



Federal Communications Commission
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**VIA FACSIMILE TRANSMISSION AND
CERTIFIED MAIL, RETURN RECEIPT REQUESTED**

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Gentlemen:

1. The Chief, Enforcement and Consumer Information Division, Wireless Telecommunications Bureau, pursuant to delegated authority, has before him an "Emergency Petition to Enjoin Interference and Request for Sanctions," filed on September 30, 1997, by CBS Communications Services, Inc. ("CBS");¹ an "Opposition to Emergency Petition to Enjoin Interference and Request for Sanctions," filed on October 7, 1997, by Centennial PCS Wireless Corp. ("Centennial"); an "Interim Reply to 'Opposition to Emergency Petition to Enjoin Interference and Request for Sanctions,'" filed on October 9, 1997, by CBS; a "Response to Question Raised During the Conference of the Parties," filed on October 15, 1997, by CBS; a "Brief of Centennial Wireless PCS Corp.," filed on October 15, 1997, by Centennial; a "Reply to Brief of Centennial Wireless PCS Corp.," filed on October 22, 1997, by CBS; and a "Reply Brief of Centennial Wireless PCS Corp.," filed on October 27, 1997, by Centennial.

2. The filings raise four issues to be resolved by this letter ruling: (1) whether Centennial's PCS operation is causing interference to CBS' microwave service; (2) if so, whether CBS is entitled to protection from the interference, even to the degree that would allow CBS to receive signals outside of its authorized frequency bandwidth; (3) whether Centennial's PCS operation causes interference to CBS' service even with filters installed to prevent such interference; and (4) whether CBS waives its right to protection from

¹ During part of the pertinent time period, stations WEH913 and WGY265 were operated under the name of "Westinghouse Communication Services, Inc." Pursuant to notification to the Commission dated September 4, 1997, the name of the licensee was changed to "CBS Communications Services, Inc." For ease of reference, however, the licensee of these stations at all times will be referred to as "CBS."

interference by removing the filters. Based on the analysis below, we hereby grant CBS' emergency petition to the extent indicated, and we direct Centennial to bring itself into compliance with section 24.237(f) of the Commission's Rules within ten calendar days from the date of this letter.

I. BACKGROUND

3. CBS is the licensee of private operational fixed point-to-point microwave service ("microwave") in Puerto Rico. As part of its microwave system that links San Juan to various communities in southern Puerto Rico, CBS is licensed a designated "paired frequency" that transmits and receives service from its station WEH913 on the 1880 MHz frequency band and station WGY265 on the 1960 MHz frequency band.² These two microwave stations have been in operation for more than seventeen years from the same locations, using the Lenkurt 2 GHz microwave radio system components, model 79F1, which were manufactured and placed in service in 1980. While the Commission's Rules allow a maximum bandwidth of 5 MHz for a paired frequency using 1880/1960 MHz, due to the nature of the receiver equipment, CBS' microwave stations receive a frequency bandwidth of 12 MHz. CBS appears to be operating its microwave system in compliance with all pertinent technical rules³

4. In 1992, the Commission reallocated the 1850-1990 frequency band to be used for the new personal communications services ("PCS").⁴ On June 23, 1995, Centennial was awarded the license for the Block B PCS serving the Puerto Rico-U.S. Virgin Islands MTA (callsign KNLF250), which includes the frequency band that CBS operates in. In 1996, Centennial located two of its PCS base stations in close proximity to CBS' WEH913 station. One of Centennial's stations was installed on the roof of the Caribe Hilton, approximately 0.8 kilometers north of the WEH913 station ("Caribe Hilton station"), and the other was installed approximately 2.7 kilometers west-northwest of the WEH913 station ("Covadonga station").

