

BRIEF FOR RESPONDENTS

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

No. 03-1043

AT&T WIRELESS SERVICES, INC., ET AL.

Petitioners

v.

FEDERAL COMMUNICATIONS COMMISSION
AND UNITED STATES OF AMERICA

Respondents

PETITION FOR REVIEW OF AN ORDER OF THE FEDERAL
COMMUNICATIONS COMMISSION

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GLOSSARY

airborne cellular rule	47 C.F.R. § 22.925
AirCell	AirCell, Inc. and participating cellular licensees
AirTouch	AirTouch, Inc., predecessor of petitioner CellCo Partnership
Bureau	Wireless Telecommunications Bureau
C_{min}	The minimum signal necessary for a good quality call, in dBm.
dB	Decibel; used to express power ratios logarithmically
dBm	Decibels above (or, if negative, below) one milliwatt; a unit describing the power level or signal strength of a radio signal.
Harmful interference	Interference that “seriously degrades, obstructs, or repeatedly interrupts a radio communications service,” 47 C.F.R. § 2.1(c)
ITL	Interference Threshold Level: a criterion that represents for a given environment, the highest level of noise and interference power that can be received by a cellular base station receiver without <u>any</u> interference being caused to the weakest telephone call that could still be considered an acceptable quality call
Lee/Schulz interference analysis	Interference analysis, “The AirCell Texas Test Results and the Interference Impact on AirTouch Wireless Properties,” December 15, 1997, prepared by Dr. William C.Y. Lee, Vice President and Chief Scientist and Mark Schulz, Technology Director for AirTouch, Inc.
Petitioners	AT&T Wireless Services, Inc., Cingular Wireless L.L.C. and CellCo Partnership d/b/a Verizon Wireless
R	R is the ratio of signal to noise-plus-interference, <u>i.e.</u> , the necessary margin (in dB) by which the strength of the “desired” signal (the cellular call) must exceed the strength of all “undesired” signals (noise and interference)
RF	radio frequency

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BRIEF FOR RESPONDENTS

STATEMENT OF ISSUES

Petitioners, cellular telephone service providers, challenge an order issued by the Federal Communications Commission following a remand by this Court in AT&T Wireless Services, Inc. v. FCC, 270 F.3d 959 (D.C. Cir. 2001) (JA). In AT&T Wireless, the Court substantially upheld the Commission's waiver of one of its rules, 47 C.F.R. § 22.925, to permit AirCell, Inc., and the cellular licensees that had entered into resale agreements with AirCell, to provide, on a secondary basis, a commercial airborne cellular telephone service. However, the Court remanded the case to the FCC for "further explanation of one aspect of its waiver decision," 270 F.3d at 961 (JA), namely, why the FCC had used a particular interference threshold level when it reviewed an interference analysis submitted by one of the petitioners and how, without relying on a probability study, the FCC was able to conclude from the field test data that AirCell's

airborne cellular operations would not cause harmful interference to terrestrial cellular systems “in the real world.” 270 F.3d at 968 (J.A.).

The order on review in this case explains, on the basis of the record previously compiled in the waiver proceeding, (1) how the Commission derived its interference threshold level; (2) why it rejected as too conservative the much lower interference threshold level proposed by the petitioner; and (3) how, without relying on a probability study, the FCC was able to conclude that AirCell’s operations were unlikely to cause harmful interference. The issues presented for review are:

1. Whether the FCC gave a reasoned explanation of (i) why it chose the interference threshold level it used in reviewing the interference analysis submitted by one of the petitioners, and (ii) how, without relying on a study of probabilities, it was able to conclude from the relevant test data that AirCell’s operations were unlikely to cause harmful interference to terrestrial cellular systems?

2. Whether petitioners are precluded, pursuant to 47 U.S.C. § 405, from arguing that the FCC’s order on remand violates the Court’s remand order, and, if not, whether the argument is wrong?

STATUTES AND REGULATIONS

The relevant statutes and regulations are set out in the Statutory Appendix to this brief.

JURISDICTION

The Court has jurisdiction pursuant to 47 U.S.C. § 402(a) and 28 U.S.C. § 2344.

COUNTERSTATEMENT

AT&T Wireless Services, Inc., Cingular Wireless LLC, and Cellco Partnership (d/b/a Verizon Wireless) (collectively “petitioners”) seek review of an order, In the Matter of AirCell,

Inc., 18 FCC Rcd 1926 (2003) (JA) (“Order on Remand”), issued by the Federal Communications Commission following a remand by this Court in AT&T Wireless, 270 F.3d 959 (JA). The Court remanded that case to the FCC to provide a further explanation regarding one aspect of its order upholding a decision by its Wireless Telecommunications Bureau (“Bureau”) that granted AirCell, Inc., and the cellular licensees that had entered into resale agreements with AirCell (collectively, “AirCell”), a conditional, two-year waiver of Section 22.925 of the FCC’s rules, 47 C.F.R. § 22.925, thereby permitting AirCell to provide, on a secondary basis, a commercial airborne cellular service that the rule otherwise would prohibit. See In the Matter of AirCell, Inc., 15 FCC Rcd 9622 (2000) (FJA 72)(“Order”), aff’g, In the Matter of AirCell, Inc., 14 FCC Rcd 806 (WTB 1998) (FJA 27) (“Bureau Order”), as modified by, 14 FCC Rcd 18430 (WTB 1999) (FJA 53) (“Bureau Reconsideration Order”).

In this Counterstatement, the Commission will review the pertinent aspects of the waiver proceeding leading up to the Court’s order in AT&T Wireless and the Court’s order remanding to the Commission. It then will describe the FCC’s Order on Remand issued in response to that remand.

I. The Waiver Proceeding

A. The Prohibition On Airborne Cellular Telephone Use

A key technical characteristic of cellular network design is frequency reuse, i.e., the assigning of the same channels to multiple, non-adjacent cells within a single market, with hand-off of calls from cell to cell within a system as the mobile telephone moves across a cellular provider’s service area. A cellular telephone operating terrestrially on a particular frequency will not cause harmful interference to other transmissions on the same frequency in other cells in the

same or neighboring cellular systems because of the geographic separation of cells assigned that frequency.

Because an ordinary cellular telephone used in an airborne aircraft has a much greater transmitting range than it would on the ground, its signal is capable of being simultaneously received at a much larger number of cell sites assigned the same frequencies than the signal from such a telephone in terrestrial use. This increases the risk that harmful interference will be caused to terrestrial cellular systems. Order On Remand, 18 FCC Rcd at 1930 n.30 (JA); Bureau Order, 14 FCC Rcd at 810-11 (FJA 31-32). See AT&T Wireless, 270 F.3d at 965 (JA).

Section 22.925 of the FCC's rules, 47 C.F.R. § 22.925 ("airborne cellular rule"), prohibits the operation of cellular telephones in airborne aircraft because of the potential risk of harmful interference to terrestrial cellular systems posed by such use. Order on Remand, 18 FCC Rcd at 1930 n. 30 (JA). See AT&T Wireless, 270 F.3d at 965 (JA). "Harmful interference," as defined in the FCC's rules, is interference that "seriously degrades, obstructs, or repeatedly interrupts a radiocommunication service." 47 C.F.R. § 2.1(c). See Order, 15 FCC Rcd at 9651 (Appendix, Condition 4, citing 47 C.F.R. § 2.1) (FJA 101); ITU Radio Reg., Art S1, Section VII, ¶ S1.169. Apart from this prohibition on airborne cellular operations, the FCC's rules provide no protection to terrestrial cellular base stations against interference from mobile units. Order On Remand, 18 FCC Rcd at 1928 (JA), citing 47 C.F.R. § 22.352(c)(3).

