ORIGINAL

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

In the Matter of	)	
	)	
Amendment of the Commission's Rules	)	ET Docket No. 96-102
to Provide for Unlicensed NII/SUPERNet	)	RM-8648
Operations in the 5 GHz Frequency Range	)	RM-8653
	)	

REPLY COMMENTS OF L/Q LICENSEE, INC.

William F. Adler
Vice President &
Division Counsel
GLOBALSTAR
3200 Zanker Road
San Jose, CA 95134

Leslie A. Taylor
Guy T. Christiansen
LESLIE TAYLOR ASSOCIATES
6800 Carlynn Court
Bethesda, MD 20817
(301) 229-9341

William D. Wallace
CROWELL & MORING LLP
1001 Pennsylvania Avenue, N.W.
Washington, D.C. 20004
(202) 624-2500

Its Attorneys

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Pursuant to Section 1.415 of the Commission's Rules, L/Q Licensee, Inc. (LQL), hereby submits its Reply Comments on the Commission's proposals to permit operation of unlicensed NII/SUPERNet devices in the 5150-5350 MHz and 5725-5875 MHz frequency bands.[1] LQL has a substantial interest in this proceeding because it is the licensee of the Globalstar™ low-earth orbit MSS Above 1 GHz satellite system.[2] LQL currently has pending before the Commission an application to modify this authorization for unconditional assignment of feeder link frequencies in the 5091-5250 MHz and 6875-7055 MHz bands (File No. 90-SAT-ML-96) and a Request for Waiver of the U.S. Table of Frequency Allocations to permit operation in the United States of MSS feeder links in accordance with the International Table of Frequency Allocations adopted at the 1995 World Radiocommunication Conference (WRC-95) (File No. 88-SAT-WAIV-96).

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[1] See Notice of Proposed Rule Making, 11 FCC Rcd 7205 (1996) (NPRM).

[2] See Loral/Qualcomm Partnership, L.P., 10 FCC Rcd 2333 (Int'l Bur. 1995), aff'd, FCC 96-279 (released June 27, 1996).

INTRODUCTION AND SUMMARY

The initial comments in this proceeding provide no justification for permitting operation of NII/SUPERNet devices in the 5150-5250 MHz band.[3] First, the proponents of NII/SUPERNet services have failed to demonstrate the feasibility of sharing this band on a non-interference basis with MSS feeder links authorized pursuant to the international, primary allocation adopted at WRC-95.[4] They rely exclusively on flawed sharing studies regarding the European HIPERLAN service and ignore studies from the MSS community in the United States which indicate that widespread deployment of these devices operating even at the low power levels proposed in the NPRM would cause harmful interference into licensed MSS spacecraft. Based on this record, making the 5150-5250 MHz band available for NII/SUPERNet devices would be inconsistent with the Communications Act of 1934, as amended, and the rules and policies governing Part 15 devices.

Second, the proponents of NII/SUPERNet service have requested technical rules which cannot be reconciled with the Commission's rules and policies governing operation of Part 15 devices. Specifically, they support adoption of a "safe harbor," which would insulate equipment manufacturers and users from

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[3] As LQL indicated in its initial comments, it does not object to use of the 5250-5350 MHz and 5725-5875 MHz bands for an NII/SUPERNet service.

[4] See Final Acts of the World Radiocommunication Conference, Pt. I, at 153-55 (Geneva 1995).

complaints of interference into licensed services, and a "Part 16" regime, which would provide protection for these devices from harmful interference. As the Commission has repeatedly stated, the rules and policies governing Part 15 devices require that such equipment operate on a non-interference basis with respect to licensed services, accept harmful interference from other radio stations, and cease operation if actual interference occurs to licensed services.

Moreover, NII/SUPERNet proponents have requested that the Commission allow the industry itself to determine the technical rules governing operation of NII/SUPERNet devices. They claim that the Commission's proposal is unnecessarily restrictive, and that the manufacturers of these devices should be given not only unfettered use of spectrum but also a free hand to develop technical rules governing its use. To the contrary, although unlicensed, Part 15 devices must be regulated to ensure protection for licensees of primary services. Only through adoption of strict, even if minimal, technical standards can the Commission ensure that unlicensed devices will operate in accordance with the Communications Act of 1934, as amended, and the rules and policies governing Part 15 devices.

