do not believe currently available frequencies are adequate for the increased load of new and existing users. That is the reason for our proposal.

**NSMA Comments (2/3;3/1,2):** "As a means of accommodating these narrowband needs ... The band segment 4180-4200 MHz, however, appears to be lightly used ... Those of those [slightly less used 6 GHz band] segments, 5925-5930 and 6420-6425 MHz , are near the edges of the band and the third, 6168-6182 MHz, is between the high ... and low ... channel blocks ...A middle 10 MHz segment of the band (11195-11205 MHz) lies between the paired high/low channel blocks. In addition, the 15 MHz segments at the lower and upper edges of the band appear to be lightly used relative to the rest of the band.

**ANS Comment:** ANS appreciates these observations. They should prove useful in the proposed NPRM process.

**NSMA Comments (3/3):** " ... it is important that current licensees be permitted to continue to operate on their existing frequency assignments."

**ANS Comment:** ANS concurs.

**NSMA Comments (3/4,4/1):** "The NSMA believes that continued application of those [prior frequency coordination] requirements is appropriate and should be applied to all microwave bands."

**ANS Comment:** ANS concurs.

#### **Pacific Telesis Group (PTG)**

**PTG Comments (1/1):** "Pacific Telesis Group ("Telesis") is in complete agreement with the fundamental premise of the Petition for Rule Making filed by Alcatel Network Systems, Inc."

**ANS Comment:** ANS concurs.

PTG Comments (1/2;2/1): "Alcatel is correct in saying that "without specific rule changes, controlled and orderly migration [out of the 2 GHz band] is not possible." ... Telesis also agrees with Alcatel's statement of the need for rechannelization of some bands above 3 GHz, to accommodate low capacity radio systems displaced from the 2 GHz bands."

ANS Comment: ANS concurs.

PTG Comments (2/2): "... the 4 GHz common carrier band [is] essentially closed to growth due to potential interference to earth stations ... Alcatel's proposal for the 4 GHz band need not be discussed, since this band is unavailable."

ANS Comment: ANS concurs that the 4 GHz band is currently essentially closed. We propose to remedy this situation.

PTG Comments (2/2): "The common carrier bands should remain dedicated to common carriers."

ANS Comment: ANS does not concur.

PTG Comments (3/1): "... Telesis opposes any attempt to reduce the multi-DS-3 capacity [of multichannel, broadband radio routes]."

ANS Comment: ANS would not propose to tell PTG what they need. However, as a major supplier of point to point microwave equipment to the North American market, we can not help but observe that the vast majority of current sales of microwave radios are low to medium nonmultichannel digital radios. We have proposed plans which would continue to provide for these radios while protecting these wide band channels from low density use.

PTG Comments (4/2): "... we agree that portions of the 6 and 11 GHz bands should be sub-divided for narrowband frequency slot. But the portions of the band set aside for wideband (30 MHz) channels should remain undivided."

ANS Comment: ANS believes there is significant need for medium density channels. Resolution of this point could be accomplished in the proposed NPRM process.

PTG Comments (5/1): "... the distinction between common carriers and private users should remain."

ANS Comment: ANS does not concur.

#### **Spatial Communications, Inc. (SCI)**

SCI Comments (2/1): "... there is no need to delay the Emerging Technologies rulemaking and related ongoing allocation proceedings ..."

ANS Comment: The adoption of rules addressing the issues raised by the ANS petition are necessary to allow the Emerging Technologies rule making to proceed.

SCI Comments (5/3;6/1): "SCI agrees that blanket waivers of existing technical rules for 4, 6, and 11 GHz microwave operations may not be the most effective way of facilitating the eventual relocation of 2 GHz microwave operations. SCI strongly disagrees, however, with Alcatel's contention that a separate proceeding to develop rules for relocated 2 GHz microwave operations must be completed before further Commission action in the Emerging Technologies rulemaking."

ANS Comment: ANS disagrees. If potential 2 GHz users are being denied the 2 GHz band, provision must be made at the same time for their migration to the higher bands.

#### **Telecommunications Industry Association (TIA)**

TIA Comments (1/2): "Consideration should be given to the use of the 2.5 GHz band for emerging technologies."

ANS Comment: Consideration of all possible alternatives is endorsed.

TIA Comments (1/3): "Consideration should be given to allowing fixed point to point microwave users to remain (co-)primary in rural areas."

ANS Comment: Consideration of all possible alternatives is endorsed.

TIA Comments (2/1): "The point is made that Part 21 and Part 94 users are operationally and technically similar. With similar needs and technical characteristics, placing them together as co-primary users seems reasonable. A similar case could be made for Part 74 users."

ANS Comment: ANS concurs with the first two sentences. ANS does not object to considering Part 74 allocations. It not clear that much benefit would be obtaining by adding them to the list of coprimary bands.

TIA Comments (2/2): "Specifically, expansion of fragments of existing paths using existing frequency plans should be allowed without waiver after valid showing to the FCC. The expansions, however, would have to comply with the then current coordination standards and procedures."

ANS Comment: ANS concurs.

TIA Comments (2/3): "It is recommended that the frequency plans for all microwave users be placed in the Commission's Regulations."

ANS Comment: ANS concurs.

TIA Comments (2/4): "the petition suggests migrating the frequency bands toward more commonly used (world wide) channel bandwidths ... This facilitates the reuse of modem technology ... it promotes ... positioning the telecommunications industry to compete internationally."

ANS Comment: ANS concurs.

TIA Comments (1/2): "The petition drops the voice channel loading requirements and analog performance standards. ... Voice channel requirements for digital radios are virtually meaningless. ... The issue [of analog digital and mixed system coordination parameters] are adequately addressed within the industry."

ANS Comment: ANS concurs.

TIA Comments (3/2): "Use of the preferred channel pairing should be encouraged but occasional use of other channels should be allowed if needed for frequency coordination reasons."

ANS Comment: ANS concurs.

TIA Comments (3/3;4/1): "It is recommended that multiple channel concatenation (merging of contiguous channels) be allowed up to the largest channel bandwidth in the given band. However, the Regulations for each band segment would still have to be met."

ANS Comment: ANS concurs. ANS also concurs with the HDF suggestion that further clarification in this area is needed.

TIA Comments (4/2): "Satellite systems should be encouraged to migrate from 4 GHz to higher bands. The transition period should be a reasonable time period to allow recovery of cost from existing or currently planned systems."

ANS Comment: Consideration of all possible alternatives is endorsed.

TIA Comments (4/3): "Consideration should be given to encouraging the appropriate group to review the [antenna] standards and update them. The TIA is recommended for this activity."

ANS Comment: ANS concurs.

TIA Comments (4/4): "The need to preserve system gain is true for 10 GHz systems as well as 11 GHz systems. The minimum capacity requirements should apply to systems operating below 10 GHz. Although DS-1 and DS-3 are currently payload standards, these rates should be converted to a generic payload data rate (such as bits/second) to allow migration to other digital formats (e. g., SONET data formats such VT or STS)."

ANS Comment: ANS concurs.

TIA Comments (4/5): "The Commission should recognize some method of coordinating this [interference criteria establishment] process."