

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF DELAWARE

IN RE: MOBILE	§	
TELECOMMUNICATIONS	§	C.A. No. 16-md-2722-LPS-CJB
TECHNOLOGIES, LLC	§	
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MOBILE TELECOMMUNICATIONS	§	
TECHNOLOGIES, LLC,	§	
	§	
Plaintiff,	§	
	§	
v.	§	C.A. No. 16-cv-701-LPS-CJB
	§	
XIRRUS, INC. and RIVERBED	§	
TECHNOLOGY, INC.	§	
Defendants.	§	
	§	
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**PLAINTIFF’S AMENDED COMPLAINT FOR PATENT INFRINGEMENT ADDING  
RIVERBED TECHNOLOGY, INC. AS DEFENDANT  
PER COURT ORDER [D.I. 84]**

Plaintiff Mobile Telecommunications Technologies, LLC (“MTel”), by and through its undersigned counsel, files this Amended Complaint against Xirrus, Inc. (“Xirrus”) and Riverbed Technology, Inc. (“Riverbed”) (collectively “Defendants”) for infringement of U.S. Patent Nos. 5,590,403 (the “’403 Patent”), 5,659,891 (the “’891 Patent”), and 5,915,210 (the “’210 Patent”), (collectively, the “Asserted Patents” or the “Patents-in-Suit”) in accordance with 35 U.S.C. § 271 and alleges as follows:

**PARTIES**

1. Plaintiff MTel is a Delaware limited liability company having a principal place of business at 1720 Lakepointe Drive, Suite 100, Lewisville, Texas 75057.

2. MTel is a wholly owned subsidiary of United Wireless Holdings Inc. (“United Wireless”). In 2008, United Wireless, through another of its wholly owned subsidiaries, Velocita Wireless LLC, purchased the SkyTel wireless network, including assets related to

SkyTel's more than twenty-year history as a wireless data company. Velocita Wireless LLC, continued to operate the SkyTel wireless data network after the acquisition. As a result of that transaction, United Wireless gained ownership and control over the intellectual property portfolio, including patents, that several SkyTel-related entities, including Mobile Telecommunication Technologies Corp. ("MTel Corp."), Destineer Corp., and SkyTel Communications, developed over the years. United Wireless subsequently assigned certain patent assets, including the Patents-in-Suit, together with all rights of recovery related to those patent assets, to its wholly owned subsidiary, MTel, which is the plaintiff here.

3. In a widely publicized November, 2014 jury trial, MTel was awarded favorable infringement and validity verdicts against Apple, Inc. on the '403, '210, and '891 Patents.

4. MTel alleges, upon information and belief, that Xirrus is a California corporation, with its principal place of business at 2101 Corporate Center Drive, Thousand Oaks, California, 91320. Upon information and belief, Defendant can be served with process through its registered agent, Robert Day, 6580 Page Mill Road, Palo Alto, CA 94304.

5. Xirrus is a leading provider of high-performance wireless network, including wireless local networks (LANs).

6. MTel filed its original complaint against Xirrus on May 3, 2016 (the "Original Complaint."). On or about April 19, 2017, Riverbed Technology, Inc. ("Riverbed") announced its acquisition of Xirrus, as a result of which all of Xirrus' assets were transferred to Riverbed. Accordingly, on August 7, 2017, MTel filed an unopposed motion to join Riverbed as a successor defendant in *MTel v. Xirrus, Inc.*, C.A. No. 16-cv-701-LPS-CJB, pursuant to Federal Rule of Civil Procedure 25(c). On August 9, 2017, the Court granted MTel's motion and ordered that Riverbed be joined as a defendant and further ordered that MTel "file an amended

complaint reflecting this change . . .” *MTel v. Xirrus, Inc.*, C.A. No. 16-cv-701-LPS-CJB (D.I. 84). Accordingly, MTel is filing this Amended Complaint.

7. Upon information and belief, MTel alleges that Xirrus made, used, sold, and offered to sell, infringing wireless equipment and services, during the terms of the ’403 Patent, the ’210 Patent, and the ’891 Patent (the “Relevant Period,”) within the United States, including within this District.