Third, despite objections from the MSS industry to use of the 5150-5250 MHz bands, the equipment manufacturers continue to provide only unsubstantiated claims of the market for the proposed devices, without any concrete market research to show the potential demand for the product and the time frame in which the market may develop. As LQL pointed out in its initial

comments, the Commission and the MSS industry have worked at great expense to develop competitive, consumer-oriented Mobile-Satellite Services. Facilities to use the 5150-5250 MHz band for MSS feeder links are under construction today for deployment within two years. Adoption of many of the rules proposed in the NPRM and in the comments would be inconsistent with the Commission's policy decision to promote competitive satellite services using these bands.

In short, on the record before it, the Commission cannot adopt the regulatory regime sought by the proponents of this service for the 5150-5250 MHz band because such adoption would be contrary to law, the Commission's own rules and policies, and the public interest. Accordingly, for the reasons discussed below, the Commission must reject the recommendations of equipment manufacturers and not make the 5150-5250 MHz band available to NII/SUPERNet devices.[5]

I. THE RECORD IN THIS PROCEEDING FAILS TO DEMONSTRATE THAT NII/SUPERNET DEVICES CAN OPERATE ON A NON-INTERFERENCE BASIS IN THE 5150-5250 MHZ BAND.

Recognizing that the feasibility of sharing between MSS feeder links and NII/SUPERNet devices had not yet been firmly established, the Commission requested comment on the sharing issue in the NPRM (¶ 35). Despite this specific request and the MSS industry's earlier demonstrations of the potential for

[5] As LQL indicated in its initial comments, NII/SUPERNet devices could only be authorized to use the 5150-5250 MHz band if they are required to operate at sufficiently low power to avoid interference to MSS feeder links. See LQL Comments, at 20.

interference, the proponents of NII/SUPERNet devices failed to come forward with studies to establish that NII/SUPERNet devices could operate in the 5150-5250 MHz band on a non-interference basis. In fact, in its comments, Apple Computer, Inc., recognized that sharing with MSS feeder links would be problematic and suggested modifications to the Commission's proposed rules to provide greater protection for MSS feeder links.[6] On the other hand, the MSS industry again submitted interference analyses which demonstrate that operation of NII/SUPERNet devices within the parameters proposed in the NPRM would cause unacceptable degradation of the usefulness of the 5150-5250 MHz band for MSS feeder links.

A. The Record Establishes That Sharing Is Not Feasible Between NII/SUPERNet Devices and MSS Feeder Links.

The initial comments of LQL and ICO Global Communications/COMSAT Corporation included technical analyses of the impact of interference from NII/SUPERNet devices on MSS feeder links. LQL demonstrated that only a very few simultaneous users of NII/SUPERNet devices operating in the 5150-5250 MHz band (1070 in the continental United States) would be required to produce unacceptable interference into MSS feeder links.[7] LQL also explained why the ITU analysis of sharing between HIPERLAN and MSS relied upon by the

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[6] See Apple Comments, at 10-12.

[7] See LQL Comments, at Technical Analysis. The attached Further Technical Statement, at 1, amplifies the discussion of LQL's interference analysis.

Commission in the NPRM and Apple and WINForum in their comments cannot be used to demonstrate the feasibility of sharing between NII/SUPERNet devices and MSS feeder links in the context of this proceeding.[8] ICO and COMSAT used a different form of analysis; however, they, like LQL, concluded that "the potential for harmful interference from NII/SUPERNet devices is substantial."[9]

B. The Equipment Manufacturers Have Provided No Evidence That Sharing Is Feasible Between NII/SUPERNet Devices and MSS.

No proponent of NII/SUPERNet devices submitted a technical analysis in the initial round of comments demonstrating that sharing between these unlicensed devices and MSS feeder links would be feasible. In an attempt to mitigate interference from NII/SUPERNet devices, Apple proposed that the Commission make the 5150-5250 MHz band available for "very high rate" ("VHR") NII/SUPERNet systems. Apple describes VHR systems as "high speed (20 Mbps or greater), low power, low power spectral density ('PSD'), short-range, predominately indoor LANS."[10] Under Apple's proposal, the 5150-5250 MHz band would be further restricted to *indoor* VHR LANs.[11] Apple claims that this proposal would "provide adequate protection to MSS feeder links from outdoor and

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[8] See LQL Comments, at Technical Analysis.

