

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Amendment of Part 2 of the Commission's Rules)
for Federal Earth Stations Communication with) ET Docket No. 13-115
Non-Federal Fixed Satellite Service Space)
Stations;) RM-11341
)
Federal Space Station Use of the 399.9-400-05)
MHz Band; and)
)
Allocation of Spectrum for Non-Federal Space)
Launch Operations)
)
)

To: The Commission

COMMENTS OF COMSEARCH

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August 30, 2013

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EXECUTIVE SUMMARY

Comsearch generally supports providing a mechanism for Federal earth stations to receive interference protection in the Fixed-Satellite Service (“FSS”) and Mobile Satellite System (“MSS”) frequency bands that are allocated exclusively for non-Federal use. As noted by the FCC, however, a policy guiding Federal use of commercial satellite networks can be successful only if it provides a clear method for establishing and enforcing operational rights and responsibilities that can be applied consistently regardless of whether the non-Federal user is licensed by the Commission or the Federal user is authorized by the National Telecommunications Information Administration (“NTIA”).

Of the two alternative approaches proposed to provide interference protection to Federal earth stations operating with commercial fixed satellites, the “Interference Protection Approach” is preferred. The “Allocation Approach” that would grant Federal users co-primary status could lead to future confusion over whether FCC or NTIA procedures are to be followed and whether Federal agencies could invoke special national security or other protections in ways that would limit non-Federal operations. The Interference Protection Approach makes it more clear that Federal earth station users must follow FCC rules and established commercial industry coordination procedures.

The FCC’s objective that “the rules and procedures [adopted] do not . . . delay the issuance of Commission licenses and coordination in the affected bands” is critical because some of the FSS frequency bands that are the subject of NTIA’s petition are shared with non-Federal terrestrial Fixed Service (“FS”) microwave users. The same frequency coordination procedures and timeframes that govern sharing between non-Federal FSS and FS today must continue to be employed if Federal earth stations are allowed to receive interference protection in the bands shared with FS.

Comsearch supports the FCC’s proposal to require Federal agencies seeking interference protection for their earth stations to utilize the existing Prior Coordination Notice (“PCN”) process and not to require any additional coordination procedures for non-Federal applicants. The Federal Interdepartment Radio Advisory Committee (“IRAC”) process cannot be included in the proposed coordination procedures for bands that are not presently shared as that would introduce unnecessary delay.

Comsearch strenuously objects to the proposal that NTIA (and/or the affected Federal agencies) not be required to participate in the PCN process when non-Federal entities seek coordination for terrestrial microwave FS operations in frequency bands in which Federal earth stations have received interference protection. Under the proposal, a Federal earth station user that elected not to participate in the PCN process could raise erroneous objections after non-Federal FS applications are filed that typically would have been resolved during the normal course of the pre-application coordination process, thus injecting unnecessary delay and uncertainty.

The Commission policies adopted in this proceeding must protect the viability of the FS conditional authorization process whereby microwave applicants in certain bands may begin service immediately at their own risk once they complete frequency coordination and upon filing of the relevant application, with the stipulation that they must cease operating immediately if the Commission returns the application or otherwise modifies or cancels the conditional authorization. The continued right to conditional authorization is critical for non-Federal users to meet in-service microwave schedules, and nothing should be allowed that would compromise that right or introduce delays.

The Commission should delete the extended Ku downlink band at 10.7-11.7 GHz from its proposed policy to provide Federal earth stations with protected status. A proliferation of Federal earth stations in the band would require prospective FS applicants to satisfy stringent interference requirements in order to coordinate new links in this critical band needed for future expansion of non-Federal microwave services, including wireless backhaul.

