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



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

## OPPOSITION OF JOINT COMMENTERS TO PETITIONS FOR RECONSIDERATION

ICO Global Communications ("ICO") and COMSAT Corporation ("COMSAT") (hereinafter jointly referred to as the "Joint Commenters") hereby oppose the petition for reconsideration filed by Hewlett-Packard Company ("H-P"), and oppose in part the petition for reconsideration filed by the Wireless Information Networks Forum ("WINForum"). The Joint Commenters oppose these petitions to the extent they seek to increase the allowable levels of NII/SUPERNet emissions falling within the 5150-5250 MHz band. As this Commission pointed out in its Report and Order in this proceeding, the rules it has adopted for the operation of NII/SUPERNet devices are carefully designed to "provide the maximum technical flexibility in the design and operation" of those devices, while ensuring that they do not "cause harmful interference to incumbent and

future operations."[1] H-P and WINForum have offered no sound technical arguments or new information that would justify tampering with the Commission's careful balancing of these concerns, and their proposals to increase NII/ SUPERNet power limits in the 5150-5250 MHz band should be denied.

## I. The H-P Petition Does Not Rely On New Facts And Requests A Drastic Power Limit Increase That Would Cause Harmful Interference To MSS Systems.

The Commission should reject H-P's request to authorize operation of NII/SUPERNet transmitter devices in the 5150-5250 MHz band at power levels up to one watt. The request does not meet the standard for granting of a petition for reconsideration, which must "rel[y] on facts which have not previously been presented to the Commission," and must show that those facts either relate to events that have occurred since the last opportunity to address them, or were not timely presented because they were unknown to the petitioner and could not, with ordinary diligence, have been discovered.[2] H-P's petition simply reasserts a position taken by H-P in the course of this rulemaking, and relies on European HIPERLAN deliberations that were well underway, and known to the Commission, before and during the comment cycle in this rulemaking. Accordingly, those facts cannot form the basis for a petition for reconsideration.

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[1] *Amendment of the Commission's Rules to Provide for Operation of Unlicensed NII Devices in the 5 GHz Frequency Range,* 5 Report and Order, FCC 97-5, ET Docket No. 96-102 Jan. 1997), ¶ 32 (*"Report and Order"*).

[2] 47 C.F.R. § 1.429(b)(1)-(2).

Even if H-P's petition did satisfy the standard for a petition for reconsideration, the relief H-P requests should be denied. The twenty-fold increase in power[3] advocated by H-P would give rise to harmful levels of interference to mobile satellite service ("MSS") feeder link systems, which could be partially prevented only by a radical, costly, and (at this point) infeasible redesign of MSS systems already in an advanced stage of manufacture. H-P has not shown any need for this radical revision of the Commission's rules, particularly in light of the availability of two other bands in the 5 GHz range in which higher-power operation of NII/SUPERNet devices will be permitted under the Commission's rules.

The only asserted basis for H-P's request, in fact, is its "understanding that HIPERLAN devices using one watt of power *could be* approved and implemented in twenty European countries soon . . ."[4] Based on this uncertain prospect, H-P assumes that MSS systems now under development will be forced to comply with higher interference levels in Europe. In fact, however, HIPERLAN systems are not presently authorized to operate at power levels up to one watt, and there is substantial doubt that a standard of this kind ever will be adopted for HIPERLAN devices operating in the 5150-5250 MHz band.

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[3] For the band 5150-5250 MHz, the Commission's rules permit NII/SUPERNet devices to reach a peak transmit power over the frequency band of operation not to exceed 50 mW. 47 C.F.R. § 15.407(a)(1). H-P proposes a twenty-fold increase in this limit, to 1000 mW.

[4] H-P Petition for Reconsideration at 2 (*emphasis added).*

The present ETSI HIPERLAN standard (ETS-300-652), approved in July, 1996 is a voluntary standard that has not been finalized in Europe. The proposed standard defines three classes of HIPERLAN devices. Only one of the three classes -- Class C -- would be permitted to operate at 30 dBm, or the equivalent of one watt. The other two classes -- A and B -- would operate at the considerably lower levels of 10 dBm and 20 dBm, or the equivalent of 1/100 watt and 1/10 watt, respectively. There has been no final determination by the European regulators within CEPT as to whether the higher-powered classes of HIPERLANs will be permitted to operate in the same bands as MSS feeder links.

