

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

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FILE

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Federal Communications Commission  
Office of the Secretary

In the Matter of )

AMENDMENT OF PARTS 2, 22 & 25 )  
OF THE COMMISSION'S RULES )

for an Allocation of Frequencies and )  
Other Rules for a New Nationwide Hybrid )  
Space/Ground Cellular Network for )  
Personal/Mobile Communications )  
Services )

RM-7927

**LIMITED OPPOSITION OF**  
**TELESCIENCES TRANSMISSION SYSTEMS, INC.**

Telesciences Transmission Systems, Inc. ("Telesciences"), by its undersigned attorneys, hereby submits this limited opposition to CELSAT, Inc.'s Petition for Rulemaking ("Petition")<sup>1/</sup> seeking allocation of spectrum in either Band A -- 1,610 to 1,625.5 MHz and 2,483.5 to 2,500 MHz or Band B -- 2,110 to 2,129 MHz and 2,410 to 2,428 MHz -- on an exclusive primary basis to house a Hybrid Personal Communications Network ("HPCN"). Although Telesciences enthusiastically supports the rapid introduction of advanced, new radio-based services that will provide valuable benefits to the American public, it strongly believes that CELSAT's proposal -- to the extent that it

<sup>1/</sup> CELSAT also filed a companion Request for Pioneer's Preference for its HPCN technology.

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proposes reallocation of the 2110 - 2129 MHz band -- should be dismissed at this time for both procedural and substantive reasons.

## **I. INTRODUCTION**

TeleSciences,<sup>2/</sup> headquartered in Bloomingdale, Illinois, is a leader in the design, manufacture, installation and service of analog and digital microwave radio transmission systems. Telescience pioneered the 2 GHz digital microwave radio technology in the 1970s. Today, Telescience continues its pioneering work in digital microwave radio technologies and is a major manufacturer of high-quality microwave radio equipment used in the Part 21 common carrier point-to-point and Part 94 private operational-fixed microwave services. Telescience's products currently include a wide variety of microwave radio equipment using the 2 to 38 GHz frequency range with capacity up to 45 Mbps.

As a major manufacturer of state-of-the-art microwave radio equipment and a well-recognized leader in the development of radio-based technologies, Telescience is intimately aware of the spectrum needs of many of the new advanced wireless technologies that have emerged in the United States and Europe in the past several years. Indeed, Telescience has devoted substantial financial and personnel resources to the research and development of advanced wireless technologies. Telescience plans to

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<sup>2/</sup> Telescience Transmission Systems, Inc. is a subsidiary of Telescience, Inc. TeleSciences, located in Silicon Valley, is a well-established manufacturer of high-quality digital microwave radio and fiber optic transmission systems and other sophisticated telecommunications products. Telescience is a major supplier of sophisticated communications products to operating telephone companies, cellular radio operators, utilities and private networks.

utilize advanced radio technologies in, among other products, personal communications services equipment and equipment that will operate as a part of other radio-based systems currently under consideration by the Commission.

**A. CELSAT's Petition**

CELSAT's Petition requests that the Commission amend its rules to allocate spectrum for a nationwide hybrid geostationary satellite and ground-cellular network for mobile communications services. According to CELSAT, the HPCN concept can be achieved with its newly developed CELSTAR technology which it describes as a "truly integrated space/ground cellular network system, designed from the ground up to take maximum advantage of the very flexible and powerful service opportunities uniquely afforded by HPCN."<sup>3/</sup> CELSAT argues that with the CELSTAR design and two duplex spectrum bands, HPCN will be able to combine the best of mobile satellite and ground-based cellular and other wireless technologies among other benefits to achieve a higher standard of spectrum utilization and efficiency, utilize fixed position, geosynchronous orbits to ensure stable, low cost and predictable coverage integratable with ground elements, and utilize the emerging CDMA ground cellular standard.<sup>4/</sup>

CELSAT argues that HPCN cannot be accommodated by any existing spectrum allocation in the Commission's Rules. Accordingly, CELSAT identifies two possible spectrum bands in which, according to CELSAT, HPCN could be housed efficiently if

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<sup>3/</sup> CELSAT Petition at p. 2.