8. MTel alleges that Xirrus made, used, sold, and offered to sell wireless access points that supported IEEE 802.11 a, g, n, or ac standards (“Wi-Fi Equipment”) during the Relevant Period. Xirrus’ Wi-Fi Equipment is listed in Exhibit E attached to MTel’s Original Complaint. This list is non-limiting and will be supplemented after appropriate discovery.

9. During the Relevant Period, Xirrus service teams designed; engineered; deployed; supported; and operated Wi-Fi networks in businesses, public areas, schools, and universities.

10. Xirrus’ services teams installed, configured, tested, or commissioned deployments that include Wi-Fi Equipment.

11. Xirrus engineers developed and executed test cases to thoroughly validate Wi-Fi Equipment to ensure they performed as designed.

12. Xirrus controlled the features and functionality of Wi-Fi Equipment by, for instance, causing software (e.g. updates or firmware) to be downloaded to such equipment and otherwise making configuration changes thereto through its Xirrus Management System (“XMS”) platform, which allows users and Xirrus technicians to operate customer’s Xirrus access points at least when performing device upgrades and generating transmissions during testing.

**JURISDICTION AND VENUE**

13. This is an action for patent infringement under the patent laws of the United States of America, 35 U.S.C. § 1 et seq. This Court has subject matter jurisdiction over the matters pleaded in this complaint under 28 U.S.C. §§ 1331 and 1338(a). Venue is proper under 28 U.S.C. §§ 1391 and 1400(b).

14. This Court has personal jurisdiction over Xirrus by virtue of its systematic and continuous contacts with this jurisdiction, as alleged herein, as well as because of the injury to MTel, and the cause of action MTel has risen, as alleged herein.

15. This Court has personal jurisdiction over Xirrus under the law of the State of Texas, including the Texas long-arm statute, Tex. Civ. Prac. & Rem. Code § 17.042, due at least to its substantial business in this forum, including: at least a portion of the infringements alleged herein, regularly doing or soliciting business, engaging in other persistent courses of conduct, and/or deriving substantial revenue from goods and services provided to individuals in Texas and in this judicial district.

16. The Court has general and/or specific personal jurisdiction over Xirrus and venue is proper in part because, on information and belief, Xirrus does continuous and systematic business in this district, directly or through intermediaries, resellers or agents, by providing infringing products to residents of the Eastern District of Texas, by providing infringing products that it knew would be used within this district, by providing direct and indirect support concerning its Wi-Fi Equipment to end users of this district, and/or by participating in the solicitation of business from residents of this district. In addition, upon information and belief, Xirrus places its Wi-Fi Equipment within the stream of commerce, which is directed at this district, with the knowledge and/or understanding that such products will be sold, leased, or

otherwise provided to customers within this district. Upon information and belief, Xirrus' Wi-Fi Equipment is provided to customers in the Eastern District of Texas. Xirrus operates a highly commercial and interactive website accessible to residents of the Eastern District of Texas that, among other things, permits customers to interact with Xirrus agents or representatives, including via live chat. The alleged infringement arises out of Xirrus' activities in Texas. Therefore, the exercise of jurisdiction over Xirrus will not offend traditional notions of fair play and substantial justice.

17. On information and belief, Xirrus has deployed Wi-Fi Equipment in Texas at, for example, independent school districts in Coppell, Andrews, Burkburnett, Monahans-Wickett-Pyote, Schleicher County, and Plano, which are located within this district.

18. Pursuant to Rule 25(c) of the Federal Rules of Civil Procedure, joinder of Riverbed in this action, as the corporate successor to Xirrus, is both appropriate and necessary in order to facilitate the conduct of this litigation. The Court has personal jurisdiction over Riverbed as the successor-in-interest to Xirrus.