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)	RM-11341
Federal Space Station Use of the 399.9-400.05 MHz Band; and)	
)	
Allocation of Spectrum for Non-Federal Space Launch Operations)	

To: The Commission

COMMENTS OF COMSEARCH

Comsearch hereby submits comments on the *Notice of Proposed Rulemaking and Notice of Inquiry* (“*NPRM/NOI*”) issued by the Commission in the above-captioned proceeding.¹

Comsearch limits its comments to the Commission’s proposal to take steps to facilitate the use of commercial satellite networks in the Fixed-Satellite Service (“FSS”) and Mobile Satellite System (“MSS”) by Federal Government agencies on an equal basis with the private sector. Comsearch generally supports providing a mechanism for Federal earth stations to receive interference protection in the FSS and MSS frequency bands that are allocated exclusively for non-Federal use. Because, however, the FSS shares several frequency bands with non-Federal Fixed-Service (“FS”) microwave users, Federal earth stations seeking

¹ Amendment of Part 2 of the Commission's Rules for Federal Earth Stations Communicating with Non-Federal Fixed Satellite Service Space Stations; Federal Space Station Use of the 399.9-400.05 MHz Band; Allocation of Spectrum for Non-Federal Space Launch Operations, *Notice of Proposed Rulemaking and Notice of Inquiry*, FCC 13-65, 28 FCC Rcd 6698 (2013) (“*NPRM/NOI*”).

interference protection should be required to comply with the FCC's longstanding frequency coordination procedures and adopt industry coordination practices that facilitate sharing between FSS and FS. The Commission should ensure that any procedures adopted to provide interference protection to Federal earth stations will not delay frequency coordination or the issuance of licenses to non-Federal entities in the affected frequency bands.

I. STATEMENT OF INTEREST

Comsearch is a leading provider of spectrum management and wireless engineering products and services to the commercial and Federal market. Since 1977, Comsearch has been actively engaged with Commission, the National Telecommunications Information Administration ("NTIA"), and various industry groups and standards organizations to develop rules, industry recommendations, and standards that promote the efficient use of the radio spectrum. In this role, we have gained extensive experience in developing industry-standard coordination processes, developing and maintaining state-of-the-art software and databases, performing interference analyses of complex environments, and understanding regulatory requirements.

For over 20 years Comsearch, both individually and through industry coalitions, has participated in proceedings in support of increased sharing of spectrum between Federal and non-Federal entities. For example, Comsearch was named a database manager,² and helped develop the novel coordination regime,³ for the 71-76 GHz, 81-86 GHz and 92-95 GHz bands shared between Federal and non-Federal users. Additionally, Comsearch has advocated for the

² Allocations and Service Rules for the 71-76 GHz, 81-86 GHz and 92-95 GHz Bands, *Order*, WT Docket No. 02-146, 19 FCC Rcd 20524 (2004).

³ See Letter from Christopher R. Hardy, Comsearch, to Marlene H. Dortch, Secretary, Federal Communications Commission, WT Docket No. 02-46, September 9, 2004.

release of additional channels in the 23 GHz band shared between Federal and non-Federal users for conditional authorization to commercial users;⁴ and it supports the pending proposal to automate Federal frequency coordination in the 23 GHz band so as to enable conditional licensing on all frequencies.⁵ Comsearch's extensive experience providing frequency coordination services to non-Federal entities seeking FCC licenses for fixed point-to-point microwave systems, point-to-multipoint systems, and satellite service earth stations is particularly relevant to this proceeding. Comsearch's primary interest here is to ensure that effective frequency coordination will occur between Federal earth stations and non-Federal terrestrial microwave that would share frequency bands under the Commission's proposal.

II. BACKGROUND

As the *NPRM/NOI* explains, the Communications Act of 1934, as amended, grants the FCC exclusive licensing authority over non-Federal Government transmitting stations, while NTIA has been delegated authority to assign frequencies to Federal stations.⁶ The United States Table of Frequency Allocations is divided into three main categories: frequency bands allocated for exclusive Federal use, frequency bands allocated for exclusive non-Federal use, and frequency bands allocated for shared Federal/non-Federal use. In frequency bands allocated for non-Federal use, however, Federal agencies may apply to NTIA to receive authority to operate a station on a non-interference basis—that is, they may not cause interference to and must accept interference from non-Federal stations in the band.⁷ Federal earth stations authorized by NTIA

⁴ Comments of Comsearch, WT Docket Nos. 10-153, 09-106, and 07-121, October 25, 2010, at 38.

⁵ Comments of Comsearch, RM-11610, October 12, 2010, at 2-4.