[9] See ICO/COMSAT Comments, at 3. The attached Further Technical Statement, at 4-5, explains why the ICO/COMSAT and LQL analyses lead to similar conclusions.

[10] Apple Comments, at 10.

[11] Id., at 11.

longer-reach operations. . . . It essentially will replicate a HIPERLAN-type environment, which is, in fact, a VHR environment, compatible with MSS usage."[12] Apple also recommends that all NII/SUPERNet devices be permitted to operate with a transmitter power of 0.1 watt (+20 dBm) and 0.316 watts (+25 dBm) "for personal/portable and fixed equipment, respectively."[13]

Apple recognizes that sharing with MSS feeder links would be difficult. However, its comments fail to resolve how NII/SUPERNet devices would operate on a non-interference basis. For example, Apple seeks higher power for at least some NII/SUPERNet devices ("fixed equipment") which would be operating in the 5150-5250 MHz band. Inasmuch as Apple has provided no description of its system, it is impossible to gauge the impact of these higher power devices. As indicated in the attached Further Technical Statement, increasing transmitter power to 0.316 watt for even a portion of NII/SUPERNet devices increases the potential for interference into MSS feeder links. See Further Technical Statement, at 2-3.

Apple's proposals to restrict NII/SUPERNet devices in the 5150-5250 MHz band to indoor use and to require low power spectral density might indeed have the effect of improving the sharing environment with MSS feeder links. However, Apple has not explained how the indoor use restriction would be policed. And, because neither the Commission nor potential equipment manufacturers have

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[12] Id., at 12.

[13] Id., at 8.

agreed upon a spectrum protocol and are unlikely to do so for some time,[14] there is no assurance that a *low* power spectral density will be adopted for use with NII/SUPERNet devices.

WINForum, like Apple, relies exclusively on the analogy to HIPERLAN to conclude that NII/SUPERNet devices pose "no threat" to MSS feeder links.[15] WINForum argues that "because the MSS operations proposed in the band are global, the feeder links by necessity *must* coexist with HIPERLAN in Europe."[16] As LQL has previously demonstrated, the study of sharing between HIPERLAN and MSS feeder links cited by the Commission is based on inaccurate input data.[17] Therefore, Apple's and WINForum's premise and conclusion regarding HIPERLAN are flawed, and do not justify adoption of the proposals in the NPRM.

C. The Proposals Are Inconsistent with Section 301 of the Act and Part 15.

Section 301 of the Communications Act of 1934, as amended, requires that "[n]o person shall use or operate any apparatus for the transmission of energy or communications or signals by radio . . . except under and in accordance with this

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[14] See WINForum Comments, at 28-29 (proposing to develop initial draft sharing rules by end of 1996).

[15] WINForum also proposes to increase the power of NII/SUPERNet devices 2.5 times, WINForum Comments, at 22-23, which would have a substantial adverse impact on the capability of these devices to share with MSS feeder links.

[16] WINForum Comments, at 17.

[17] See LQL Comments, at Technical Analysis.

Act and with a license in that behalf granted under the provisions of this Act."[18] The Commission has excepted low power radio transmitters from the licensing requirement of Section 301 when analysis of their proposed operation indicates that there is little or no potential for interference, on the condition that they cease operation if actual interference occurs.[19]

> Part 15 is based upon the rationale that if radiation can be kept within certain fixed limitations, a general assumption can be made that such operations will normally not cause interference to interstate communications or otherwise have interstate effects bringing such operations within the purview of those which must be licensed under Section 301 of the Communications Act. Accordingly, it is the Commission's position that these operations, as long as they do not exceed certain radiation limitations and do not in particular situations cause actual interference, may lawfully be carried on without a license.[20]

The statutory requirement that unlicensed devices operate on a non-interference basis is set forth in Section 15.5(b) of the Commission rules, which states that operation of a Part 15 device "is subject to the conditions that no harmful interference be caused and that interference must be accepted that may

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[18] 47 U.S.C. § 301 (emphasis supplied).