5. To prevent interference problems between incumbent microwave operators and PCS licensees operating in the same frequency, sections 24.237 and 101.103 of the Commission's Rules require all licensees to coordinate their frequency usage with co-channel or adjacent channel incumbent microwave operators before the PCS operator initiates service. Section 24.237, additionally, requires PCS operators to provide interference protection to a microwave station such as CBS' that uses analog technology and has a microwave path longer than 25 kilometers "such that the interfering signal will not produce more than 1.0 dB degradation of the practical threshold of the microwave receiver."⁵

² See 47 C.F.R. § 101.147(c)(2).

³ Section 101.147(c)(2) defines the maximum bandwidth for transmitting microwave in certain paired frequencies. Neither this, nor any other Commission Rule, addresses the maximum bandwidth applicable to microwave receivers. See 47 C.F.R. § 101.147(c)(2).

⁴ See *Notice of Proposed Rule Making and Tentative Decision*, 7 FCC Rcd 5779 (1992).

⁵ 47 C.F.R. § 24.237(f).

6. To further prevent interference problems between incumbent microwave operators and the PCS licensees operating in the same frequency, the Commission has established a transition period during which microwave operators and PCS licensees are encouraged to negotiate agreements – either to relocate the microwave operation or to share the frequencies.⁶ As part of the transition, the Commission established three negotiation periods: voluntary negotiation, mandatory negotiation, and involuntary relocation. First, during the voluntary negotiation period, neither party is required to negotiate, and there are no parameters to the negotiations.⁷ Second, after the two-year voluntary period expires, the PCS operator may initiate a one-year mandatory negotiation period during which both parties are required to negotiate in good faith. During the voluntary and mandatory negotiation periods, the microwave station has co-primary status with the PCS stations.⁸ Finally, during the involuntary relocation period, the microwave operator must relocate its facilities to another frequency if the PCS operator offers comparable facilities to the microwave operator and pays the costs of relocating the facility.⁹

7. By letter dated May 29, 1996, COMSEARCH, Centennial's contractor, sent to CBS a coordination notice which CBS claims it has never received. COMSEARCH's letter was intended to notify CBS that unless it hears otherwise within thirty days, Centennial would initiate service on one 1.25 megahertz frequency block centered at 1955 MHz ("F-1 frequency block").¹⁰ CBS asserts that Centennial began operation in the San Juan area on or before May 15, 1996, in violation of the coordination requirements. Centennial claims that it did not commence operation until December 1996, and until that time, it "engaged only in the testing of its PCS facilities – activities that do not require completion of the prior coordination requirements." Nevertheless, beginning in August 1996, CBS claims that it noted substantial interference problems in its microwave service, and on September 20, 1996, CBS asked Centennial to "turn off" the Caribe Hilton station "and any other PCS sites or mobile units that may cause us interference on our microwave path." In response, on September 24, 1996, Centennial provided to CBS a report by Lucent Technologies that purported to show that Centennial was operating in compliance with the Commission's Rules. However, that report did acknowledge an increase in CBS' analog channel noise level at the WEH913 station of 8 dB to 10 dB when a certain sector of Centennial's transmitter was turned on. According to CBS, Centennial also offered assistance in obtaining line filtering to improve the signal-to-noise ratio of CBS' system.

⁶ 47 C.F.R. § 101.69(a).

⁷ See 47 C.F.R. §§ 101.69(b), 101.71.

⁸ 47 C.F.R. § 101.69(b). For services in the 1850-1990 MHz, the voluntary negotiation period was from April 5, 1995 to April 4, 1997, and the mandatory negotiation period is from April 5, 1997, to April 4, 1998.

⁹ 47 C.F.R. § 101.75.

¹⁰ Section 101.103 of the Commission's Rules specifically states that "coordination involves two separate elements: notification *and response*. Both or either may be oral or in written form. To be acceptable for filing, all applications and major technical amendments must certify that coordination, *including response*, has been completed." 47 C.F.R. § 101.103(d)(2)(i) (emphasis added).