B. The AirCell Waiver Request

Pursuant to various experimental licenses and special authorizations first issued in 1992, AirCell developed and tested a system of specially engineered ground equipment and low powered cellular telephones designed to allow users in airborne aircraft to access the existing

networks of AirCell's participating cellular licensees without causing harmful interference to terrestrial cellular systems. Because the ground stations used by AirCell are located in rural areas where ambient RF noise levels are lower, AirCell is able to operate its specially designed customer end equipment at very low power and still maintain reliable communications with the ground stations. The AirCell system also employs a number of special features designed to minimize the potential for causing harmful interference.¹ Order, 15 FCC Rcd at 9623-24 (FJA 73-74). See AT&T Wireless, 270 FCC Rcd at 961-62.

In October, 1997, AirCell petitioned the FCC for a waiver of the airborne cellular rule to permit commercial deployment of its system. Pet. for Waiver (FJA 265). Prior to the submission of the waiver request, AirCell and petitioners jointly had designed and conducted two days of field testing of AirCell's experimental system using four sites in Texas and Oklahoma (the "Texas tests"). The first day's tests, on July 10, 1997, were conducted with all of the built-in safeguards of the AirCell system operating. On the second day of testing, July 11, 1997, certain of these safeguards were deliberately disabled and abnormal flight patterns were introduced into the test protocol. On September 22, 1997, petitioners unilaterally had conducted a further test in Florida. Order, 15 FCC Rcd at 9629-31 (FJA 79-81). See AT&T Wireless, 270 FCC Rcd at 962, 967.

AirCell maintained that the results of the Texas field tests confirmed that its specially-designed system, when operating normally, would not cause harmful interference to terrestrial

¹ These features include special, horizontally polarized antennas which reduce the potential for harmful interference with the vertically polarized antennas commonly used in terrestrial base stations; dynamic power control that allows the system to adjust the power continuously so that only the minimum output required is used; and a single command point at which the system can be shut down. Order, 15 FCC Rcd at 9623-24 (FJA 73-74); Bureau Order, 14 FCC Rcd at 808-09 (FJA 29-30).

cellular operations, and that, in fact, its signal was barely detectable by terrestrial cellular base stations and then in only very limited situations. Pet. For Waiver, p. 55 (FJA 333). AirCell also submitted probability studies with its waiver request which, it asserted, showed that the chance that even a detectable signal generated by its system would cause any interference to terrestrial cellular service was “miniscule.” Pet. For Waiver, pp. 56-62 (FJA 334-40).

The Bureau noticed the waiver request.² Numerous rounds of comments, pleadings and ex parte submissions, including technical studies and analyses, both in support and opposition, were filed with the agency in response.

C. The Bureau Order

On December 24, 1998, the Bureau granted AirCell a conditional, two-year waiver of the airborne cellular rule permitting it to provide, on a secondary basis, a commercial cellular service to subscribers in airborne aircraft.³ The Bureau concluded, on the basis of its analysis of the record, that “because of the low power, special antennas and other features unique to the AirCell mobile unit, the risk of harmful interference that use of an ordinary cellular telephone in an airborne aircraft poses ha[d] been addressed.”⁴ Bureau Order, 14 FCC Rcd at 812 (FJA 33). The Bureau found that granting a waiver of the rule would serve the public interest by affording

² Public Notice, 12 FCC Rcd 17664 (WTB 1997) (FJA 1210).

³ The Bureau issued the waiver directly to the licensees that had signed resale agreements with AirCell. Bureau Order, 14 FCC Rcd at 818 (FJA 39). The Bureau granted waivers to additional participating licensees in three subsequent orders that were the subject of applications for review addressed by the Commission in its Order. See In re AirCell, Inc., 14 FCC Rcd 13151 (WTB 1999) (FJA 45); 14 FCC Rcd 19678 (WTB 1999) (FJA 63); 15 FCC Rcd 1639 (WTB 1999) (FJA 69).

⁴ The Bureau rejected the contention of some opponents that Section 22.925 is aimed at preventing all interference, not just that interference that is defined as “harmful.” Bureau Order, 14 FCC Rcd at 810 n.21 (FJA 31). The opponents did not seek review by the Commission of that ruling.

AirCell the opportunity to offer cost-effective, readily accessible safety-related communications that are not otherwise available to the general aviation industry, and by promoting a more efficient use of scarce spectrum resources. 14 FCC Rcd at 812-14 (FJA 33-35).

The Bureau rejected petitioners' contentions that the data collected in the field tests showed that the AirCell system would cause harmful interference to terrestrial cellular service. The test data the petitioners relied on included data that had been collected while AirCell's system had been operating with key elements of its interference features deliberately disabled. The Bureau found that when the AirCell system's performance was evaluated on the basis of data collected when the system was operating normally, the record fully supported the conclusion that the harmful interference that Section 22.925 was intended to prevent was not likely to occur. Id.

The Bureau imposed a number of special conditions, including requirements that AirCell's airborne cellular service be provided on a secondary basis and that the AirCell participating licensees provide prior notice of service or testing to co-block nonparticipating terrestrial cellular licensees with cell sites within a designated area, to further ensure that the AirCell system would not cause harmful interference. See 14 FCC Rcd at 811, 821-22 (Appendix A) (FJA 32, 42-43); Bureau Reconsideration Order, 14 FCC Rcd 18430 (FJA 53). The secondary status imposed on AirCell's operations means that no terrestrial cellular licensee not participating in the AirCell system is required to alter its operations in any manner. AirCell may not cause harmful interference to any nonparticipating terrestrial cellular carriers operations, and if any harmful interference were to occur, AirCell must either cure that interference

immediately or cease operating at the offending AirCell base station. 14 FCC Rcd at 811, 821 (Appendix A, Condition 4) (FJA 32, 42).⁵

In addition, the Bureau established a complaint procedure for nonparticipating terrestrial cellular licensees to bring evidence to the Commission that operation of the AirCell system is resulting in certain interference to their operations, even if such interference does not rise to the level of harmful interference the airborne cellular rule is intended to prevent. If evidence of any such objectionable interference (as defined in Condition 4) is presented, AirCell must take prompt action to resolve the complaint, and the Commission may terminate or modify the authority set out in the waiver, without opportunity for hearing, if any valid complaint of such interference is not satisfactorily resolved by AirCell in a timely fashion. 14 FCC Rcd at 811, 817 & n.54, 821 (Appendix, Condition 4) (FJA 32, 38, 42).

D. The Commission's Order

Over the petitioners'⁶ objections, the Commission largely affirmed the Bureau's grant of AirCell's waiver request, and reset the two-year waiver term to begin on June 9, 2000, the effective date of its Order. The Commission "agree[d] with the Bureau's technical assessment of the AirCell system, including its judgment that there is little risk the system will cause harmful interference to non-participating carriers, as well as its evaluation of the system's potential

⁵ See 47 C.F.R. § 2.104(d)(3)(i). This rule provides that stations with secondary status "[s]hall not cause harmful interference to stations of primary services to which frequencies are already assigned or may be assigned at a later date."

⁶ Seven entities petitioned the Commission for review of the Bureau Order. By the time an appeal of the Commission's Order acting on those petitions was filed with this Court in the AT&T Wireless case, a number of these entities had combined, such that appellants in that case were: AT&T Wireless Services, Inc., BellSouth Cellular Corp., SBC Wireless, Inc., and Cellco Partnership (d/b/a Verizon Wireless). Since that time, BellSouth Cellular Corp. and SBC Wireless, Inc. have become Cingular Wireless. See Order on Remand, 18 FCC Rcd at 1926 n.3 (JA).

benefit for general aviation.” Order, 15 FCC Rcd at 9627 (FJA 77). Based primarily on the special design characteristics of the AirCell system, and on the results of the July 10, 1997 Texas field tests, the Commission concluded that “the AirCell service operates at a power level and in a manner that poses little or no threat of harmful interference” to terrestrial cellular systems. “Indeed,” the Commission concluded, “the evidence indicate[d] that the AirCell signal is undetectable in most circumstances.” 15 FCC Rcd at 9628 (FJA 78).