The European Radio Committee ("ERC") of CEPT still has not made a decision on type approval regulation for HIPERLANs operating in the 5150-5250 MHz band, in part because of concerns expressed by the MSS community as to the appropriate EIRP levels. MSS proponents have provided technical analyses showing that the aggregate interference from HIPERLANs operating in compliance with the Class C power limits, even in an indoor environment, would render the band 5150-5250 MHz unusable for MSS feeder links.[5] If Class C devices are operated in an outdoor environment, the interference problem becomes considerably worse. In light of these studies, the CEPT Spectrum Engineering Working Group (WG-SE) Project Team SE-28 strongly supports regulations permitting only the operation of Class A HIPERLAN devices in the 5150-

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[5] CEPT SE-28 Doc. SE-28(97)19, "Interference Assessment from HIPERLAN Terminals (ETS 300 652) into NGSO Feeder Uplinks in the Band 5150-5250 MHz," submitted by ICO Global Communications, Ltd. to CEPT Spectrum Engineering Working Group (WG-SE) Project Team SE-28 (March 11, 1997).

5250 MHz band, on an *indoor-only* basis, and with a peak EIRP of 1/100 watt of radiated power.

The preliminary HIPERLAN discussions in Europe show, at most, that some class of European HIPERLANs *may* be authorized to operate at up to one watt in some portion of the 5 GHz band --quite likely in a portion of the band above 5250 MHz. These preliminary discussions provide no basis for modification of the rules just adopted in the *Report and Order.* The Commission was fully aware of the HIPERLAN deliberations when it adopted the present rules, and nothing in the *Report and Order* suggests that those deliberations should have any impact on the NII/SUPERNet power limits.

In fact, the *Report and Order* expressly notes that if the eventual HIPERLAN standard permits more power output than the NII/SUPERNet standard, and if the HIPERLAN power output then results in a more robust design for the *second* generation of MSS systems, the Commission might revisit the NII/SUPERNet power output standards of the *Report and Order.*[6] Nowhere does the Commission suggest that it might prejudge the result of the HIPERLAN process by threatening the viability of the *first* generation of MSS systems, already in an advanced stage of development.

## II. The WINForum Petition Must Be Denied In Part

WINForum proposes several clarifications and modifications to the *Report and Order*. While the Joint Commenters support most of these proposals, and strongly support the proposal to scale the applicable power limits for NII/SUPERNet

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[6] *Report and Order* at ¶ 96.

transmissions with bandwidths less than 1 MHz, the Joint Commenters oppose those proposals that would allow more interference power into the MSS feeder link systems in the 5150-5250 MHz band.

Notably, the Joint Commenters support WINForum's proposal to scale the applicable power limits for NII/SUPERNet transmissions with bandwidths less than 1 MHz.[7] As WINForum correctly points out, allowing narrowband transmissions of less than 1 MHz to utilize the full power limit of 2.5 mW circumvents the Commission's purpose in adopting the power limits.[8] Therefore, if NII/SUPERNet devices are allowed to operate with bandwidths of less than 1 MHz in the 5150-5250 MHz band, the power limits should be scaled downward accordingly.[9]

The Joint Commenters are opposed, however, to WINForum's proposal to allow a 3 dB tolerance in the power limits in any 1 MHz.[10] WINForum correctly states that there will be some variability in the power spectral density across the entire emission

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[7] Wireless Information Networks Forum Petition for Reconsideration and Clarification at 7-9.

[8] The present power limits adopted in the 5150-5250 MHz band were based, in part, on the protection requirements of MSS feeder links confronting wideband interference sources, such as NII/SUPERNet transmissions were assumed to present. This assumption, in turn, was based on the NII/SUPERNet proponents' consistent assertions of a need for unlicensed, high-speed, broadband multimedia applications requiring broad channels with bandwidths of up to 20 MHz each. As an apparent result of these assumptions, the *Report and Order* does not expressly address the need to scale the power limits for transmissions with bandwidths of less than 1 MHz. WINForum correctly suggests a clarification of the rules to correct this oversight.

[9] The power limits should be scaled downward according to the formula 10 log (B/1 MHz) + 4 dBm, where B = bandwidth in MHz. *See* Wireless Information Networks Forum Petition for Reconsideration and Clarification, *supra* at ii.

[10] *Id.* at 8.

bandwidth. WINForum does not, however, acknowledge the adverse effect of the proposed 3 dB tolerance on narrowband, TDMA feeder links used by systems like ICO's. The receiver bandwidth of a feeder link channel within the ICO system is 25 kHz, which is orders of magnitude less than the transmission bandwidth of the typical NII/SUPERNet devices. This makes it more likely that the wideband, NII SUPERNet interfering signal will fall on the narrowband victim's receiver, which would sense a level of interference up to 3 dB higher than currently allowed.