**FIRST CLAIM FOR RELIEF**

(Infringement of Claims 1, 10, 11 of United States Patent No. 5,590,403)

19. MTel incorporates by reference the preceding paragraphs of this Amended Complaint as if set forth here in full.

20. The United States Patent and Trademark Office ("USPTO") duly and lawfully issued the '403 Patent, entitled "Method and System for Efficiently Providing Two Way Communication between a Central Network and Mobile Unit," on December 31, 1996. MTel is the assignee of all right, title, and interest in and to the '403 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past infringement. Each and every claim of the '403 Patent is valid and enforceable and each enjoys a statutory presumption of

validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the '403 Patent is attached as Exhibit A to MTel's Original Complaint.

21. MTel alleges that, during the Relevant Period, Xirrus directly infringed one or more claims of the '403 Patent by making, using, selling, and offering to sell Wi-Fi Equipment and associated services within the United States and this judicial district.

22. MTel alleges that Xirrus made, used, sold, and offered to sell, systems and products that embodied the claimed methods of the '403 Patent because, for instance, such systems employed techniques consistent with the MIMO aspects of IEEE 802.11 n or ac standards (e.g., as described in "Wi-Fi CERTIFIED n: Longer-Range, Faster-Throughput, Multimedia-Grade Wi-Fi Networks" at 5-6, available at <http://www.wi-fi.org/file/wi-fi-certified-n-longer-range-faster-throughput-multimedia-grade-wi-fi-networks-2009>):

A MIMO system has some number of transmitters (N) and receivers (M) ... Signals from each of the N transmitters can reach each of the M receivers via a different path in the channel. A MIMO device with multiple antennas is capable of sending multiple spatial streams – spatially distinct data streams within the same channel. A MIMO device with multiple antennas is capable of receiving multiple spatial streams. Multipath helps decorrelate the received signals enabling transmission of multiple data streams through the same MIMO channel – a technique called spatial multiplexing. MIMO can multiply data rate through a technique called spatial multiplexing - dividing a data stream into several branches and sending it as multiple parallel data streams simultaneously in the same channel.

MIMO can also be used to improve the robustness and range of 802.11n communications through a technique called spatial diversity. When the same data stream is transmitted across multiple spatial streams error rate can be reduced. An additional technique improving range and reliability called Space Time Block Coding (STBC) is also incorporated into Wi-Fi CERTIFIED n.

A copy of this document is attached as Exhibit D to MTel's Original Complaint.

23. MTel alleges that Xirrus directly infringed by using Wi-Fi Equipment that practiced one or more claims of the '403 Patent literally and/or under the doctrine of equivalents,

by, among other things, using MIMO techniques and dynamically reassigning transmitters due to changing conditions within the network.

24. Xirrus implemented through its Wi-Fi Equipment the IEEE 802.11 standard versions n and ac.

25. Xirrus devices implementing 802.11 standard versions n and ac are configured to practice MIMO techniques that read on the claims of the '403 Patent.

26. The relevant MIMO techniques that read on the claims of the '403 Patent include at least (i) Spatial Multiplexing (SM); (ii) Space Time Block Coding (STBC); (iii) Spatial Expansion (SE); (iv) Beam Forming (BF); and (v) HT Duplicate mode (MCS 32).

27. Dynamic reassignment of transmitters reads on the claims of the '403 Patent when multiple devices of Wi-Fi Equipment are setup to create a single wireless network to communicate with one or more wireless devices. As channel conditions change, these Wi-Fi networks will reassign transmitters to different zones in order to maintain optimal communication with wireless devices.

28. MTel alleges that Xirrus directly infringed the '403 Patent when it used Wi-Fi Equipment while such Equipment practiced the relevant MIMO techniques, and therefore its use of that equipment necessarily performed the steps of the asserted method claims.

29. MTel alleges that Xirrus directly infringes the '403 Patent when its service professionals install, deploy, test, and validate networks consisting of multiple devices of Wi-Fi Equipment that dynamically reassigned transmitters due to changing conditions within the network.

30. Xirrus service professionals used Wi-Fi Equipment at least because it installed, tested, deployed, or validated the Equipment when such Wi-Fi Equipment transmitted data

according to the above identified MIMO techniques.

31. MTel alleges that Xirrus directly infringed the '403 Patent when, for example, its service professionals tested the throughput that such Wi-Fi Equipment achieved in various wireless channel conditions that trigger adaptations in transmission modes.