The Commission also was satisfied that, by imposing secondary status on AirCell’s operations and requiring AirCell to give advanced notification of its operations to nonparticipating licensees, the Bureau had provided “adequate, indeed redundant” interference protection to terrestrial cellular operations. 15 FCC Rcd at 9629 (FJA 79). Nevertheless, adopting a conservative approach, the Commission added several mandatory technical operating conditions to the waiver to “ensure that the AirCell system will in fact operate within the technical parameters on which the Bureau’s decision was based.” 15 FCC Rcd at 9627, 9633, 9651-53 (Appendix) (FJA 77, 83, 101-03).

The Commission rejected as unpersuasive petitioners’ assertions that the results of the Texas and Florida field tests demonstrated the likelihood that AirCell’s system would cause harmful interference to terrestrial cellular operations. The Commission concluded that the data gathered from the second day (July 11, 1997) of the Texas tests and from the September tests in Florida were unreliable because these tests had been conducted under abnormal operating conditions. Accordingly, the Commission found, the Bureau reasonably relied on only the data gathered on the first day (July 10, 1997) of the Texas tests to characterize the normal operations of the AirCell system. 15 FCC Rcd at 9630-31 (FJA 80-81). The Commission agreed with the Bureau that these data – which represented a “worst case” scenario that required the AirCell

mobile unit to emit its highest power level in order to reach the AirCell base station site – demonstrated that the AirCell system was unlikely to cause harmful interference to terrestrial cellular systems. 15 FCC Rcd at 9630 n.60 (FJA 80).

Of relevance to the issue remand by the Court in the earlier case, petitioners, in their application for review, had complained that the Bureau's order "failed even to mention" that Dr. William C.Y. Lee, Vice President and Chief Scientist of AirTouch, Inc. (a predecessor of petitioner Cellco Partnership), in an interference analysis (the "Lee/Schulz" interference analysis) submitted by AirTouch, had "determined that the Texas test confirms that AirCell's operations will create 'a significant level of harmful interference' over 30 per cent of the time that an AirCell-equipped plane placing a call overflies a terrestrial system." Consolidated App. For Review, filed Jan. 25, 1999, pp. 21-22 (FJA 1813-14). The Commission dismissed Dr. Lee's conclusion as having been based on "unrealistic assumptions, including . . . [Dr. Lee's] use of an unrealistically low interference threshold." Order, 15 FCC Rcd at 9631 (FJA 81). The Commission found that the minus 124 dBm interference threshold level used by Dr. Lee was "too conservative," and that "an interference threshold of minus 117 dBm is more realistic for typical analog systems." 15 FCC Rcd at 9631 and n.67 (FJA 81). The Commission concluded that "on the basis of its review of the evidence, it appears to us that use of the latter threshold [minus 117 dBm] would have led to a finding that AirCell would cause a significant level of harmful interference 0 % of the time." Id.

The Commission also rejected a contention that the Bureau had erred by not addressing the objections petitioners had made to the probability study AirCell had submitted with its waiver request. See Consolidated App. For Review, filed Jan. 25, 1999, p. 22 (FJA 1814). The Commission stated that the Bureau did not need to settle any disputes concerning AirCell's

probability study because the study had not been a factor in its decision. 15 FCC Rcd at 9632 (FJA 82).

II. The AT&T Wireless Decision

Except in one aspect, the Court denied petitions for review of the Commission's Order. AT&T Wireless, 270 F.3d at 961 (JA). The Court rejected petitioners' contentions that the FCC had violated its own rules and the licensing scheme of the Communications Act by allowing AirCell to provide a new nationwide radio communications service without a license, and by proceeding by a waiver process instead of by rulemaking. 270 F.3d at 963-66 (JA -). The Court held that the FCC could reasonably conclude that the combined effect of AirCell's use of nonstandard control channels and frequency coordination with nonparticipating licensees and its low-power technological design, serves to minimize the interference risks addressed by the airborne cellular rule. 270 F.3d at 965 (JA). It further held that arguments involving the applicability of the waiver to commercial aircraft and the viability of the complaint process associated with AirCell's secondary status were not properly before the Court because the Commission had not first been afforded a fair opportunity to consider those claims. 270 F.3d at 966 (JA), citing 47 U.S.C. § 405.

The Court held that, except in one respect, the FCC adequately explained its determination that AirCell's operations were unlikely to cause harmful interference to terrestrial cellular systems. 270 F.3d at 966-68 (JA -). After noting a number of conflicting interference analyses of the field test data submitted by the various parties to the waiver proceeding, see 270 F.3d at 967 (JA), the Court held that "[t]he Commission adequately explained why it rejected the July 11, 1997, Texas-Oklahoma test data and the September 22, 1998, Florida test data upon which the petitioners rely." 270 F.3d at 967 (JA).

With respect to the FCC's rejection of AirTouch's Lee/Schulz interference analysis, however, the Court concluded that "the Commission provided no such clarity as to its choice of the appropriate interference threshold." 270 F.3d at 968 (JA). The Court noted that the Commission had "simply stated" that Dr. Lee "had relied on 'unrealistic assumptions,'" and that, "[i]n the Commission's view, use of a threshold of minus 124 dBm was 'too conservative' and . . . an interference threshold of minus 117 dBm is 'more realistic for typical analog systems.'" Id., quoting Order, 15 FCC Rcd at 9631 n.67 (FJA 81). The Court held that while "this may be so, and the [C]ourt would otherwise defer to the Commission's expertise . . . the Commission's succinct statement fail[ed] to provide a reasoned justification for rejecting the minus 124 dBm threshold, much less a defense of the minus 117 dBm threshold that the Commission viewed as 'more realistic.'" Id.

The Court noted that the FCC had not indicated that it was relying on any rules or standards in support of its determination to use a minus 117 dBm interference threshold. The only other clarification the Commission offered was "a conclusory assessment, again without further explication, that use of the latter [minus 117 dBm] threshold would have led to a finding that AirCell would cause a significant level of harmful interference 0% of the time." Id., quoting Order, 15 FCC Rcd at 9631 n.67 (FJA 81). This conclusory explanation, the Court concluded, "does not fill the void." Id. The Court further observed that "[t]he Commission's failure to justify adequately its choice of an interference threshold thus implicates its additional failure to explain how it was able, in the absence of a probability study, to translate the raw signal data from the July 10, 1997, field test into a finding that AirCell's system 'would cause a significant level of harmful interference 0% of the time' in the real world." Id. Because the Court was "unable to discern why the Commission considered one interference threshold preferable to

another or how it could extrapolate from the July 10, 1997, test data in the absence of a probability study,” *id.*, it granted the petitions for review in part and “remand[ed] the case to the Commission for further explanation of [this] one aspect of its waiver decision” and otherwise denied the petition. 270 F.3d at 968, 961 (JA ,).

Petitioners sought rehearing with respect to matters not at issue in the instant case. See Pet. for Rehearing, filed December 12, 2001. At the Court’s direction, the FCC filed a response, in which it opposed rehearing. See Opp. To Pet. For Rehearing, filed January 8, 2002. The Court denied the petition for rehearing, Order, filed January 29, 2002, and issued its mandate in the case on February 12, 2002.

III. The FCC’s Order On Remand

Acting on the record previously compiled in the waiver proceeding,⁷ the Commission issued the order that is the subject of review in this case. In response to the Court’s directive to the FCC to provide “further explanation” as to “why the Commission considered one interference threshold preferable to another” when it rejected the Lee/Schulz interference analysis, 270 F.3d at 968, 961 (JA ,), the Commission explained how the minus 117 dBm interference threshold level it used is derived mathematically and why it had concluded that the minus 124 dBm interference threshold advocated by AirTouch in its Lee/Schulz interference analysis was “unrealistically low.”