⁶ *NPRM/NOI* at ¶ 8.

⁷ *Id.* at ¶ 10.

in the non-Federal FSS and MSS bands, therefore, do not have primary status and must operate on a non-interference basis, even with regard to non-Federal stations licensed later in time.

In August 2006, NTIA filed a petition requesting that the Commission initiate a rulemaking to permit Federal earth stations that are authorized by NTIA and that operate with non-Federal satellites to have primary status in a number of frequency bands currently allocated for non-Federal FSS and non-Federal MSS on a primary basis.⁸ Some of the bands identified by NTIA also are shared with non-Federal terrestrial microwave FS licensees.

The *NPRM/NOI* correctly notes that a policy guiding Federal use of commercial satellite networks can be successful only if it provides a clear method for establishing and enforcing operational rights and responsibilities that can be applied consistently regardless of whether the user is licensed by the Commission or authorized by NTIA. The FCC seeks comment on four key objectives to express this intent:

- To ensure parity between Federal and non-Federal earth stations;
- To provide certainty that the Commission retains regulatory oversight of the satellite network and the FSS even though the Commission would license non-Federal earth stations, and NTIA would authorize Federal earth stations;
- To ensure that the rules and procedures do not hinder the Commission's rulemaking processes or delay the issuance of Commission licenses and coordination in the affected bands; and
- To establish procedures to ensure that both Federal and non-Federal earth stations comply with the Commission's rules for operating in the frequency bands

⁸ Petition for Rulemaking of the National Telecommunications and Information Administration, RM-11341, filed Aug. 4, 2006.

III. OF THE TWO APPROACHES TO PROVIDE INTERFERENCE PROTECTION TO FEDERAL EARTH STATIONS OPERATING WITH COMMERCIAL SATELLITES, THE “INTERFERENCE PROTECTION APPROACH” IS MORE CONDUCTIVE TO ACCOMPLISHING THE FCC’S KEY OBJECTIVES THAN THE “ALLOCATION APPROACH.”

The FCC seeks comment on two alternative approaches to achieve the purpose of providing interference protection to Federal earth stations operating with commercial fixed satellites. Under the “Allocation Approach,” the Commission would amend the Federal Table of Allocations to add a co-primary Federal FSS or MSS allocation to the selected bands.⁹ Under the “Interference Protection Approach,” the Commission would add a footnote to the Allocation Table that provides that Federal earth stations receive interference protection equivalent to non-Federal earth stations in the selected bands.¹⁰

Comsearch does not support the Allocation Approach because granting Federal users co-primary status could lead to future confusion over whether FCC or NTIA procedures are to be followed by Federal users and whether Federal agencies could invoke special national security or other protections in ways that would limit non-Federal operations. The Interference Protection Approach, on the other hand, by not according co-primary status to Federal users, makes it more clear that Federal earth station users are authorized by special permission and must follow FCC rules and established commercial industry coordination procedures. By maintaining the relevant bands as non-Federal, the Commission would better achieve the parity it seeks.

⁹ *NPRM/NOI* at ¶ 36.

¹⁰ *Id.* at ¶¶ 47-48,

IV. THE FCC SHOULD REQUIRE FEDERAL AGENCIES SEEKING, OR HAVING ACQUIRED, INTERFERENCE PROTECTION FOR THEIR EARTH STATIONS TO ENGAGE IN ALL PHASES OF THE FREQUENCY COORDINATION PROCESS.

Comsearch supports the FCC's four proposed key objectives, in particular that "the rules and procedures do not . . . delay the issuance of Commission licenses and coordination in the affected bands." This is critical because some of the FSS frequency bands that are the subject of NTIA's petition are shared with non-Federal terrestrial FS users. The same frequency coordination procedures and timeframes that govern sharing between FSS and FS today must continue to be employed if Federal earth stations are allowed to receive interference protection in the bands shared with FS.