Furthermore, a medium earth orbit altitude, such as the one used by the ICO system, is particularly susceptible to aggregate interference because the field of view from that satellite covers virtually the entire Americas, exposing the feeder links to aggregate interference from tens of millions of devices. This fact, coupled with the lack of a channeling plan associated with the NII/SUPERNet allocation, results in a high probability that a given feeder link channel will be subjected to 3 dB more interference than currently allowed.

Finally, WINForum is not entirely clear when it addresses the 3 dB tolerance for power spectral density in the context of out-of-band emissions.[11] If it is the intent of WINForum to increase the out-of-band emission limits in the 5150-5250 MHz band by 3 dB, then the Joint Commenters oppose that proposal. However, if the intent is to retain the out-of-band emission limit specified in the *Report and Order*, then the Joint Commenters do not oppose that proposal.

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[11] *Id.* at 9-10.

## III. Conclusion

The power limits adopted in the *Report and Order* represent a careful balancing of the interests of NII/SUPERNet proponents and authorized uses of 5 GHz spectrum. In order to preserve this balance of interests, the Commission should deny the petitions for reconsideration to the extent that they seek to modify the Commission's rules by increasing the power of NII/SUPERNet emissions falling within the 5150-5250 MHz band.

Respectfully submitted,

By: _____

Cheryl A. Tritt
Charles H. Kennedy
Morrison & Foerster LLP
2000 Pennsylvania Avenue, N.W.
Washington, D. C. 20006-1888

Attorneys for ICO Global Communications, Inc.

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Nancy J. Thompson
Senior Counsel
COMSAT Corporation
6560 Rock Spring Drive
Bethesda, MD 20817
(301) 214-3473

Attorney for COMSAT Corporation

Date: April 1, 1997

## CERTIFICATE OF SERVICE

I, Kimberly E. Thomas, do hereby certify that the foregoing **OPPOSITION OF JOINT COMMENTERS TO PETITIONS FOR RECONSIDERATION** have been furnished, via hand delivery on this 1st day of April, 1997, to the following:

William F. Caton
Office of the Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Chairman Reed E. Hundt
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, D.C. 20554

Commissioner James H. Quello
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, D. C. 20554

Commissioner Rachelle B. Chong
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, D.C. 20554

Commissioner Susan Ness
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, D.C. 20554

Peter Cowhey
Acting Chief
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 830
Washington, D.C.

Thomas Tycz
Chief
Satellite & Radiocommunications Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 800
Washington, D.C. 20554

Cecily C. Holiday
Deputy Chief
Satellite & Radiocommunications Division
International Bureau
Federal Communications Commission
2000 M Street, N.W., Room 590
Washington, D.C. 20554

Richard M. Smith, Chief
Office of Engineering & Technology
Federal Communications Commission
2000 M Street, N.W., Room 480
Washington, D.C. 20554

Bruce A. Franca, Deputy Chief
Office of Engineering & Technology
Federal Communications Commission
2000 M Street, N.W., Room 480
Washington, D.C. 20554

Michael J. Marcus
Associate Chief for Technology
Office of Engineering & Technology
Federal Communications Commission
2000 M Street, N.W., Room 480
Washington, D.C. 20554

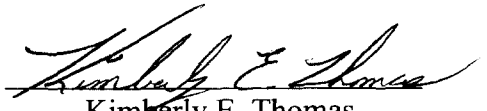
Dan Phythyon
Acting Bureau Chief
Wireless Telecommunications Bureau
Federal Communications Commission
2025 M Street, N.W., Room 5002
Washington, D.C. 20554

James F. Lovette
Principal Scientist, Network Outreach
Apple Research Laboratories
Apple Computere, Inc.
One Infinite Loop, MS: 301-3E
Cupertino, CA 95014

Henry Goldberg
Mary J. Dent
Goldberg, Godles, Weiner & Wright
1229 Nineteenth Street, N.W.
Washington, D.C. 20036

Cynthia Johnson
Government Affairs Manager
Hewlett-Packard Company
900 17th Street, N.W., Suite 1100
Washington, D.C. 20006

R. Michael Senkowski
Eric W. DeSilva
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, D.C. 20006



Kimberly E. Thomas