⁷ Shortly after the Court issued its mandate, petitioners, on March 8, 2002, submitted to the FCC an unsolicited document entitled “Comments on Remand From The United States Court Of Appeals For The District Of Columbia Circuit.” Petitioners invoked the FCC’s ex parte rules as the basis for submitting this pleading, but served the document on the parties to the waiver proceeding. Because the Commission had neither solicited this document, nor granted leave to the petitioners to file the document, and because it found that the record in the underlying waiver proceeding to be a sufficient basis on which to rest its earlier waiver decision, the Commission declined to consider petitioners’ pleading. Order on Remand, 18 FCC Rcd at 1927 n.5 (JA).

The Commission explained that, as used by the FCC in the waiver proceeding, the interference threshold level (“ITL”)⁸ for a given environment is “the highest level of noise and interference power that can be received by a cellular base station receiver without any interference being caused to the weakest telephone call that could still be considered an acceptable quality call.” 18 FCC Rcd at 1931 (JA) (emphasis added) (footnote omitted). The ITL is calculated on the basis of various assumptions about the quality of service expected, the capabilities of a cellular system’s and the subscribers’ equipment, and the ambient RF environment in the area of a particular cellular base station. Id.

The Commission derived an interference threshold level for rural areas⁹ by starting with the minimum power level needed for a good-quality cellular telephone call and factoring in a buffer to protect that call from interference. In technical terms, this means that the ITL “is derived by taking the minimum signal strength necessary for delivery of a good cellular call and subtracting the ratio of signal to noise-plus-interference, i.e., the necessary margin (in dB) by which the strength of the ‘desired’ signal (the cellular call) must exceed the strength of all ‘undesired’ signals (noise and interference).” Id. This is expressed by the equation

⁸ In addressing the issue whether AirCell’s airborne cellular operations were likely to cause harmful interference to terrestrial cellular telephone calls, a number of opponents of the waiver request had made use of a criterion they termed the “interference tolerance level,” which they referred to as the “ITL.” The FCC used essentially the same criterion denominated as the “interference threshold level” when it conducted its own analysis of the interference potential of the AirCell system. Order On Remand, 18 FCC Rcd at 1931 (JA).

⁹ As the FCC previously had indicated, see 15 FCC Rcd at 9637, 9647 (FJA 87, 97), given the operating parameters used, the possibility of AirCell causing interference to terrestrial cellular service was limited to rural areas. There was general agreement in the record of the waiver proceeding that the RF noise typically found in urban and suburban areas is sufficient to mask AirCell’s signals when the system is operating normally. The interference analyses submitted by both AirCell and by opponents of the waiver request therefore had focused on the potential for AirCell to cause interference in rural areas. 18 FCC Rcd at 1932 n.34 (JA).

ITL = $C_{min} - R$, where “ C_{min} ” represents the minimum signal necessary for a good quality call, and “ R ” represents the ratio of signal to noise-plus-interference. 18 FCC Rcd at 1931 (JA). AirCell and petitioner AT&T Wireless, Inc. used the same or equivalent equation in their analyses of the test data submitted in the record. Id.

Thus, “the ITL represents the combined power level – i.e., of the operation of the AirCell or other ‘unwanted’ radio system, plus other ambient noise and interference, measured at the input to the ‘victim’ cellular base receiver – below which no interference will be caused to a terrestrial cellular call received at that base station.” Id. (emphasis added). While a noise and interference power level somewhat above the interference threshold level may indicate the possibility of some degradation to the desired signal, only a very substantial excess of noise and interference over the ITL would indicate the harmful interference (i.e., serious degradation, obstruction or repeated interruption of cellular service) that the airborne cellular rule is intended to protect against.¹⁰ 18 FCC Rcd at 1927 n.7, 1931 n.33, 1935-36 (JA , -).

The FCC calculated its minus 117 dBm interference threshold level using technical parameters that are generally accepted in the industry and that were well within the range of values in the record before it. The Commission selected a value (minus 100 dBm) for the minimum necessary signal level for a good call in a rural area (where ambient noise levels are lowest) that is consistent with the values used by parties on both sides of the waiver proceeding, including petitioner AT&T Wireless, and that represented the approximate midpoint of the range of values submitted into the record. 18 FCC Rcd at 1932 & nn. 35-39 (JA). This value also is consis-

¹⁰ The FCC acknowledged that a footnote in its Order, 15 FCC Rcd at 9631 n.67 (FJA 81), may not clearly have stated the distinction between an interference threshold level and a threshold for determining when interference rises to the level of being harmful interference. See 18 FCC Rcd at 1936 n.58 (JA).

tent with values found in the technical literature – including the published work of AirTouch’s expert, Dr. Lee. The value of 17 dB used for the ratio of signal to noise-plus-interference is “an industry standard that is not disputed in the record.” 18 FCC Rcd at 1931-32 & n.40 (JA).¹¹

The Commission also explained why it had concluded that the much lower minus 124 dBm ITL proposed by AirTouch in its Lee/Schulz interference analysis was not an appropriate ITL. See 18 FCC Rcd at 1932-33 (JA). AirTouch, alone of all the parties to the proceeding, derived its ITL by starting with a value for its system’s noise floor and “calculating up” from that value to determine how strong an AirCell signal could be before it would raise that system noise floor by more than a certain amount. In applying this methodology, Dr. Lee relied on technical assumptions more conservative than the industry consensus. He assumed, for example, that a terrestrial cell site in a rural area would experience zero environmental noise, whereas the Commission observed that even in a rural environment, such an assumption is not reflective of the typical noise environment in which cellular carriers operate or for which they design. 18 FCC Rcd at 1927, 33-34 (JA , -). Dr. Lee also used a value (2 dB) for receiver noise that was significantly below the range of values (5 dB to 8 dB) the FCC attributes to system noise at a typical cell site. 18 FCC Rcd at 1934 (JA). The Commission found that these were not reasonable assumptions and that, therefore, the Lee/Schulz interference analysis was likely to overstate the potential impact of adding AirCell’s signal to the RF environment. Id.

After having thus derived an unrealistically low value (minus 127 dBm) for the AirTouch system noise floor, AirTouch then assumed that AirCell should not be permitted to increase that noise floor by more than 4.76 dB which, according to AirTouch, was its fade margin or reli-

¹¹ See AT&T Wireless, 270 F.3d at 966 (“AirCell claims, and the petitioners do not appear to dispute, that the industry standard for this ratio is 17 dB.”).

ability factor. Using that figure, Dr. Lee calculated a minus 124 dBm ITL. The Commission found that AirTouch did not sufficiently justify the 4.76 dB amount thus used by AirTouch in its calculation because it failed to show any link between this value and cellular call quality, 18 FCC Rcd at 1935 (JA), and, even if AirTouch's basic approach were accepted, Dr. Lee erred in the way he had used AirTouch's reliability factor. *Id.* These factors, the Commission concluded, appeared to explain why AirTouch's proposed minus 124 dBm ITL for rural areas was far lower than the ITL proposed by any other party to the waiver proceeding, including other opponents of the AirCell waiver request. 18 FCC Rcd at 1935 (JA).

In addition, the Commission concluded that even if all of the assumptions and calculations made by Dr. Lee up to this point were assumed to be correct, the Lee/Schulz interference analysis would not have supported AirTouch's conclusion as to the probability that the AirCell system would cause harmful interference to terrestrial cellular systems because AirTouch conflated the concepts of "interference" and "harmful interference." 18 FCC Rcd at 1938 (JA). 18 FCC Rcd at 1935-36, 1938 (JA). By way of illustration, the Commission, described a situation where total noise and interference exceed the ITL by a small amount (e.g., 1-2 dB). The Commission explained that while this small excess may be measurable with sensitive test instruments, it likely would go unnoticed by the average caller. A larger excess (e.g., 3-4 dB) could produce objectionable interference that would be annoying to the same caller, but only a very substantial excess (e.g., 7 dB or more) above an ITL based on a signal to noise-plus-interference ratio of 17 dB would indicate interference that would be considered "harmful interference."¹² 18 FCC Rcd 1935-36 (JA). Because AirTouch in its interference analysis made

¹² Based on an interference threshold level of minus 117 dBm, this would mean that harmful interference would be indicated only at a power level of minus 110 dBm or higher (calculated as $-117 \text{ dBm} + 7 \text{ dB} = -110 \text{ dBm}$). 18 FCC Rcd at 1935 & n.57 (JA).

no distinction between interference of a lesser degree and interference that would meet the definition of harmful interference, its analysis “incorrectly implied that any excess of noise and interference above the ITL, no matter how transient or slight, is harmful interference.” 18 FCC Rcd at 1936 (JA).