8. On October 16, 1996, CBS filed a complaint with the Commission's Compliance and Information Bureau ("CIB") San Juan resident agent's office, alleging that Centennial's PCS operation was causing interference in violation of section 24.237 of the Commission's Rules. On October 29, 1996, the CIB agent visited the CBS station and observed the interference as a result of Centennial's operation of the Caribe Hilton station. On the same day, Centennial installed a notch filter on CBS' receiver equipment, which, according to Centennial, cured the problem. CBS claims, however, that the filter ameliorated but did not eliminate the interference. Throughout the rest of 1996 and into early 1997, CBS asserts that its microwave system experienced numerous instances of interference which degraded the signals. According to CBS, its network central switch senses the excessive interference as a system overload, and completely shuts down the microwave system, disrupting the voice and data communication of CBS and its customers. CBS claims that on being notified of these problems existing even with the filter, Centennial took no further corrective action.

9. On February 13, 1997, COMSEARCH sent CBS an additional coordination notice which advised of Centennial's plan to activate a second 1.25 megahertz frequency block centered at 1952.5 MHz ("F-2 frequency block") on the PCS stations. When Centennial activated the F-2 frequency block on March 20, 1997, Centennial's operation apparently shut down CBS' entire Puerto Rico microwave system for seven nights. On March 20, 1997, CBS filed a supplement to its original complaint with the San Juan office of the CIB, alleging continuous interference. In response to CBS' complaints, Centennial sent a letter to CBS on March 26, 1997, acknowledging that while its own tests indicated that the use of the F-2 frequency block was increasing the "noise floor" in the CBS carrier, it was not affecting the service from the station. Centennial's letter further indicated that "random spikes" from a paging carrier or other operator in the 900 MHz band might possibly be interfering with both CBS' and Centennial's service. Finally, Centennial's letter offered to install another filter that would eliminate the increase in the noise floor associated with Centennial's activities.

10. On March 27, 1997, the CIB agent instructed Centennial to discontinue operation of the F-2 frequency block on both the Caribe Hilton and Covadonga stations until it was able to protect CBS' microwave station with an adequate filter. Even with the F-2 frequency block turned off, however, both CBS and the CIB agent ascertained that the operation of the F-1 frequency block, together with operation of the F-2 frequency block at other stations, was causing increases in the noise level in the CBS system. On June 6, 1997, Centennial installed a second filter on CBS' receiver in the presence of the CIB agent, and upon reviewing the performance of the filter, Centennial was authorized to reactivate the F-2 frequency block. The CIB agent also imposed a requirement that for thirty days, CBS was to maintain a log of all instances of interference, and Centennial was to maintain a log of all technical problems occurring at the two stations. On August 27, 1997, the CIB staff compared the two logs and found "no direct correlation" between interference noted by CBS and instances of high traffic or maximum power operation by Centennial.

11. On September 3, 1997, CBS' consulting engineers undertook a survey of the F-1 and F-2 frequency blocks in the presence of the CIB agent to determine whether Centennial's operation still violates section 24.237 of the Commission's Rules. The report prepared by Denny & Associates, concluded that even with the second filter installed by Centennial, the PCS transmission degraded the performance of CBS' receiver by limiting the signal received

and introducing additional group delay into the receiver system up to 10 dB. This report was attached to a September 25, 1997, letter from CBS to Centennial which demanded that the PCS operator immediately discontinue use of both the F-1 and F-2 frequency blocks at the Caribe Hilton and Covadonga stations. In response, Centennial submitted a letter to the Commission on September 29, 1997, in which it claimed that CBS interposed a "blatant threat that 'if confirmation of discontinuation of operation is not received by Monday, September 29, 1997, this matter will be promptly brought to the attention of the Commission.'" On September 30, 1997, CBS filed its Emergency Petition to Enjoin Interference and Request for Sanctions with the Commission which initiated the instant proceeding.

II. ANALYSIS

12. Pursuant to Commission's Rules, CBS and Centennial have, since 1995, engaged in negotiations over the relocation of CBS' microwave operations. When the voluntary negotiation period from April 5, 1995 to April 4, 1997, produced no results, Centennial, on April 5, 1997, by a letter to CBS, initiated the mandatory negotiation period. The one-year mandatory negotiation period ends on April 4, 1998. Beginning in October 1996 and continuing up to January 1998, both parties have filed extensive information with the Commission concerning the status of the relocation negotiations as well as alleging various instances of interference activities.¹¹ Each party also asserts that the other has maintained unreasonable positions in negotiating, and each accuses the other of using the interference issue to manipulate the terms of the negotiations.