[19] Pursuant to Section 307(e) of the Act, the Commission may authorize operation of unlicensed radio stations in the "citizens band" radio service, "radio control" service and certain aircraft and maritime radio services. 47 U.S.C. § 307(e). The NII/SUPERNet service does not fit into any of these categories. Devices which do not fall within any of the exceptions to the licensing requirement of the Communications Act must be licensed. Amendment of the Commission's Rules to Allocate Spectrum for, and to Establish Other Rules and Policies Pertaining to a Radiodetermination Satellite Service, 104 FCC 2d 650, 666 (1986).

[20] Amendment of Part 15 of the Commission's Rules Governing Restricted Radiation Devices, 13 RR 1543, 1544 (1955); see also Amendment of Parts 15 and 90 of the Commission's Rules to Provide Additional Frequencies for Cordless Telephones, 10 FCC Rcd 5622, 5625 (1995) (unlicensed cordless telephones operate at low power and are unlikely to interfere with licensed operations).

be caused by the operation of an authorized radio station."[21] As the Commission recently noted, "unlicensed Part 15 devices in the 902-928 MHz band, as in any other band, may not cause harmful interference to and must accept interference from all other operations in the band."[22]

In the NPRM, the Commission proposed to authorize operation of NII/SUPERNet devices in the 5150-5250 MHz band based on the still unsubstantiated assumption that these devices would be able to operate without causing harmful interference to MSS feeder links, thereby satisfying the legal requirements of a Part 15 service. See NPRM, ¶ 35. As shown in the technical analyses of LQL and ICO/COMSAT, the record in this proceeding is not sufficient to conclude that this condition is satisfied, or that the statutory requirement for unlicensed operation can be met.

The analogy to HIPERLAN provides no basis to conclude otherwise. First, HIPERLAN was proposed as an *indoor* system,[23] and neither the Commission nor the proponents of NII/SUPERNet devices have proposed a means to ensure that these devices operate only indoors in the 5150-5250 MHz band. Second, while a reduction in power may limit the range of NII/SUPERNet devices, no model of the communications links between the mobile and the base station has been provided

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[21] 47 C.F.R. § 15.5(b).

[22] Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems, 10 FCC Rcd 4695, 4714 (1995) (footnote omitted) (emphasis supplied).

[23] See European Telecom. Standards Inst., High Performance Radio Local Area Network (HIPERLAN) Services and Facilities, ETR 069, at 7 (Feb. 1993).

to prove the proponents' assumption that outdoor use would be significantly affected by reduced power so as to make outdoor use impractical. Third, the standards for HIPERLAN provide very specific parameters for manufacture and operation of the devices. See Further Technical Statement, at 3-4. In this proceeding, the Commission has proposed, and equipment manufacturers have sought, a service for which the technical standards are essentially voluntary. Under such circumstances, only the worst case parameters for NII/SUPERNet can be considered to determine whether sharing is feasible, and these worst case scenarios militate against making the 5150-5250 MHz band available for these new devices.[24]

The similarity of NII/SUPERNet to HIPERLAN is, in any event, largely irrelevant to this proceeding. The Commission is obligated to base its decision in this proceeding on the record before it regarding sharing between MSS feeder links and NII/SUPERNet devices, not on the record before the European Telecommunications Standards Institute.[25] As the Commission stated in a recent, directly relevant, decision: "While we agree with Symbol that harmonization with the European standards would be advantageous, harmonization is not sufficient, by itself, to overcome all of the potential problems associated with [Symbol's

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[24] See ICO/COMSAT Comments, at 3 ("These uncertainties require that technical rules for NII/SUPERNet operation be based on conservative assumptions. . . .").

[25] See 5 U.S.C. § 553; Motor Vehicle Mfrs. Ass'n of the United States, Inc. v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43 (1983); Burlington Truck Lines, Inc. v. United States, 371 U.S. 156, 168 (1962).

petition for rule making for] reducing the minimum number of hopping channels."[26] Accordingly, the Commission cannot rely on the HIPERLAN model in this proceeding to resolve technical issues raised by the NII/SUPERNet proposals.