The FCC's regime for frequency coordination in frequency bands shared between FSS and FS is straightforward and time-tested. The FCC's rules require that, before filing an application to license either an earth station (Part 25) or a microwave link (Part 101) in a shared band, the prospective user must undertake frequency coordination with potentially affected FS and FSS licensees, FSS registrants, FS permittees, and applicants with pending applications.¹¹ Specifically, in order to complete frequency coordination, the prospective user must conduct an interference analysis to identify potentially affected users and to design a station that will avoid interference in excess of permissible levels to other users. The interference analysis determines the appropriate channel frequencies and sometimes other parameters such as antennas and power levels for the proposal. The prospective user must then provide prior notice to potentially affected parties through prior coordination notices ("PCNs") that contain the technical details of

¹¹ See 47 C.F.R. §§ 101.21(f), 101.103, 25.203.

the proposed operations.¹² The recipients of a PCN are allowed 30 days to respond (or 45 days by mutual consent of the parties),¹³ although the FCC rules encourage responses to be made as quickly as possible.¹⁴ If no adverse responses are received at the end of the coordination period, the prospective user may file an application with the FCC and certify that the proposed operations have been frequency coordinated.¹⁵ Thus, in almost all instances, any issues of potential interference are worked out through industry best practices for coordination (use of agreed-upon interference criteria and propagation models and data dissemination and format protocols) before an FCC application is filed, so that the process of resolving interference issues is largely invisible to the FCC. If the application is for terrestrial FS frequency pairs eligible for conditional authorization, the applicant may begin operation immediately after filing the application.¹⁶

In adopting a policy of parity of access between Federal and non-Federal earth stations, the FCC must also adopt a policy of parity in procedures. The FCC should require Federal earth station users seeking to operate in non-Federal bands shared with terrestrial FS stations to follow the same frequency coordination procedures and industry best practices currently utilized under Parts 25 and 101, as discussed above and in paragraphs 38 and 49 of the *NPRM/NOI*. Under the

¹² 47 C.F.R. § 101.103(d)(2)(ii).

¹³ 47 C.F.R. § 25.203 (3)(c)(3).

¹⁴ 47 C.F.R. § 101.103(d)(2)(iv). It is not unusual for coordination timeframes to be as short as two weeks.

¹⁵ See 47 C.F.R. § 101.21(f).

¹⁶ 47 C.F.R. § 101.31(b)(1)(vii). Conditional authorization allows an applicant to begin operation on a conditional basis as soon as an application that has been successfully coordinated is filed, without waiting for FCC processing of the application. Only certain frequencies are available for conditional authorization.

NPRM/NOI's proposal, upon completion of the PCN process NTIA would send a request for earth station authorization to the FCC that includes all the technical information required of a non-Federal applicant for license. The Commission would place the NTIA request on public notice like a typical non-Federal application. If there were no objections during the public notice period and if the Commission determined that the request meets all technical criteria for a license by a non-Federal entity, the Commission would notify NTIA and make an entry in the Commission's database indicating the technical characteristics of the station and its protected status.¹⁷ The Commission notes that its database entries will facilitate future coordination with terrestrial operations sharing the satellite bands.¹⁸

Comsearch supports the FCC's proposal to require Federal agencies seeking interference protection for their earth stations to utilize the existing PCN process and not to require any additional coordination procedures for non-Federal applicants.¹⁹ The right to operate microwave systems immediately after application filing under conditional authorization is critical to meet in-service schedules. The Commission fundamentally relies on the fact that interference concerns are resolved in the prior coordination process in order to allow such pre-grant operation. The existing FCC/NTIA coordination processes through the Frequency Assignment Subcommittee ("FAS") of the Federal Interdepartment Radio Advisory Committee ("IRAC") are accomplished after application filing and take a significant amount of time to complete in many cases. These processes cannot accomplish the necessary timely pre-application filing coordination for bands shared with terrestrial microwave. Thus Comsearch agrees that the IRAC process cannot be

¹⁷ *NPRM/NOI* at ¶ 38.

¹⁸ *Id.*

¹⁹ *Id.* at ¶ 39.

included in the proposed coordination procedures for bands that are not presently shared. Instead, for shared usage, suitable notation should be added to the NTIA Red Book indicating that the coordination process set out in 47 C.F.R. §101.103(d) and applicable non-Federal industry methods and practices must be followed.