13. While the parties assert that the interference and relocation issues are inextricably related in this matter, we find that the positions of the parties in the relocation negotiations are separate and irrelevant to the issue of interference that is pending before the Bureau. Furthermore, we find that neither CBS nor Centennial has clearly established a showing of bad faith on the part of the other which would violate the good faith negotiation requirement set forth in section 101.73 of the Commission's Rules.¹² Accordingly, we limit the analysis below to only those issues concerning the interference that are raised in the voluminous filings, and we resolve the following four issues: (1) whether Centennial's PCS operation is causing interference to CBS' microwave service; (2) if so, whether CBS is entitled to protection from the interference even to the degree that would allow CBS to receive signals outside of its authorized frequency bandwidth; (3) whether Centennial's PCS operation causes interference to CBS' service, even with filters installed to prevent such interference; and (4) whether CBS waives its right to protection from interference by removing the filters.

¹¹ CBS first filed an interference complaint against Centennial on October 16, 1996. CBS filed an emergency petition *sua sponte* on September 30, 1997, which caused Centennial's filing of an opposition and CBS' filing of a reply thereafter. On October 9, 1997, the Commission staff held a conference on the issues with the parties and required briefs to be filed on October 15, 1997. Although reply briefs which were filed on October 22, and 27, 1997, were not requested or authorized by the staff, we will, in our discretion, accept and take cognizance of these reply briefs in the interest of ensuring a complete record in this proceeding.

¹² See 47 C.F.R. § 101.73(c).

14. As indicated above, to avoid interference problems between incumbent microwave operators and PCS licensees operating in the same frequencies, the Commission requires PCS stations to provide interference protection to the microwave station. We also note that it is a basic premise of the Commission's relocation scheme that if a PCS licensee commences operation before the microwave station is relocated, the PCS station is not allowed to interfere with the microwave station while negotiations are taking place. From the record, it is clear that without the use of filters, Centennial's PCS operation causes interference to CBS within the meaning of section 24.237(f) of the Commission's Rules which mandates that Centennial's "interfering signal will not produce more than 1.0 dB degradation of the practical threshold" of CBS' microwave receiver.¹³ Although Centennial has speculated that the cause of interference was an unidentified third party, tests performed by its own contractor, Lucent Technologies, indicated an increase in the noise level of 8 dB to 10 dB when Centennial activated the F-1 frequency block near the CBS station. Additionally, measurements taken by CIB staff indicate that when both the F-1 and F-2 frequency blocks are activated, the noise level in the CBS receiver can increase up to 14 dB. These increases in noise level are clearly beyond the 1.0 dB degradation of the threshold allowed on CBS' microwave receiver. Accordingly, as to the first factual inquiry set forth above, we find that Centennial's PCS operation is causing interference to CBS' microwave service.

15. Having found that Centennial's operation is causing interference to CBS, we now discuss whether CBS is entitled to protection from the interference, even to the degree that would allow CBS to receive signals outside of its authorized frequency bandwidth. As noted above, CBS stations WEH913 and WGY265 receive frequency bandwidth of 12 MHz rather than 5 MHz as set out in section 101.147(c)(2) of the Commission's Rules. The installation of a filter on CBS' receiver equipment by Centennial has apparently eliminated the direct interference problem that was caused by Centennial's transmissions. The filter, however, has also affected the overall performance of the CBS microwave system because it prevents the receipt of the full bandwidth of frequency that the CBS receiver needs to operate properly. In other words, the filter eliminates the interference problem for the 5 MHz of transmission received by the CBS receiver, but it also degrades the other 7 MHz to be received by CBS.