<sup>4/</sup> CELSAT Petition at p. 3.

allocated on a primary, exclusive basis. Specifically, CELSAT believes that a HPCN could operate most efficiently at the L/S band and accordingly requests reallocation of Band A -- 1610 - 1626 MHz/2483.5 - 2500 MHz to HPCN. Alternatively, CELSAT proposes that HPCN be permitted to operate on the S-Band at Band -- 2110 - 2129 MHz/2410 - 2428 MHz. CELSAT requests that the Commission establish at least one band pair allocation for an integrated space/ground HPCN with satellite-user links on an exclusive primary basis.

**II. CELSAT'S PETITION FOR USE OF SPECTRUM IN THE 2 GHz BAND SHOULD NOT BE CONSIDERED UNTIL THE COMMISSION CONCLUDES THE PENDING RULEMAKING PROCEEDING TO REALLOCATE THE 2110-2150 MHz BAND TO THE EMERGING TECHNOLOGIES BAND**

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Insofar as CELSAT's HPCN petition proposes reallocation of spectrum in the 2 GHz band currently under consideration in the Commission's open ET Docket 92-9,<sup>5/</sup> it should be denied. The Commission initiated rulemaking proceedings in ET Docket 92-9 to address the compelling need to identify suitable spectrum, and an appropriate means for reallocating that spectrum, to new emerging technologies. The Commission's public interest goal in that proceeding is specifically to examine ways to facilitate the introduction of new emerging technologies while minimizing any adverse impact on existing users. On the basis of an extensive spectrum study conducted by Commission

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<sup>5/</sup> See Notice of Proposed Rulemaking, ET Docket 92-9 (released February 7, 1992) ("Notice"). The Commission's Notice in Docket 92-9 proposes to create a spectrum reserve in the 1.85 - 2.2 GHz band for emerging technologies.

staff<sup>6/</sup> and a careful weighing of various public interest considerations, the Commission tentatively concludes in the Notice that the 2110 - 2150 MHz band, among other frequencies, should be reallocated for use by new emerging technologies. Only after the Commission considers the public comments submitted on its proposal and reaches a reallocation decision will the Commission consider in a separate rulemaking proceeding which specific emerging technology should be introduced on the spectrum reserved for this purpose.<sup>7/</sup> PCS is expected to be the first family of new services to be considered by the Commission after a reallocation decision is reached.<sup>8/</sup>

In light of the pending proceeding in ET Docket 92-9, at this time, it is still unsettled whether spectrum in the 2 GHz band will be reallocated to new technologies. The Commission is only in the first stage of establishing the record necessary to determine whether a reallocation of the 2110 - 2150 MHz frequencies, and other spectrum is in fact, in the public interest.<sup>9/</sup> As discussed briefly below, Telesciences opposes reallocation of the 2110 - 2150 MHz band. Accordingly, Telesciences plans to submit comments in ET Docket No. 92-9 discussing fully the implications of the Commission's proposal to reallocate spectrum from the 2 GHz band at this time.

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<sup>6/</sup> See "Creating New Technology Bands for Emerging Telecommunications Technology", OET/TS 91-1 (January, 1992).

<sup>7/</sup> See Notice at ¶ 28.

<sup>8/</sup> See Notice at ¶ 29.

<sup>9/</sup> The Commission recently extended the Comment due date from April 21, 1992 to June 5, 1992. See Order Extending Time for Comments and Reply Comments, ET Docket 92-9 (released April 1, 1992).

Telesciences anticipates that other parties will also submit comments examining the reallocation of the 2 GHz band.

Given the numerous remaining questions surrounding the proposed relocation of many microwave users in the 2 GHz band and the anticipated comments of microwave users and equipment manufacturers, CELSAT's petition -- to the extent that it proposes a new use of the 2110 - 2150 MHz frequencies -- should be dismissed. Telesciences expects that the comments and reply comments in ET Docket 92-9 will undoubtedly identify numerous significant policy and technical issues not contemplated by the Commission's proposal. In light of the current posture of Docket 92-9, initiation of a separate proceeding to consider concurrently reallocation of 2 GHz spectrum to HPCN would be inefficient, duplicative, and could result in the establishment of inconsistent policies. The Commission should not put the cart before the horse by considering CELSAT's 2 GHz proposal in a separate rulemaking proceeding at this time.<sup>10/</sup> Common sense and the public interest dictates that CELSAT's proposal should not be considered during the pendency of other proceedings involving spectrum in the 2 GHz band.