Comsearch strenuously objects, however, to the *NPRM/NOI* proposal that NTIA (and/or the affected Federal agencies) not be required to participate in the PCN process when non-Federal entities seek coordination for terrestrial microwave FS operations in frequency bands in which Federal earth stations have received interference protection. Under the Commission's proposal, NTIA would not participate in the PCN process but rather would monitor the FCC's public notices of FS applications after they are filed and, if NTIA identified potential interference, file an opposition to the application in accordance with established Commission procedures).²⁰ The Commission's proposal as drafted is inefficient and contrary to the FCC's objective not to delay the issuance of Commission licenses. Under the proposal, a Federal earth station user that elected not to participate in the PCN process could raise erroneous objections that typically would have been resolved during the normal course of the coordination process, thus injecting unnecessary delay and uncertainty.

In order that potential interference issues may be addressed and resolved upfront and in a timely manner, all Federal users whose earth stations receive protected status in a band shared with terrestrial FS must be required to participate in all aspects of the existing the Part 25/Part 101 frequency coordination process, regardless whether the Federal agencies are seeking new

²⁰ *NPRM/NOI* at ¶ 39. The *NPRM/NOI* states that “[i]f a proposed non-Federal station will cause interference to an existing Federal earth station, NTIA could file an opposition to the *earth station* application in accordance with established Commission procedure.” The second, italicized reference to earth station appears to be a typographical error.

earth station authorizations or are responding to requests for coordination from non-Federal FS users. One of the underlying purposes of the PCN process is to identify interference concerns before an FCC license application is filed. During the informal PCN process, sometimes an incumbent will ask the applicant to make changes to its proposal; and the parties can negotiate about the technical parameters and the amount of interference accepted by each party. This give-and-take works best informally and outside a formal petition to deny proceeding.

The delays that would result from the FCC's proposal to exclude Federal agencies with incumbent earth stations from the responsibility to participate in the pre-application frequency coordination process are most harmful in the context of conditional authorizations. In those FS bands that are not shared with Federal users, the Commission's rules provide certain applicants with conditional authority to begin service immediately at their own risk once they complete frequency coordination and upon filing of the relevant application, without waiting for final approval from the Commission but with the stipulation that they must cease operating immediately if the Commission returns the application or otherwise modifies or cancels the conditional authorization.²¹ Although the mere filing of a petition to deny does not automatically suspend a conditional authorization, such a petition challenges the applicant's assertion that prior coordination was successfully completed and that there are no unresolved interference concerns. The Commission staff could defer unreasonably to a petition filed by NTIA and modify/cancel the conditional authorization until NTIA's concern is resolved. Addressing interference concerns only after a facility is constructed and begins operations is not efficient and places an unreasonable burden on the non-Federal FS applicant.

²¹ 47 C.F.R. §§ 101.31(b)(2) and (b)(3).

To enforce a requirement that a Federal agency with an earth station receiving interference protection participate in the Part 25/Part 101 frequency coordination, the Federal user or NTIA should not be accorded standing to file a petition to deny based on claimed interference unless: 1) the agency reported its concerns during frequency coordination or 2) the Federal user was not properly contacted for coordination. The Federal earth station user, like any protected user, should be allowed to assert protection from later-in-time terrestrial microwave applicants based on interference actually received and measured (relevant bands: 3700-4200 MHz, 10.7-11.7 GHz, and 37.5-39.5 GHz).

A Federal earth station user may report predicted interference from its uplink into a proposed terrestrial microwave receiver during the coordination process. We do not expect that a Federal user would choose to formally object to a microwave application on the grounds of interference caused to the microwave receiver by the earth station uplink transmitter. Nevertheless, such an objection should be prohibited if the Federal user did not engage in the PCN process (relevant bands: 5925-6725 MHz and 12.7-13.25 GHz).

V. THE COMMISSION SHOULD LIMIT FEDERAL EARTH STATION USE OF EXTENDED KU-BAND DOWNLINK SPECTRUM, LEST FEDERAL ACCESS DISRUPT NON-FEDERAL TERRESTRIAL MICROWAVE OPERATIONS IN THE BAND.