16. Centennial argues that this problem is not cognizable interference within the meaning of section 24.237 of the Commission's Rules because the additional 7 MHz of frequencies are outside the authorized 5 MHz bandwidth of the CBS station. Centennial argues that section 101.147(c)(2)'s maximum authorized frequency bandwidth sets the limit beyond which the microwave station is not entitled to interference protection. Furthermore, Centennial cites to the Commission's *Second Report and Order* in the PCS rule making proceeding¹⁴ for the proposition that the Commission specifically recognized that the maximum authorized bandwidth for microwave incumbents operating below 2 GHz, such as the 5 MHz limit in this case, is the spectrum that PCS licensees needed to consider. It also argues that affording interference protection outside the maximum authorized bandwidth to

¹³ See 47 C.F.R. § 24.237(f).

¹⁴ *Amendment of the Commission's Rules to Establish New Personal Communications Services, Second Report and Order*, 8 FCC Rcd 7700, 7726 (1993).

microwave stations "is the veritable slippery slope" because CBS has not specified the frequency range within which it demands interference protection.

17. We cannot agree with Centennial's argument because we find that the 5 MHz maximum authorized bandwidth set forth in section 101.147(c)(2) applies only to transmission and not to reception. The Commission clearly made this distinction in 1995 in a notice of proposed rule making in the cost-sharing proceeding:

As an additional matter, we note that incumbent microwave licensees generally employ receivers with "receiving bandwidth" that significantly exceed the authorized bandwidth of the associated transmitter. Accordingly, microwave receivers generally require protection over a frequency range twice as large as the transmission bandwidth (i.e., a microwave station with a 5 MHz transmit bandwidth would require protection within a 10 MHz band to protect its corresponding receive station). For purposes of determining a reimbursement obligation, however, we propose to consider only interference that occurs co-channel to the transmit and receive bandwidth of the incumbent microwave licensee. Thus, for reimbursement and cost-sharing purposes only, we propose that a 5 MHz bandwidth transmit microwave station would receive only 5 MHz protection for its receive stations (rather than the 10 MHz adjacent channel protection it would typically require to protect its receive station).¹⁵

In the order adopting the cost-sharing plan, the Commission again emphasized that "the exclusion of adjacent-channel interference for cost-sharing purposes will not affect the way that PCS-to-microwave interference is determined."¹⁶ This reflects a policy that, for purposes of interference protection – as opposed to cost-sharing – the Commission will recognize, consider, and protect the entire receive bandwidth used by an incumbent licensee, or at the least, a receive bandwidth equal to twice the authorized transmit bandwidth. Because section 24.237 of the Commission's Rules defines interference in terms of degrading the microwave receiver (instead of the transmitter),¹⁷ the concept of maximum authorized frequency bandwidth does not control the degree of interference protection afforded on the receiver.

18. Additionally, Centennial's reliance upon the Commission's *Second Report and Order* in the PCS proceeding is misplaced. While the Commission in that order acknowledged that microwave operators use bandwidth of 5 MHz and 10 MHz, the Commission there did not discuss bandwidth in the context of interference protection. Rather, as it did in the cost-sharing proceeding, the Commission referenced bandwidth only in the

¹⁵ *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation, Notice of Proposed Rule Making*, 11 FCC Rcd 1923, 1948 (1995).

¹⁶ *Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation, First Report and Order and Further Notice of Proposed Rule Making*, 11 FCC Rcd 8825, 8894 (1996).

¹⁷ "For microwave paths longer than 25 kilometers, the interference protection criterion shall be such that the interfering signal will not produce more than 1.0 dB degradation of the practical threshold of the *microwave receiver* for analog system." 47 C.F.R. § 24.237(f) (emphasis added).

context of deciding the size of frequency blocks required by a PCS operator. We thus disagree with Centennial's argument. Finally, we reject Centennial's "slippery slope" argument because section 24.237(f) of the Commission's Rules establishes a clear and workable definition of interference that applies to all PCS licensees. Centennial is required to protect whatever frequencies are necessary in order to meet that interference standard, and there is no danger that microwave operators will expand the amount of frequency to be protected beyond a definable amount.