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<sup>10/</sup> To further complicate matters, the Utilities Telecommunications Council recently filed a petition for rulemaking asking the Commission to defer all action on Docket 92-9 until the Commission has initiated a separate rulemaking proceeding to address and resolve critical "technical and operational issues" unaddressed by the Commission's Notice. See Petition for Rulemaking, Utilities Telecommunications Council (filed March 31, 1992). Alternatively, UTC requests that the Commission issue a Further Notice in ET Docket 92-9 to solicit comment on both the original NPRM and the Further Notice. UTC's petition also seeks amendment of Parts 2, 21, and 94 of the Commission's rules to permit private microwave users to use frequencies in the 1.71 - 1.85, 3.2 - 4.2 5.925 - 6.425 and 10.7 - 11.7 GHz bands on a co-primary basis.

### **III. CELSAT's PETITION SHOULD BE CONSIDERED IN DOCKET 90-314 WITH OTHER PERSONAL COMMUNICATIONS SERVICES PROPOSALS**

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As described by CELSAT, the HPCN concept is designed primarily to meet the public demand for wireless/personal mobile communications. Despite CELSAT's claim that the architecture necessary to achieve HPCN's "superior" communications performance is unique, it is fundamentally a member of the PCS family of services currently under consideration in Docket 90-314. Indeed, other than the fact that CELSAT targets a different spectrum band and proposes to use a satellite in the provision of its personal communications services, its proposed service is very similar to other PCN/PCS proposals currently pending in Docket 90-314. Allocation of spectrum to HPCN in a separate proceeding would not only be manifestly unfair to the many petitioners still awaiting action on their various PCS proposals in Docket 90-314, it would effectively allow CELSAT to bypass Docket 90-314 and receive special consideration for its HPCN proposal. Further, already scarce Commission resources would be unnecessarily wasted by the need to consider essentially the same issues in two separate proceedings. The public interest dictates that the Commission consider all requests for spectrum to provide personal communications services in the same docket. Accordingly, the Commission should deny CELSAT's Petition.

If the Commission elects not to deny CELSAT'S petition because it finds some merit in CELSAT's HPCN concept, Telesciences urges the Commission to dismiss CELSAT's Petition without prejudice and advise CELSAT to formally refile its Petition

in Docket 90-314 to be considered with other PCS proposals after a reallocation decision is made in ET Docket No 92-9.

**IV. SPECTRUM IN THE 2.1-2.2 GHz BAND IS CURRENTLY EFFICIENTLY AND EXTENSIVELY USED BY MICROWAVE USERS AND SHOULD NOT BE REALLOCATED TO HPCN**

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Notwithstanding the Commission's public interest objective to promote new services, given the current extensive use of the 2110 - 2150 MHz frequency bands by spectrally efficient, proven technologies, Telesciences urges the Commission to weigh carefully the substantial disadvantages of relocating the 2.1 - 2.2 GHz users against the prospects for comparably efficient use by the proposed HPCN service.

Microwave radios in the 2 GHz band are currently the most spectrally efficient microwave radios on the market. These radios are used extensively in cellular networks to interconnect cell sites to Mobile Telephone Switching Offices ("MTSOs"). The radios use 128 and 256 QAM technology to achieve 6/b/s/Hz and 5.25 b/s/Hz bandwidth efficiencies. This highly efficient modulation scheme combined with an appropriate channelization plan facilitates highly efficient use of the band by the current users. Displacement of microwave users from the 2 GHz band to frequency bands with less efficient modulation schemes and incompatible channelization plans will result in reduced efficiency requiring more spectrum use to accommodate the same number of users. Therefore, if adopted, CELSAT's proposal will likely lead to less efficient spectrum use in contravention of the Commission's stated goals of promoting more efficient use of the limited spectrum resources.

In Telesciences' view, when weighed against the prospects for efficient spectrum uses under CELSAT's HPCN proposal, the scale tips in favor of maintaining the status quo. Accordingly, even if the Commission finds that CELSAT's proposal is sufficiently different from other PCS proposals to warrant consideration separate from the pending rulemaking proceedings in ET Docket 92-9 and Gen. Docket 90-314, Telesciences urges the Commission to deny CELSAT's Petition to the extent that it proposes to reallocate the 2110 -2150 MHz frequencies.

V. CONCLUSION

For the foregoing reasons, Telesciences urges the Commission to deny or alternatively, dismiss, without prejudice, CELSAT's petition at this time.

Respectfully submitted,

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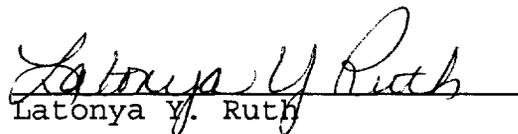
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