Before making the 5150-5250 MHz band available for NII/SUPERNet devices, the Commission must be certain that sharing would be feasible with MSS feeder links.[27] If the Commission were to permit operation of NII/SUPERNet devices in the 5150-5250 MHz band based on the present record, it risks jeopardizing both services, because the viability of the unlicensed equipment would be called into question if it causes actual interference into MSS systems. The present record does not provide such certainty, and so, the Commission should not make the 5150-5250 MHz band available for NII/SUPERNet devices.

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[26] Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters, 11 FCC Rcd 3068, 3073 (1996).

[27] See Further Technical Statement, at 1-2 (explaining why satellite bands are not good candidates for sharing with unlicensed devices).

II. THE PROPOSED SAFE HARBOR AND PART 16 FOR NII/SUPERNET DEVICES ARE INCONSISTENT WITH SECTION 301 OF THE ACT AND HISTORIC RULES AND POLICIES GOVERNING UNLICENSED DEVICES.

Several equipment manufacturers recommended that the Commission adopt the proposed "safe harbor" rule[28] and a "Part 16" regulatory regime[29] for NII/SUPERNet devices. The safe harbor rule would allow NII/SUPERNet devices to operate using the technical standards in the Commission's Rules without being required to cease operation if actual interference to licensed services occurs. See NPRM, ¶ 54. The Part 16 approach would provide recognition for an unlicensed, NII/SUPERNet service and a protected status with respect to licensed services. See NPRM, ¶¶ 57-60. Adoption of either of these proposals would be inconsistent with the Communications Act and the rules and policies governing Part 15 devices.

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[28] See Microsoft Comments, at 7; Motorola Comments, at 11-12; Nortel Comments, at 7-8; WINForum Comments, at 32.

[29] See Apple Comments, at 27-29; Consumer Elec. Mfrs. Ass'n Comments, at 6-8; Nortel Comments, at 13-14.

A. Adoption of the Proposed Safe Harbor Would Be Contrary to Law.

As noted above, the Commission has long held by policy and by rule that if Part 15 devices cause actual interference, then they must cease operation.[30] This requirement arises directly from Section 301 of the Communications Act, which requires that all radio transmitters capable of causing interference be licensed:

> The fixed maxima of radiation for the various devices are the limits of radiation at which they can generally be expected to operate without becoming devices which by their interference potentialities affect interstate and foreign commerce. The additional requirement that they do not cause interference is in recognition of the fact that even at these extremely low radiation limits they will in some special circumstances cause interference and thus their continued unlicensed operation would be illegal under Section 301.[31]

Accordingly, in order to qualify for unlicensed authority, not only must the technical standards for a device establish that the potential for interference into licensed services is very low, but also the obligation to cease operation if there is actual interference must be imposed on operators of the devices. Even if the record here established that potential interference into licensed services would be unlikely, a proposed "safe harbor" for NII/SUPERNet devices is contrary to Section

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[30] See Amendment of Parts 15 and 90 of the Commission's Rules to Provide Additional Frequencies for Cordless Telephones, 10 FCC Rcd at 5625; Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices Without an Individual License, 5 FCC Rcd 7060, 7061 (1990).

[31] Amendment of Part 15 of the Commission's Rules Governing Restricted Radiation Devices Concerning Low Power Communication Devices, 13 RR 1546e, 1546h (1957); see also 47 C.F.R. § 15.5(b).

301 and the rules and policies governing Part 15 devices.[32] In fact, the record establishes that the potential for harmful interference into licensed services is high. Moreover, because the proponents of the NII/SUPERNet service have not come forward with technical standards for these devices, they have made it nearly impossible to establish that interference to MSS feeder links can be avoided, and, therefore, that the mandate of Section 301 can be met. Accordingly, adoption of the safe harbor rule would be contrary to Part 15 regulation and violate Section 301 of the Act.