The Commission then reviewed the three tables of data in the Lee/Schulz interference analysis that summarized data from the July 10, 1997 Texas field tests.¹³ These tables showed in separate columns, the percentage of data points exceeding AirTouch’s minus 124 dBm ITL, and the calculated AirCell received signal mean power value and standard deviation about this mean. The first two tables reported data for sixteen test flights at altitudes between 5,000 and 35,000 feet gathered from two types of cellular receiving antennas installed at the Madill, Oklahoma test site. Review of these tables showed that none of the mean power values for the AirCell received signal calculated by Dr. Lee exceeded the FCC’s minus 117 dBm interference threshold level by any amount. In fact, the highest of these mean power values was 6 dB below minus 117 dBm, which the FCC observed, “provid[es] a considerable margin of confidence that no interference will occur.” 18 FCC Rcd at 1936-37 (JA) (emphasis added). The third table reported data for eight test flights at an altitude of 5,000 feet gathered from the same two types of antennas installed at the Waurika, Oklahoma test site. Only one of the mean power values reported in this table exceeded the FCC’s minus 117 dBm ITL, and then, only by the “insignificant amount” of 0.61 dB. 18 FCC Rcd at 1937 (JA). These results, the Commission concluded, “eliminate[] any suggestion that normal operation of the AirCell system is likely to cause harmful interference” to terrestrial cellular systems. Id.

¹³ The FCC disregarded a fourth table, which summarized the rejected data from the second day of tests (July 11, 1997), when the AirCell system’s safeguards had been deliberately disabled. 18 FCC Rcd at 1934 (JA).

The Commission also explained why it had not needed to rely on a probability study in order to conclude from the July 10, 1997, field test data that AirCell’s airborne cellular operations were not likely to cause harmful interference to terrestrial cellular licensees’ operations. Order On Remand, 18 FCC Rcd at 1930-38 (JA). The probability studies that AirCell had submitted with its waiver request contained concurrency calculations that were intended to show that the probability of a simultaneous occurrence of all of the events necessary for there to be any interference from AirCell was very low. The Commission, however, “assumed that such simultaneous channel use, albeit unlikely, would occur, and considered what the consequence of such an occurrence would be” 18 FCC Rcd at 1938 (JA) (emphasis in the original). Because it determined that the relevant test data showed that harmful interference would not occur even in a worst-case scenario,¹⁴ there was no need for the Commission to factor in studies of the probability that these events in fact would occur simultaneously. 18 FCC Rcd at 1938, 1939 (JA).

IV. Petitioners’ “Motion For Summary Reversal And Vacatur”

On February 26, 2003, petitioners filed the instant petition for review. On April 21, 2003, they moved the Court (1) to grant summary reversal of the Order On Remand, and (2) to vacate the FCC’s original waiver order. See Motion For Summary Reversal And Vacatur (“Motion”). Petitioners contended that the FCC’s Order On Remand violates the Court’s mandate in AT&T Wireless because, according to petitioners, the remand order compelled the Commission to justify minus 117 dBm as the level at which “harmful interference” is indicated. They

¹⁴ The “worst case” scenario represented by the Texas tests was one in which the AirCell-equipped airplane was at a maximum distance from the AirCell participating licensee’s cell site and was located directly above the terrestrial cellular system’s “victim” site. In this configuration, the AirCell system was transmitting at its maximum designed power and the system was located maximally close to the “victim” site. 18 FCC Rcd at 1938 n. 63 (JA), citing Order, 15 FCC Rcd at 9630 n.60 (FJA 80). See AT&T Wireless, 270 F.3d at 963.

contended, therefore, that when the Commission on remand explained that minus 117 dBm represents the level just above which any noise and interference becomes detectable (to a minimum acceptable quality terrestrial call at minus 100 dBm), but that harmful interference is not indicated until noise and interference significantly exceed the minus 117 dBm interference threshold level, it violated the Court's mandate. The FCC and AirCell filed oppositions, see Opposition Of Respondent To Motion For Summary Reversal And Vacatur, filed May 16, 2003; Opposition Of Intervenor AirCell, Inc. to Petitioners' Motion For Summary Reversal And Vacatur, filed May 16, 2003, and petitioners responded. See Reply To Opp. To Motion For Summary Reversal and Vacatur, filed May 30, 2003.

The motions panel denied the motion for summary reversal, and ordered that the motion for vacatur be referred to a merits panel. Order, filed July 15, 2003.¹⁵ The case was set for briefing and oral argument by Order filed July 30, 2003.

V. Related Proceedings Pending Before The FCC

Following the issuance of the mandate in the AT&T Wireless case, and with its two-year waiver of Section 22.925 of the FCC's rules about to expire, AirCell, on March 28, 2002, petitioned the FCC for an extension of the waiver and an enlargement of the waiver's scope. The Bureau temporarily extended the waiver on its current terms and conditions pending completion by the agency of its consideration of the extension petition. The comment cycle has been completed and the petition is pending before the agency. In the time since the Bureau granted the initial waiver to AirCell, in December 1998, no complaint of objectionable interference

¹⁵ By a separate Order, filed on the same day, the panel that had decided the AT&T Wireless case denied petitioners' request, included in the motion for summary reversal and vacatur, to assign the petition for review to that panel.

attributable to AirCell's operations has been filed with the FCC, and no instance of harmful interference from a properly operated AirCell cellular telephone has been reported to the agency.¹⁶

The FCC also recently issued a Notice of Proposed Rulemaking seeking comment on a proposal to reexamine a number of its rules governing the provision of commercial air-ground telecommunications services. See, In the Matter of Amendment Of Part 22 Of The Commission's Rules To Benefit The Consumers Of Air-Ground Telecommunications Services, NPRM, 18 FCC Rcd 8380 (2003). The NPRM seeks comment on whether these rules – including Section 22.925 which the agency waived in the instant case – should be eliminated or revised in order to align the FCC's rules with the current technical and operational environment and to allow for future technological innovation. The comment cycle has been completed and this rulemaking proposal is pending before the agency.

SUMMARY OF ARGUMENT

The Court in the AT&T Wireless case found that the FCC had failed to adequately explain its “choice of an appropriate interference threshold.” 270 F.3d at 968 (JA). The FCC now has provided a reasonable explanation of how it derived the minus 117 dBm interference threshold level it used to analyze the July 10, 1997, test data, and why it rejected the minus 124 dBm interference threshold level used by Dr. Lee in his analysis.

¹⁶ Condition 9 of the AirCell waiver, Order, 15 FCC Rcd at 9652 (Appendix) (FJA 102), called for the submission of comprehensive reports, after one year, by the AirCell participating cellular licensees in order to assist the FCC in determining whether continuation of the waiver after the two-year period would be in the public interest. The reports were to record incidents of interference, if any, and how any such incidents were successfully resolved. No such incidents were reported by any of the AirCell participating licensees when these reports were filed.