32. MTel alleges that Xirrus directly infringed the '403 Patent when its service professionals control Wi-Fi Equipment using its XMS software.

33. MTel alleges that Xirrus directly infringed the '403 Patent when its XMS software was used, by Xirrus or its licensees, to test Wi-Fi Equipment.

34. MTel alleges that Xirrus directly infringed the '403 Patent when it used Wi-Fi Equipment to dynamically reassign transmitters due to changing conditions within the wireless network to enable a Wi-Fi connected device to seamlessly roam between zones of the Wi-Fi network.

35. As a result of Xirrus's unlawful infringement of the '403 Patent, MTel has suffered damage. MTel is entitled to recover from Xirrus damages adequate to compensate for such infringement.

### **SECOND CLAIM FOR RELIEF**

(Infringement of Claims 1, 2, 3, 4, and 5 of United States Patent No. 5,659,891)

36. MTel incorporates by reference the preceding paragraphs of this Amended Complaint as if set forth here in full.

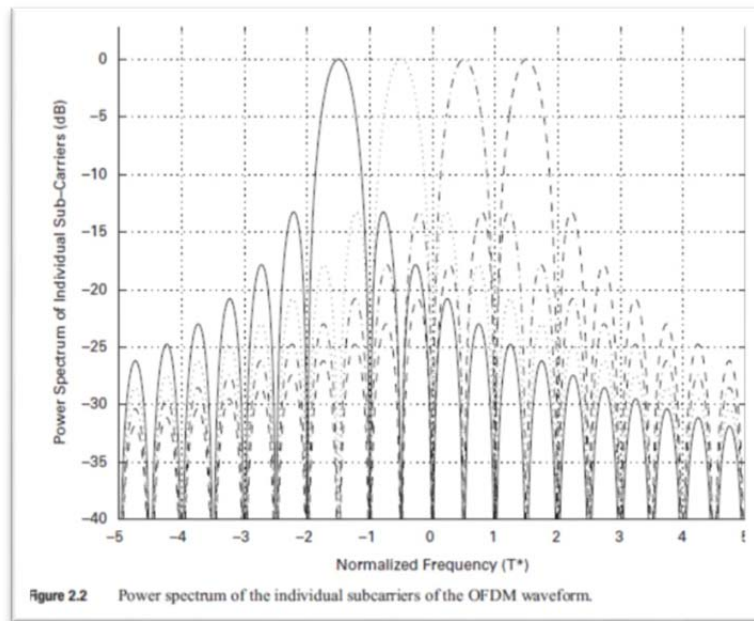
37. The USPTO duly and lawfully issued the '891 Patent, entitled "Multicarrier Techniques in Bandlimited Channels," on August 19, 1997. MTel is the assignee of all right, title, and interest in and to the '891 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present, and future infringement. Each and every claim of the '891 Patent is valid and enforceable and each enjoys a statutory presumption



of validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the '891 Patent is attached as Exhibit B to MTel's Original Complaint.

38. MTel alleges that, during the Relevant Period, Xirrus directly infringed one or more claims of the '891 Patent by making, using, selling, and offering to sell Wi-Fi Equipment, and associated services within the United States and this judicial district.

39. MTel alleges, upon information and belief, that Xirrus directly infringed one or more claims of the '891 Patent literally and/or under the doctrine of equivalents, by among other things, using Wi-Fi Equipment that embodies certain subcarrier frequency structures of the IEEE 802.11 orthogonal frequency-division multiplexing ("OFDM") scheme.



1

40. OFDM systems contain individual subcarriers that are orthogonally spaced apart in the frequency domain such that they do not interfere with each other as shown in the figure

<sup>1</sup> E. Perahia and R. Stacey, *Next Generation Wireless LANs 802.11n and 802.11ac*, 2<sup>nd</sup> edition, Fig. 2.2, Cambridge University Press. 2013.

below. To illustrate this concept, the power spectrum for four modulated subcarriers is shown in the below figure, with solid, dotted, dash-dotted, and dashed lines, respectively. It can be seen that, at the center frequency of each subcarrier, the power spectra of the other subcarriers have nulls in the spectrum and thus do not produce interference.