B. The Part 16 Approach Is Contrary to Part 15 Rules and Policies.

Similarly, because an operator of a Part 15 device is not required to obtain a license, these devices may only operate "at sufferance" and must accept interference from licensed services. Just earlier this year, the Commission noted that "the primary operating conditions under Part 15 are that the operator must accept whatever interference is received and must correct whatever interference is caused."[33]

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[32] In its initial comments, LQL explained why, even if adoption of a safe harbor were appropriate for Part 15 devices operating in the Location Monitoring Service band, it would not be appropriate in the 5150-5250 MHz band. See LQL Comments, at 16-19.

[33] Amendment of Parts 2 and 15 of the Commission's Rules Regarding Spread Spectrum Transmitters, 11 FCC Rcd at 3068; see also, e.g., Revision of Part 15 of the Rules Regarding the Operation of Radio Frequency Devices without an Individual License, 4 FCC Rcd 3493, 3504 (1989) ("Part 15 devices must operate without protection from interference"); Amendment of Rules Part 15 Subpart E -- Low Power Communication Devices, 47 FCC 2d 1122, 1124 (1974) (Part 15 devices

Apple concedes that NII/SUPERNet devices should be required to accept interference from licensed services in the band (*e.g.*, MSS gateway earth stations).[34] However, it asks the Commission (1) not to introduce new licensed services into the NII/SUPERNet bands, (2) not to allow an existing service to change the conditions under which it operates, and (3) to refer to the "NII/SUPERNet Band" in the U.S. Table of Frequency Allocations.[35] These conditions would fundamentally alter the Commission's Part 15 regulatory regime. As other supporters of the Part 16 approach recognize,[36] such rules would have the effect of shifting to licensed services the burden of protecting these devices from harmful interference, either in fact or in practice, because the parameters of the licensed service would be fixed and NII/SUPERNet would have co-primary rights to protect its use of the band.

Adoption of such a Part 16 regime, whereby NII/SUPERNet devices would be protected from harmful interference, is inconsistent with and contrary to this

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are permitted to use frequencies "on a sufferance basis").

[34] Apple Comments, at 27.

[35] Id., at 27-28.

[36] See Nortel Comments, at 14 ("without the use of a Part 16 regulatory scheme, the NII/SUPERNet users would be subject to interferences by other licensed services either in-band or out-of-band"); Consumer Elec. Mfrs. Ass'n Comments, at 7 (Commission should adopt co-primary allocation for NII/SUPERNet devices to demonstrate "protection commensurate with the contribution they make to the public").

rationale underlying Part 15.[37] See NPRM, ¶ 59. Moreover, because unlicensed devices by their nature are not locatable for purposes of coordination, it would be impractical for licensed services to be obligated to protect NII/SUPERNet devices. Accordingly, the Commission should reject the Part 16 proposal, and follow the suggestion of Metricom, Inc., to impose upon the designers of unlicensed systems the obligation to "effectively adapt and react to interference."[38]

Apple also claims that adoption of the Part 16 approach would be consistent with the Commission's recent action to make spectrum available for unlicensed PCS at 2 GHz[39] and Part 15 devices at 59-64 GHz.[40] Neither of these comparisons is apt for NII/SUPERNet devices. In the PCS proceeding, the Commission adopted an *allocation* for unlicensed devices separate from the allocation for licensed PCS, and, because of the potential for interference from unlicensed devices, required the incumbent fixed services in the band to relocate.[41] In the

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[37] Nortel claims that Sections 301, 303 and 307 of the Act provide authority to protect unlicensed devices from harmful interference. Nortel Comments, at 14-15. But, as LQL has shown, the Commission itself has repeatedly concluded that it cannot bestow the benefits of license on an unlicensed device without additional statutory authority.

[38] Metricom Comments, at 10-11.

[39] Amendment of the Commission's Rules to Establish New Personal Communications Services, 8 FCC Rcd 7700, 7738 (1993) ("PCS Second Report and Order").

[40] Amendment of Parts 2, 15 and 97 of the Commission's Rules to Permit Use of Radio Frequencies Above 40 GHz for New Radio Applications, 11 FCC Rcd 4481, 4494-97 (1996).