The equation the Commission used to derive its interference threshold level ($ITL=C_{min}-R$) is equivalent to an equation used by the petitioner AT&T Wireless to derive the ITL it used in its interference analysis. The value (minus 100 dBm) it used for C_{min} is consistent with values found in the record, including a value used by petitioner AT&T Wireless, and with values in the technical literature. The value (17 dB) for R is an industry standard that is not disputed by the petitioners. Review of Dr. Lee's tables of the July 10, 1997, test data shows that only one of 48 mean power values for the AirCell signal exceeds minus 117 dBm, and, then, by only a slight amount (0.61 dB). This amount of interference is not anywhere near the 7 dB excess of interference above the ITL that Commission considered would be required in order to indicate "harmful interference," as that term is defined in the FCC's rules.

Petitioners contend that the FCC, on remand, violated the Court's mandate by allegedly selecting a new threshold level for determining when harmful interference is indicated. This argument is not properly before the Court, 47 U.S.C. § 405, and, it is wrong, in any event. There is no evidence that the Court in the earlier case intended to bind the Commission's choice of an appropriate threshold on remand, nor would the Commission have violated the Court's mandate merely by changing the theory underlying the basis on which it had determined that the Lee/Schulz interference analysis did not demonstrate harmful interference. That issue is moot, however, because the FCC did change its interference threshold on remand. The Commission's justification of minus 117 dBm as an appropriate interference threshold is reasonable, and should be affirmed.

STANDARD OF REVIEW

The applicable scope of review is the familiar highly deferential “arbitrary and capricious” standard set out in the Administrative Procedure Act, 5 U.S.C. § 706(2)(A). That section provides that the Court must uphold a federal agency’s action unless that action is found to be “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 5 U.S.C. § 706(2)(A). The Court has held that such review is “tolerant” and “highly deferential,” and “presume[s] the validity of agency action.” Sarasota-Charlotte Broadcasting Corp. v. FCC, 976 F.2d 1439, 1442 (D.C. Cir. 1992); Kisser v. Cisernos, 14 F.3d 615, 618 (D.C. Cir. 1994).

Reviewing courts accord substantial deference to an agency’s predictive judgments concerning matters within its regulatory purview. See FCC v. WNCN Listeners Guild, 450 U.S. 582, 594-96 (1981); FCC v. National Citizens Comm. For Broadcasting, 436 U.S. 775, 813-14 (1978); NAACP v. FCC, 682 F.2d 993, 1001 (D.C. Cir. 1982). In particular, on highly technical issues of spectrum allocation, this Court consistently has deferred to the Commission’s judgment. See, e.g., AT&T Wireless, 270 F.3d at 968 (JA); Aeronautical Radio, Inc. v. FCC, 928 F.2d 428, 443-45 (D.C. Cir. 1991).

ARGUMENT

THE FCC HAS PROVIDED A REASONED EXPLANATION FOR ITS CHOICE OF AN APPROPRIATE INTERFERENCE THRESHOLD LEVEL IN RESPONSE TO THE COURT’S ORDER

In their earlier challenge to the FCC’s decision granting a waiver of Section 22.925 of its rules to permit AirCell to provide cellular service to airborne aircraft, on a secondary basis, petitioners “raised a host of claims in contending that the Commission had no basis for its determination that it was not likely that AirCell’s operations would cause harmful interference to terrestrial cellular systems.” 270 F.3d at 966 (JA). The Court rejected all but one of those

claims, namely, petitioners' claim that the FCC had failed "to justify adequately" its choice of minus 117 dB as the appropriate interference threshold when it rejected the criteria used in AirTouch's Lee/Schulz interference analysis. 270 F.3d at 968 (JA). See, Pet. Brief, AT&T Wireless, p. 32. The Court granted the petitions in part and remanded to the Commission "for further explanation of [this] one aspect of its waiver decision"; otherwise, it denied the petitions.¹⁷ 270 F.3d at 961 (JA).

The FCC, on remand, has provided the reasoned justification for its selection of minus 117 dBm as the "appropriate interference threshold" that the Court heretofore found lacking. The "interference threshold level," as used by the FCC -- and by several parties to the waiver proceeding, including some opponents of the waiver request -- is a criterion that indicates, for a given environment, "the highest level of noise and interference power that can be received by a cellular base station receiver without any interference being caused to the weakest telephone call that could still be considered an acceptable quality signal." Order On Remand, 18 FCC Rcd at 1931 (JA) (emphasis added).

The Commission derived its rural area ITL mathematically by taking the minimum power level needed for a good-quality cellular telephone call (C_{\min}) and subtracting the ratio of signal to noise-plus-interference (R), i.e., the necessary margin (in dB) by which the strength of the 'desired' signal (the cellular call) must exceed the strength of all 'undesired signals' (noise and interference)." Id. The same or equivalent approach ($ITL = C_{\min} - R$) was used by petitioner AT&T Wireless to derive the ITL it used in its interference analysis, and by AirCell in its

¹⁷ See Br. 22-23. Petitioners do not directly challenge the FCC's explanation for why it did not need to rely on a probability study; the Commission relies on the reasons stated in its order. See 18 FCC Rcd at 1938 (JA).

analysis. Id. In their brief, see p. 11, petitioners do not specifically challenge the FCC's use of this mathematical approach for deriving its ITL.

For the value of R, FCC used 17 dB, an industry standard that the parties to the proceeding did not dispute, id., and which petitioners concede is correct. See Brief, p. 25. In determining a value of C_{min} , the Commission rejected the highest (minus 88 dBm) and lowest (minus 110 dBm) of the values proposed by the parties, as unrepresentative of the minimum signal strength typically required for a good quality signal in a quiet rural area. Petitioners purport to object to the FCC's rejection of minus 110 dBm value on grounds that it is "the only figure actually premised on actual received signal strength at the test sites." Brief, p. 34. However, none of the petitioners proposed using "the actual received signal strength at the test sites" for the value of C_{min} . Petitioners, in their brief, do not show that the FCC's stated reasons for rejecting minus 110 dBm (proposed by one party who derived it mathematically using a nonstandard value of 13 dB for R), see 18 FCC Rcd at 1932 n.37 (JA), are arbitrary or capricious.

The Commission reasonably selected minus 100 dBm as the value for C_{min} . This value is consistent with values used both by proponents (AirCell, minus 100 dBm) and opponents (AT&T Wireless, minus 100.4 dBm) of the waiver request, 18 FCC Rcd at 1932 & n.37 (JA), and with values found in the technical literature.¹⁸ 18 FCC Rcd at 11932 (JA). Petitioners

¹⁸ Rappaport gave a range of -100 dBm to -90 dBm, depending on the circumstances, the low end (-100 dBm) of which generally applies to quieter rural areas, and the high end (-90 dBm) of which would apply to noisier, urban areas. 18 FCC Rcd at 1932 nn. 37, 34 (JA). In his published work, Dr. Lee stated that in rural areas, minus 100 dBm is properly used as the lower handoff threshold, i.e., the received signal strength below which a cellular system would attempt to continue carrying a call only if there were no cell site with better reception to which to hand it off. 18 FCC Rcd at 1932 (JA). Petitioners have not shown that it was unreasonable for the FCC to compare the value it used for the minimum signal strength needed for a good quality cellular call with similar values cited as lower handoff thresholds in these texts.

quibble over the FCC's citation to the 2002 edition of one of these texts,¹⁹ but they have not shown that the FCC acted unreasonably by citing to this technical literature.