41. MTel alleges, for example, that Xirrus directly infringed claims of the '891 Patent in regards to the 802.11 systems that its Wi-Fi Equipment implemented because operating such equipment performed the asserted method steps of the '891 Patent

42. MTel alleges that Xirrus technicians who test or use Wi-Fi Equipment to transmit data in the 20 MHz channel bandwidth option automatically perform the asserted method steps because in the 802.11 systems of interest, the orthogonal subcarrier spacing ( $\Delta F$ ) is 312.5 kHz.

43. MTel alleges, in the accused systems, the frequency separation from the outermost used data subcarrier to the band edge of the mask is more than half the frequency difference between the center frequencies of each adjacent subcarrier.

44. MTel alleges that Xirrus directly infringed the '891 Patent at least because it used Wi-Fi Equipment operated according to the IEEE 802.11 OFDM scheme of channelization structure which performs the asserted method steps of the '891 Patent.

45. MTel alleges that Xirrus directly infringed the '891 Patent as discussed above when its service professionals installed, tested, or validated Wi-Fi Equipment, which perform the asserted method steps automatically by implementing OFDM.

46. MTel alleges that Xirrus directly infringed the '891 Patent when its XMS software was used, by Xirrus or its licensees, to test such equipment.

47. MTel alleges that Xirrus directly infringed the '891 Patent when its professionals

tested the maximum throughput that such Wi-Fi Equipment achieved.

48. As a result of Xirrus's unlawful infringement of the '891 Patent, MTel has suffered damage. MTel is entitled to recover damages from Xirrus adequate to compensate for such infringement.

**THIRD CLAIM FOR RELIEF**

(Infringement of Claims 1, 7, 8, 10, 15, 16, 17, and 19 of United States Patent No. 5,915,210)

49. MTel incorporates by reference the preceding paragraphs of this Amended Complaint as if set forth here in full.

50. The USPTO duly and lawfully issued the '210 Patent entitled, "Method and System for Providing Multicarrier Simulcast Transmission," on June 22, 1999. MTel is the assignee of all right, title, and interest in and to the '210 Patent and possesses the exclusive right of recovery, including the exclusive right to recover for past, present, and future infringement. Each and every claim of the '210 Patent is valid and enforceable and each enjoys a statutory presumption of validity separate, apart, and in addition to the statutory presumption of validity enjoyed by every other of its claims. 35 U.S.C. § 282. A true and correct copy of the '210 Patent is attached as Exhibit C to MTel's Original Complaint.

51. MTel alleges that, during the Relevant Period, Xirrus directly infringed one or more claims of the '210 Patent by making, using, selling, and offering to sell Wi-Fi Equipment and associated services, which embody the claims of the '210 Patent.

52. MTel alleges that Xirrus made, used, sold, and offered to sell, systems and products that embodied the claims of the '210 Patent because, for instance, such systems employed certain subcarrier frequency structures in the IEEE 802.11 orthogonal frequency-division multiplexing ("OFDM") scheme and techniques consistent with the MIMO aspects of

IEEE 802.11 n or ac standards (e.g., as described in “Wi-Fi CERTIFIED n: Longer-Range, Faster-Throughput, Multimedia-Grade Wi-Fi Networks” at 5-6, available at <http://www.wi-fi.org/file/wi-fi-certified-n-longer-range-faster-throughput-multimedia-grade-wi-fi-networks-2009>):

A MIMO system has some number of transmitters (N) and receivers (M) ... Signals from each of the N transmitters can reach each of the M receivers via a different path in the channel. A MIMO device with multiple antennas is capable of sending multiple spatial streams – spatially distinct data streams within the same channel. A MIMO device with multiple antennas is capable of receiving multiple spatial streams. Multipath helps decorrelate the received signals enabling transmission of multiple data streams through the same MIMO channel – a technique called spatial multiplexing. MIMO can multiply data rate through a technique called spatial multiplexing - dividing a data stream into several branches and sending it as multiple parallel data streams simultaneously in the same channel.