[41] PCS Second Report and Order, 8 FCC Rcd at 7738-39.

proceeding regarding 59-64 GHz, the Commission found that sharing between unlicensed and licensed users "would not be workable because of the difficulty of resolving interference problems involving unlicensed devices."[42]

In this proceeding, the MSS industry has established that widespread deployment of NII/SUPERNet devices, operating as proposed in the NPRM, would cause interference to MSS feeder links for which there is an existing international allocation in the 5150-5250 MHz band. Accordingly, to avoid interference to the primary service, the Commission should not make the band available for the unlicensed devices.

III. ADOPTION OF THE REGULATORY REGIME SOUGHT BY NII/SUPERNET PROPONENTS WOULD EXACERBATE RATHER THAN ALLEVIATE INTERFERENCE INTO MSS FEEDER LINKS.

In their comments, equipment manufacturers supporting the NII/SUPERNet service recommended modifications to the proposals in the NPRM to, *inter alia*, increase power levels, deploy directional antennas, and give manufacturers discretion over technical standards for the devices. Each of these proposals would exacerbate the sharing environment with MSS feeder links, and so, should be rejected.

Several proponents of NII/SUPERNet devices objected to the -10 dBW maximum peak EIRP proposed in the NPRM, and requested that the Commission

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[42] See Radio Frequencies Above 40 GHz, 11 FCC Rcd at 4496.

increase permitted power levels.[43] As explained in the attached Further Technical Statement, increasing power from the proposed 0.1 Watt would further degrade the capability of NII/SUPERNet devices to share with MSS feeder links in the 5150-5250 MHz band. See Further Technical Statement, at 2-3. Accordingly, the Commission should reject these requests, because "[t]o permit [devices] operating without a license under Part 15 to transmit at higher power levels would undermine our system for avoiding interference into licensed stations."[44]

Equipment manufacturers recommended that the Commission permit the use of directional antennas with 6 dB of gain in the NII/SUPERNet service.[45] Directional antennas focus output power of the transmitter so that, with 6 dB of gain, there would be a 400% increase in the effective radiated power, i.e., from 100 mW to 400 mW. See Further Technical Statement, at 3. While a directional antenna may not be seen by all satellites overhead, it would certainly be seen by satellites close to the horizon, and, would, because of the higher effective power, make the sharing environment worse. See id.

Several parties recommended that the Commission abandon or limit application of its "interim" spectrum etiquette pending adoption of a protocol by

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[43] See Apple Comments, at 8; Motorola Comments, at 8; WINForum Comments, at 22-23.

[44] Revision of Part 15 of the Rules, 4 FCC Rcd at 3498.

[45] See WINForum Comments, at 23-24.

NII/SUPERNet manufacturers.[46] Some parties also suggested that the Commission should not regulate the technical standards for these devices, but let industry set the guidelines which all manufacturers will follow.[47] The Commission cannot follow these suggestions because, although Part 15 devices are "unlicensed," they are by statute and necessity "regulated." Therefore, adoption of an open approach to technical standards for these devices is contrary to the Commission's obligations under the Communications Act and the public interest.

Pursuant to Section 301 of the Act, the Commission is required "to maintain the control of the United States over all the channels of radio transmission."[48] Section 302(a) authorizes the Commission to adopt regulations "governing the interference potential of devices which in their operation are capable of emitting radio frequency energy by radiation, conduction, or other means in sufficient degree to cause harmful interference to radio communications."[49] These regulations are applicable to all radio equipment.[50]

The Commission has generally taken a stringent approach to adoption and enforcement of the technical standards for unlicensed devices in order to ensure

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[46] See Hewlett-Packard Comments, at 5; Lucent Comments, at 5-6; Nortel Comments, at 11; WINForum Comments, at 21-22.

[47] See Nortel Comments, at 11 n.15.

[48] 47 U.S.C. § 301.

[49] 47 U.S.C. § 302(a).

[50] 47 U.S.C. §§ 302(a-b).

that they do not cause interference to licensed services.[51] In this case, there is a demonstrated probability of interference. If the Commission makes the 5150-5250 MHz band available for NII/SUPERNet devices, it must adopt suitable technical standards to limit the potential for interference and utilize its regulatory authority to address any actual interference.