The FCC also identified, and discussed in detail, several flaws it had found in Dr. Lee's methodology and results, associated with his "calculating up" from the thermal noise floor to the ITL of minus 124 dBm that AirTouch used in its Lee/Schulz interference analysis. First, the FCC found that Dr. Lee had relied on unrealistically low assumptions about environmental noise (0 dB) and internal system noise (2 dB),²⁰ and concluded, therefore, that AirTouch's interference analysis was likely to overstate the potential impact of adding AirCell's signal to the RF environment. 18 FCC Rcd at 1932 -34 (JA -). Second, the FCC found that AirTouch did not adequately justify the "certain amount" by which it would allow the noise floor to be raised because it had not demonstrated any link between this noise floor increase and cellular call quality. 18 FCC Rcd at 1934-35 (JA -). Third, the Commission found that Dr. Lee made a mathe-

¹⁹ See Brief, pp. 33-34. Petitioners do not contend that the 2002 edition differs in any material way from the 1996 edition that was extant of the time of the FCC's waiver decision, and in fact, the relevant cited section is identical. See "Wireless Communications: Principles and Practice"; Theodore S. Rappaport, Chap. 2, *The Cellular Concept – System Design Fundamentals*, p. 32, Prentice-Hall, 1996. Petitioners also do not contend that the FCC's reliance on technical literature was per se unreasonable, only that the FCC erred by citing the 2002 edition because it post dates the waiver decisions. This was harmless error, at most.

²⁰ AirTouch based its 2dB figure on the use of the highest fidelity cell site configuration, one that uses "masthead electronics," which the FCC concluded was not a standard practice for the cellular industry even in rural areas, or representative of the internal system noise for which cellular carriers design their systems. 18 FCC Rcd at 1934 (JA -). The Commission attributed 5-8 dBm to system noise at a cell site using standard, instead of "masthead electronics." Petitioner AT&T Wireless attributed 5 dB, while AirTouch itself attributed 8 dB to system noise at a cell site using standard electronics. 18 FCC Rcd at 1934 & n.46 (JA -). Using AirTouch's own value (8 dB), if Dr. Lee's calculated value of minus 124 were used for the interference threshold level for a typical rural cell site that does not use masthead electronics, the thermal noise floor (minus 129 dBm) and receiver noise figure (8 dB) alone would exceed that ITL level, without AirCell's (or any other external signal) being present. Id.

mathematical error with respect to how AirTouch's applied its reliability factor (4.76 dB), with the result that AirTouch's general use of an unrealistically low minus 124 dBm ITL implies an unrealistic assumption that acceptable quality rural cellular calls are typically carried at a median received power level of minus 109 dBm.²¹ The Commission concluded that correcting that error would have raised the implied minimum acceptable call level to minus 104.24 dB, which would raise AirTouch's calculated ITL for masthead electronics (2 dB attributed for system noise) from minus 124 dBm to minus 119.24 dBm, and for standard electronics (8 dBm attributed for system noise)²² from minus 122 dBm to minus 117.24 dBm. 18 FCC Rd at 1935 (JA). These values, the Commission observed, are equivalent to the values used by some of the other parties and which the FCC considered to be reasonable. *Id.* These findings, which support the FCC's earlier conclusion that Dr. Lee's minus 124 dBm interference threshold level was "too conservative" and unrealistically low," 270 F.3d at 968 (JA), quoting Order, 15 FCC Rcd at 9631 n.67 (FJA 81), are not challenged by petitioners in their brief. See Brief, p. 24.

The FCC also showed that when a minus 117 dBm ITL is used to review Dr. Lee's tables of data from the July 10, 1997 Texas test data, the data indicate that AirCell's signal is not likely to cause harmful interference – or even any detectable interference – to terrestrial cellular licensees' cellular telephone service. Review of the first two tables of data from the July 10, 1997 tests shows that none of the 32 mean power values of AirCell's received signal calculated by Dr. Lee, exceeds minus 117 dBm, and that the highest of these mean power values, in fact, is 6 dB

²¹ This minus 109 dBm value is 9 dB below the lower handoff threshold level value (minus 100 dBm) cited in Dr. Lee's textbook, see n.21, supra, and the minus 100 dBm value the FCC determined to be a reasonable value for the minimum signal strength necessary for a good quality call in quiet rural areas. See p. 25, supra.

²² See n.23, supra.

below minus 117 dBm. 18 FCC Rcd at 1936-37 (JA -) (emphasis added). Review of the third table of July 10, 1997 test data shows that only one of the 16 mean power values calculated by Dr. Lee exceeds minus 117 dBm, and then only by 0.61 dB. 18 FCC Rcd at 1937 JA). This slight excess of interference is less than the level of excess (e.g., 1-2 dB) of interference over an ITL (based on an R of 17 dB) that the Commission considered was likely to go unnoticed by the average cellular telephone user. 18 FCC Rcd at 1935 & n.56 (JA). The results of this comparison of the mean power values for an AirCell received signal set out in Dr. Lee's tables of data from the July 10, 1997 Texas tests with the ITL of minus 117 dBm the FCC found to be appropriate confirms the Commission's earlier conclusion, in its waiver decision, that use of this ITL instead of the "unrealistically low" ITL of minus 124 used "would have led to a finding that AirCell's would cause a significant level of harmful interference 0 % of the time." 270 F.3d at 968 (JA), quoting, Order, 15 FCC Rcd at 9631 n.67 (FJA 81).

Petitioners' primary contention (Brief, pp. 15-33) is that the Court in the earlier case allegedly required the FCC to use a particular interference threshold in its analysis of the July 10, 1997, test data, and that the FCC, on remand, allegedly violated that "mandate" by selecting a different interference threshold. Petitioners are precluded, pursuant to 47 U.S.C. § 405, from making this argument before the Court because the argument was not made to the Commission on a petition for reconsideration of the Order on Remand. If the Court reaches the merits, it should reject this argument.

The interpretation of the Court's mandate implicit in Petitioners' Brief (pp. 15-16) makes no sense. It suggests that the Court has selected minus 117 dBm as the threshold of harmful interference without even knowing the Commission's reason for selecting it, and that the Commission's only function on remand was to provide a rationalization for that holding. There is no

evidence that the Court intended such a narrow remand. Nor would the Commission have violated the Court's mandate merely by changing the theory underlying the basis on which it concluded that Lee/Schulz interference analysis did not provide credible evidence that AirCell's operations were unlikely to cause harmful interference, see SEC v. Chenery Corp., 332 U.S. 194, 199-201 (1947); FCC v. Pottsville Broadcasting Co., 309 U.S. 134, 145-46 (1940), provided only that any new theory is consistent with the Court's ruling.²³ It is a basic principle of judicial review that:

On review the court may ... correct errors of law and on remand the Commission is bound to act upon the correction. ... But an administrative determination in which is embedded a legal question open to judicial review does not impliedly foreclose the administrative agency, after its error has been corrected, from enforcing the legislative policy committed to its charge.

FCC v. Pottsville Broadcasting Co., 309 U.S. at 145 (mandate enforcement proceeding; remand of stand-alone license denial did not bar subsequent comparative consideration). In this case, the only relevant issue the Court has decided, and thus foreclosed, is that the Commission did not adequately explain its choice of an interference threshold. Nothing in that holding restricted the Commission's findings or exercise of discretion on remand, so long as it adequately explained its action. This is a moot point here, however, because the Commission did not change its theory.

Petitioners erroneously assert that the FCC previously represented that its minus 117 dBm "interference threshold" was the threshold indicating when interference rises to the level of being "harmful interference" (i.e., interference that would cause "serious degradation, obstruction, or repeated interruption, see 47 C.F.R. § 2.1(c)), and that the FCC, on remand, changed that

²³ E.g. City of Cleveland v. FCC, 561 F.2d 344, 347-48 (D.C. Cir. 1977) (prior mandate barred any deviation between agreement and tariff, so the agency could not limit investigation to ratchet clause).

“harmful interference threshold” (Brief, p. 16) to minus 110 dBm. The Commission, however, made no such representation with respect to the minus 117 dBm interference threshold in its waiver decision. See Order, 15 FCC Rcd at 9631 n.67 (FJA 81). Certainly that decision indicates that the use of an interference threshold is part of the process of determining whether “harmful interference” exists and that the airborne cellular rule is intended to provide protection from only “harmful interference.” But that is quite different from representing, as petitioners contend, that an “interference threshold” and the level at which “harmful interference is indicated” are one and the same.