As discussed in the *NPRM/NOI*,²² the NTIA petition proposes Federal earth station use of spectrum in parts of four distinct satellite bands: the C-band, the Ku-band, the Ka-band and the V-band. Portions of these satellite bands are shared with non-Federal terrestrial microwave users.

²² *NPRM/NOI* at ¶25 and Table 1.

The FSS spectrum band of particular concern for sharing with Federal earth stations is the 10.7-11.7 GHz band (“11 GHz band”), which is part of the extended Ku-band. The Commission notes that the 11 GHz band is heavily used for terrestrial services such as fixed point-to-point microwave links.²³ The Commission identified over 21,000 FS call signs in the 10.7-11.7 GHz band.²⁴ Because of this extensive use, it is imperative to preserve the 10.7-11.7 GHz band for non-Federal terrestrial operations. In particular, the 10.7-11.7 GHz band is critical for backhaul of mobile wireless traffic.

Commission policy establishes a preference for use of this band for terrestrial microwave rather than earth station use.²⁵ Although the extended Ku-band is allocated internationally for FSS on a primary basis, the use of the FSS downlink band at 11 GHz is limited within the United States to international systems, *i.e.*, other than domestic systems.²⁶ The Commission explained that the U.S. “domestic allocation was less than the international allocation . . . because we are constrained by the need to protect substantial incumbent operations and licensees . . .”²⁷

Limiting use of the extended Ku (10.7-11.7 GHz) band for earth station downlinks is important because earth stations receiving weak signals from space are sensitive to interference

²³ *Id.*

²⁴ *Id.*, note 56.

²⁵ See Amendment of Part 101 of the Commission’s Rules to Modify Antenna Requirements for the 10.7 – 11.7 GHz Band, WT Docket No. 07-54, *Report and Order*, 22 FCC Rcd 17153, 17166-17167 ¶ 25 (2007).

²⁶ See 47 C.F.R. § 2.106 NG104 (stating that “[t]he use of the bands 10.7-11.7 GHz (space to Earth)...by the fixed satellite service in the geostationary-satellite orbit shall be limited to international systems, *i.e.*, other than domestic systems”).

²⁷ See, *e.g.*, Establishment of Policies and Service Rules for the Non-Geostationary Satellite Orbit, Fixed Satellite Service in the Ku-Band, IB Docket No. 01-96, *Notice of Proposed Rulemaking*, 16 FCC Rcd 9680, 9684 ¶ 10 (2001).

from terrestrial microwave. While the international systems requirement has successfully limited non-Federal use of the 11 GHz band to a relatively small number of earth stations, what use government agencies might make of the band, even under the international limitation, is unknown. If Federal earth stations with interference protection are allowed to proliferate in this band, in many areas prospective FS applicants will need to satisfy stringent interference requirements in order to coordinate new links. Therefore non-Federal FS use of the band may be constrained in conflict with the Commission's intentions to prioritize FS over FSS usage.

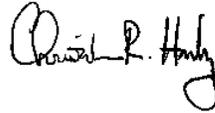
To preserve the critical 11 GHz band for future expansion of microwave services including wireless backhaul, therefore, the Commission should delete the extended Ku downlink band from its proposed policy to provide Federal earth stations with protected status. The FCC states that it “do[es] not anticipate that the extended Ku-band will be heavily used by Federal agencies.”²⁸ If that is the case, NTIA should not object to leaving this band out of the new policy. Moreover, in those cases when a Federal agency had an established need to access international satellites it could still use the extended Ku-band through an arrangement with a commercial entity to hold the license. At a minimum, the FCC should not take chances with this band that is critically valuable to non-Federal operations and should adopt special policies to require a special showing of need before a Federal earth station is accorded interference protection in the 10.7-11.7 GHz band.

²⁸ *NPRM/NOI* at ¶30.

VI. CONCLUSION

For the foregoing reasons, Comsearch encourages the Commission to take action in this proceeding consistent with the recommendations set out above.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Christopher R. Hardy". The signature is written in a cursive style with a large initial "C" and "H".

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