IV. CONCLUSION

As LQL discussed in its initial comments, the United States has made a policy decision to support an allocation for MSS feeder links at 5 GHz to establish a global, competitive MSS service.[52] The Commission and the MSS industry have worked very hard over the past five years to ensure the availability of adequate spectrum for Big LEO satellite systems to compete in the United States and globally. Given the U.S. commitment to MSS and the failure of proponents of this service to demonstrate objectively the demand and need for bandwidth, there is no rational basis for the Commission to make the 5150-5250 MHz band available for the proposals of Apple and WINForum based on the standards proposed in the NPRM and the modifications recommended by Apple, WINForum and other equipment manufacturers.

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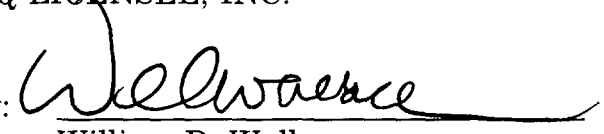
[51] See CBS, Inc., 56 RR 2d 840 (1984) (digital electronic and pipe organs will not be exempted from operation on a non-interference basis even in the absence of reports of interference).

[52] See LQL Comments, at 5-7; AirTouch Comments, at 5-7.

Accordingly, for the reasons set forth above and in its initial comments, LQL urges the Commission not to permit NII/SUPERNet devices access to the 5150-5250 MHz band, but, if it does, to limit the technical operations to a strictly non-interference basis only.

Respectfully submitted,

L/Q LICENSEE, INC.

By: 

William D. Wallace
CROWELL & MORING LLP
1001 Pennsylvania Avenue, N.W.
Washington, DC 20004
(202) 624-2500

Its Attorneys

Of Counsel:

William F. Adler
Vice President &
Division Counsel
GLOBALSTAR
3200 Zanker Road
San Jose, CA 95134

Leslie A. Taylor
Guy T. Christiansen
LESLIE TAYLOR ASSOCIATES
6800 Carlynn Court
Bethesda, MD 20817
(301) 229-9341

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FURTHER TECHNICAL STATEMENT OF POTENTIAL INTERFERENCE CAUSED TO MOBILE SATELLITE SERVICE FEEDER UPLINKS BY NII/SUPERNET TRANSMISSIONS

This technical statement provides further information on potential interference into Mobile Satellite Service (MSS) Feeder Links from NII/SUPERNet devices, based on initial Comments filed in this proceeding.

Globalstar Interference Criterion

Globalstar has stated that the total interference from all NII/SUPERNet devices within range of a spacecraft receiver must not exceed 0.1% delta-T/T. This criterion reflects the stringent regulations governing Part 15 devices. Pursuant to Part 15, unlicensed devices must operate on a non-interference basis. That is, they should not increase the amount of interference which licensed equipment must accept from other licensed equipment. For example, MSS Feeder Uplink transmissions, in the 5150-5250 MHz band, must contend with interference from MSS Feeder Uplinks of other MSS systems. These transmissions will have similar power and will thus cause significant degradation when they occur. In addition to Feeder Uplink transmissions from at least two other MSS systems, an allotment must be made for interference from Microwave Landing Systems (MLS) which may operate in the band from 5000-5250 MHz. The band 5250-5350 MHz is allocated to radars and the out of band emissions (OBE) from these devices will also add to the interference burden that must be accepted by the MSS Feeder Uplinks. For these reasons, an interference criterion of 0.1% delta-T/T for unlicensed devices is appropriate.

Operation of a Spacecraft Receiver in a Part 15 Environment

With the exception of the proposals made in the instant NPRM, there are few designations for Part 15 devices in common bands with those used for satellite transmission or reception. This is not coincidence. Spacecraft receivers, in either geostationary or non-geostationary orbit, are purposely situated so that they can receive transmissions emanating from wide geographical areas. These receivers are by design sensitive in order to successfully receive desired transmissions. The deployment of large numbers of extraneous emitters co-frequency within desired MSS uplink carriers is not compatible with successful operation of the MSS system.

In contrast, the deployment of many Part 15 emitters in bands used for terrestrial services takes advantage of propagation characteristics such as the radio horizon, terrain blockage and shielding due to vegetation and buildings that are not present with respect to a spacecraft receiver. An MSS Feeder Link