The FCC’s findings regarding the potential for the AirCell signal to cause interference to terrestrial cellular systems support the opposite conclusion. The FCC determined in that decision that “AirCell’s service . . . pose[d] little or no threat of harmful interference to primary [terrestrial] cellular service,” and that “the evidence indicates that the AirCell signal is undetectable in most circumstances.” Order, 15 FCC Rd at 9628 (FJA 78). See 15 Rcd at 9637 n.106 (FJA 87) (“very marginal quality calls in quiet rural area may be affected, but . . . such occurrences will be rare and are totally avoidable with careful channel selection.”).

Petitioners attempt to create the impression that the Commission was motivated on remand first to decide that harmful interference would not be indicated until the minus 110 dBm level is reached, so that the Commission could then find, after reviewing the July 10, 1997 test data presented in the Lee/Schulz report, that the AirCell system would not cause harmful inter-

ference.²⁴ See Brief, pp.____. The Commission suggested the minus 110 dBm figure as the level (using an interference threshold of minus level 117 dBm) at which “harmful interference” would be indicated to illustrate how the interference threshold works. The Commission referred, by way of example, to various levels of excess interference in increasing magnitude above the interference threshold level that it considered would be required in order to indicate increasingly serious effects on the quality of a typical cellular telephone call. See 18 FCC Rcd at 9635 (JA). In fact, the minus 110 dBm level suggested by the FCC, in that context, was irrelevant on the facts of this case because the Commission could have concluded that harmful interference would exist at a dBm level well below 110 dBm and still concluded that none of the July 10, 1997 test data set out in the Lee/Schulz interference analysis would show that any interference attributable to AirCell’s signal would be enough to constitute such harmful interference. 18 FCC Rcd at 1936-37 (JA).²⁵

Petitioners are wrong when they assert that the Order on Remand requires non-participating terrestrial cellular licensees “to tolerate ‘objectionable’ interference.” Br., p. 24. The

²⁴ Petitioners state (Brief, p. 19-20) that Commissioner Martin’s concurring opinion in the Order On Remand “substantiate[s]” their view that “the FCC had to re-tailor its previous non-interference conclusions.” This assertion mischaracterizes the Commissioner’s statement. The Commissioner’s concern was that determinations of harmful interference currently are made on a case by case base, which he believed creates uncertainty for spectrum users and “the appearance of results-oriented decision making.” The Commissioner supported the FCC’s action in the waiver proceeding. Nor was the Commissioner “confused” about the interference threshold standard, as petitioners’ brief suggests. The portion of the Commissioner’s statement that has been deleted by petitioners in their brief states that “the Commission chose an interference threshold level of minus 117 dBm.” 18 FCC Rcd at 1940 (JA).

²⁵ The Commission did not “abandon” the noise floor as petitioners contend. (See Br. pp. 23-25). The interference threshold was never the noise floor, but rather a criterion representing the combined power level measured at the input to a cellular based receiver below which no interference would be caused to a typical terrestrial cellular call received at that base station. 18 FCC Rcd 1931 (JA). The ITL value consistently has been minus 117 dBm.

Commission's waiver decision requires AirCell to promptly respond to any valid complaint of "objectionable interference," 15 FCC Rcd at 9651 (FJA 101). The Order on Remand does not change that condition.

Petitioners also contend that the Commission "ignored key facts" in their post-remand comments, and that this violated the Court's mandate. Br. at 28-32. Nothing in the Court's opinion in the earlier case, however, directed the FCC to consider additional comments on remand, and the Commission did not abuse its discretion when it declined to do so. When the Commission did not solicit comments following the remand, petitioners could have, but did not seek leave to file comments for the purpose of bringing new facts to the Commission. Moreover, the arguments petitioners sought to make in their unauthorized comments could have been made in the earlier case.²⁶ Even if petitioners were authorized to file post-remand comments, the Commission is not required to consider arguments in those comments that petitioners could have, but chose not to make at the initial pre-remand stage of the proceeding.²⁷

²⁶ Petitioners contend, for example, that it was arbitrary and capricious for the Commission to use the mean power values of AirCell's receive signal instead of the actual signal strength and that they demonstrated in their comments that the actual signals at the test sites exceeded the -117 dBm interference threshold level. Petitioners could have made the same objection in the earlier case, but they elected instead to come before the Court as proponents of Dr. Lee's interference analysis. The method by which Dr. Lee calculated these mean values and the Commission's assessment of that methodology is set out at 18 FCC Rcd at 9136 n.59 (JA). Petitioners are not in a position to complain now that the Commission, on remand, used the mean power values for AirCell's received signals that are found in Dr. Lee's own data tables to show that when its minus 117 dB interference threshold level is used, AirCell's signal is undetectable in most circumstances.

²⁷ Northwestern Indiana Telephone Co., Inc. v. FCC, 872 F.3d 465, 470-471 (D.C. Cir. 1989) (FCC not required to address on remand constitutional and statutory challenges to rules not presented in initial proceedings before FCC).

The Commission in its waiver decision made a reasonable predictive judgment, on the basis of the special low power design features of the AirCell system, and the results of its analysis of the July 10, 1997, test data, that there was little or no risk that the AirCell system would cause harmful interference to terrestrial cellular systems. We do not contest petitioners' right to seek judicial review of the FCC's resolution of the issue of potential harmful interference as a result of granting AirCell a waiver.

The Court's review of this issue should not lose sight, however, of the larger picture here. The FCC imposed secondary status on AirCell's service, which means that in the event the FCC's predictive judgments on the issue of potential harmful interference turn out to be wrong, the harmful interference will have to stop even if this can be accomplished only by shutting down AirCell's operation. Petitioners are also protected if "objectionable," but non-harmful interference occurs, in which event AirCell is required to take prompt action to resolve valid complaints of "objectionable" interference.

It should come as no surprise that the FCC has not been made aware of any evidence of either "harmful" or "objectionable" interference. After all even at a time when decisions about AirCell's proposed operation had to be made before anyone could know for certain what would happen after AirCell began operating under its waiver, numerous terrestrial cellular systems agreed to participate in the operation of AirCell's system. It seems unlikely that these systems would have done so had they not agreed with the Commission that AirCell's system, as designed and subject to the conditions imposed by the Commission on the waiver grant, would not have the potential to cause harmful interference. If it were otherwise, the existing terrestrial cellular operations of these participating systems would also have been at risk of receiving harmful interference.

In any event, the FCC's resolution of the potential interference issue was reasonable. The FCC's explanation, on remand, justifying minus 117 dBm as its interference threshold is reasonable and "fills the void." 270 F.3d at 968 (J.A.). Reviewing courts accord substantial deference to an agency's predictive judgments concerning matters within its regulatory purview. See, e.g., FCC v. WNCN Listeners Guild, 450 U.S. 582, 594-96. Indeed, in its opinion in the earlier case, this Court indicated that, but for its "inab[ility] to discern why the Commission considered one interference threshold preferable to another," 270 F. 3d at 968 (JA) (emphasis added), that preference was a matter of "the Commission's expertise," to which "the court would otherwise defer." Id. The FCC has now provided "a reasoned justification" for that choice and, accordingly, its Order On Remand should be affirmed.

CONCLUSION

The Petition for Review and Motion for Vacatur should be denied

Respectfully submitted,

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November 20, 2003

IN THE UNITED STATES COURT OF APPEALS
FOR THE DISTRICT OF COLUMBIA CIRCUIT

AT&T WIRELESS Services, Inc., et al.)
)
 PETITIONERS)
)
 V.)
)
 FEDERAL COMMUNICATIONS COMMISSION AND UNITED)
 STATES OF AMERICA)
)
 RESPONDENTS)

No. 03-1043

CERTIFICATE OF COMPLIANCE

Pursuant to the requirements of Fed. R. App. P. 32(a)(7), I hereby certify that the accompanying "Brief for Respondents" in the captioned case contains 11465 words.

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