MIMO can also be used to improve the robustness and range of 802.11n communications through a technique called spatial diversity. When the same data stream is transmitted across multiple spatial streams error rate can be reduced. An additional technique improving range and reliability called Space Time Block Coding (STBC) is also incorporated into Wi-Fi CERTIFIED n.

A copy of this document is attached as Exhibit D to MTel’s Original Complaint.

53. MTel alleges that Xirrus’s Wi-Fi Equipment meets the limitations of the asserted claims of the ’210 Patent. For example, Xirrus’s Wi-Fi Equipment embodies the claims of the ’210 Patent because Xirrus’s Wi-Fi Equipment relies on Orthogonal Frequency Division Multiplexing (OFDM), and MIMO techniques including at least (i) Space Time Block Coding (STBC); (ii) Spatial Expansion (SE); (iii) Beam Forming (BF); and (iv) HT Duplicate mode (MCS 32). MTel alleges that Equipment that employs both OFDM and one or more of the relevant MIMO techniques reads on the claims of the ’210 Patent.

54. MTel alleges that Xirrus’s use and operation of Wi-Fi Equipment infringed one or more claims of the ’210 Patent literally and/or under the doctrine of equivalents by, among other things, employing MIMO functionality and certain multi-carrier frequency structures, such as

OFDM, as described above.

55. MTel alleges that Xirrus's use and sale of Wi-Fi Equipment directly infringed the '210 Patent at least because such equipment embodies the asserted claims of the '210 Patent.

56. MTel alleges that Xirrus directly infringed the '210 Patent at least because Xirrus made, sold, and offered to sell Wi-Fi Equipment, which embody the claimed system of the '210 Patent.

57. MTel alleges that Xirrus directly infringed the '210 Patent when its service professionals used, installed, tested, deployed, or validated Wi-Fi Equipment, which embody the claimed system.

58. MTel alleges that Xirrus directly infringed the '210 Patent when, for example, its service professionals tested the throughput that such Wi-Fi Equipment achieved during testing in various wireless channel conditions in which the Wi-Fi Equipment uses OFDM and operates in a MIMO transmission mode such as space time block coding, spatial expansion, or transmit beamforming.

59. MTel alleges that Xirrus directly infringed the method claims of the '210 Patent when its service professionals used, installed, tested, deployed, or validated Wi-Fi Equipment at least because the method steps are performed automatically by such Wi-Fi Equipment whenever it uses OFDM and operates in certain MIMO transmission modes.

60. MTel alleges that Xirrus directly infringed the '210 Patent when its XMS software was used, by Xirrus or its licensees, to test Wi-Fi Equipment.

61. As a result of Xirrus's unlawful infringement of the '210 Patent, MTel has suffered damage. MTel is entitled to recover damages from Xirrus adequate to compensate for such infringement.

**PRAYER FOR RELIEF**

WHEREFORE, Plaintiff MTel prays for entry of judgment against Defendants as follows:

A. That Xirrus directly infringed each of the Asserted Patents under 35 U.S.C. § 271(a), literally and/or under the doctrine of equivalents;

B. That Defendants provide to MTel an accounting of all gains, profits, savings, and advantages derived by Xirrus's direct infringement of the Asserted Patents, that MTel be awarded damages adequate to compensate for the wrongful infringement by Xirrus in an amount no less than a reasonable royalty, and that MTel be awarded costs and interest, in accordance with 35 U.S.C. § 284;

C. That this case be declared an exceptional one in favor of MTel under 35 U.S.C. § 285, and that MTel be awarded its reasonable attorneys' fees and all other costs and expenses incurred in connection with this civil action in accordance with 35 U.S.C. § 285 and Rule 54(d) of the Federal Rules of Civil Procedure;

D. That MTel receive all other or further relief as this Court may deem just or proper.

**DEMAND FOR JURY TRIAL**

In accordance with Federal Rule of Civil Procedure 38(b), MTel hereby demands a trial by jury on all issues triable to a jury.

Dated: August 15, 2017

Respectfully submitted:

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