19. As to the third issue whether Centennial's PCS operation causes interference to CBS' service even with filters installed to prevent such interference, we note that CBS has clearly established that Centennial's filter has degraded the performance of the receiver by cutting off frequencies that the receiver needs to access in order to perform properly. Centennial has not specifically disputed the existence of this phenomenon. If the filters were removed, CBS would then receive direct interference from Centennial's transmission as established above. Accordingly, we find that whether or not Centennial's filter is installed on CBS' station, Centennial's PCS operation is causing interference to CBS microwave operation in violation of section 24.237(f) of the Commission's Rules.

20. Finally, we address whether CBS waives its right to protection from interference by removing the filter. CBS has expressed its desire to take Centennial's filter off its system and to operate the station without the filter. We believe CBS is entitled to take that action without waiving its right to receiving full protection from Centennial's interference. The Commission has held that microwave licensees are not required to accept equipment such as filters or better antennas to remedy interference problems. Specifically, the Commission held that while parties could agree to upgrade facilities, it "would be difficult to regulate"¹⁸ the mandatory installation of such facilities. Moreover, we find that CBS' initial decision to allow Centennial to install a filter on the CBS station does not waive its right to remove the filter at a later date. Indeed, recognizing such a waiver would discourage microwave operators from cooperating with PCS operators to resolve interference problems, and this outcome would run counter to the Commission's policy.

III. CONCLUSION AND ORDERING CLAUSES

21. The Bureau believes it is extremely important that Centennial promptly come into compliance with section 24.237(f) of the Commission's Rules. We also believe Centennial and CBS are in better positions than the Bureau to determine what specific steps are necessary in order to eliminate the interference problem. Accordingly, we order Centennial to take whatever steps are necessary to come into compliance with section 24.237(f) of the Commission's Rules within ten calendar days of the date of this letter. Because CBS is not required to accept any modifications to its microwave system, it is up to Centennial to make whatever modifications are necessary to its PCS operations in order to eliminate the interference or come to another solution that is agreeable to CBS. The Bureau believes that

¹⁸ *Amendment of the Commission's Rules to Establish New Personal Communications Services*, 9 FCC Red 4957, 5030 (1994).

Centennial should have the discretion to determine what specific changes should be made to its system in order to eliminate the interference. Such steps could include, but are not limited to, changing the frequencies, lowering the amount of power, and, if necessary, ceasing operation from any transmission station determined to cause interference to the aforementioned CBS stations.

22. The Bureau expects that Centennial will comply with this order in the manner least disruptive to its operations. We believe this action is essential in order to uphold the integrity of the Commission's regulatory framework for licensing PCS stations and to ensure proper relocation of microwave operators in the PCS frequency band. PCS licensees have always been on notice that they have an obligation to protect grandfathered microwave stations already operating in the PCS frequency band. If PCS licensees were allowed to cause interference to these microwave operators, there would be no incentive to negotiate relocation in good faith. Moreover, if the Bureau does not take appropriate action to protect microwave operators who suffer interference from the new PCS operators, the Commission's relocation rules would be meaningless. Accordingly, Centennial will be subject to appropriate sanctions if it fails to fully comply with this order within the prescribed ten calendar day period.

23. ACCORDINGLY, IT IS ORDERED that Centennial PCS Wireless Corp., shall WITHIN TEN CALENDAR DAYS of the date of this letter, take whatever steps are necessary to come into full compliance with section 24.237(f) of the Commission's Rules, 47 C.F.R. § 24.237(f).

24. IT IS FURTHER ORDERED that CBS Communications Services, Inc., and Centennial PCS Wireless Corp., are required to cooperate with each other and with the Commission's Compliance and Information Bureau in conducting such further tests as needed to determine whether Centennial is continuing to cause interference to CBS.

Sincerely,



Howard C. Davenport
Chief, Enforcement and Consumer
Information Division
Wireless Telecommunications Bureau