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20 BELL NORTHERN RESEARCH, LLC

21 **IN THE UNITED STATES DISTRICT COURT**
22 **SOUTHERN DISTRICT OF CALIFORNIA**

23 BELL NORTHERN RESEARCH,
24 LLC,

25 Plaintiff,

26 v.

27 COOLPAD TECHNOLOGIES, INC.
28 AND YULONG COMPUTER
COMMUNICATIONS,
Defendants.

C.A. No. '18CV1783 BAS BLM

COMPLAINT FOR PATENT
INFRINGEMENT

JURY TRIAL DEMANDED

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COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Bell Northern Research, LLC (“BNR”) as and for its complaint against Coolpad Technologies, Inc. and Yulong Computer Communications (“Coolpad” or “Defendant” collectively) alleges as follows:

PARTIES

1. Bell Northern Research, LLC is a Delaware limited liability company with a principal place of business of 401 N. Michigan Avenue, Chicago, IL 60611.

2. On information and belief, Defendant Yulong Computer Communications is a corporation organized under the laws of China, having a principal place of business at No. 2 Mengxidao, Nanshan Technology Park, Shenzhen, Guangdong, China (518048). Yulong Computer Communications can be served with process in accordance with the California Long Arm Statute.

3. On information and belief, Defendant Coolpad Technologies, Inc. (“Coolpad”) is a Delaware corporation headquartered at 6650 Lusk Boulevard, Suite B204, San Diego, California 92121. Coolpad is the domestic subsidiary of Yulong Computer Communications based in Shenzhen, P.R.C. Coolpad’s registered agent for service of process is Paracorp Inc., 2140 South DuPont Highway, Camden Delaware 19934.

JURISDICTION AND VENUE

4. This action arises under the patent laws of the United States, Title 35 of the United States Code. Accordingly, this Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a).

5. This Court has personal jurisdiction over Defendant because Defendant has, directly or through intermediaries, committed acts within California giving rise to this action and/or have established minimum contacts with California such that the exercise of jurisdiction would not offend traditional notions of fair play and substantial justice.

6. Defendant has placed, and is continuing to place, infringing products into the stream of commerce, via an established distribution channel, with the knowledge and/or understanding that such products are sold in the State of California, including in this District.

7. Defendant has derived substantial revenues from its infringing acts occurring within the State of California and within this District.

8. Venue is proper as to Yulong Computer Communications under 28 U.S.C. § 1391(c)(3) in that it is not a resident of the United States and may, therefore, be sued in any judicial district. *Brunette Mach. Works, Ltd. v. Kockum Indus., Inc.*, 406 U.S. 706, 714 (1972).

9. Venue is proper as to Coolpad Technologies, Inc. under 28 U.S.C. § 1400(b) because Coolpad Technologies, Inc. has committed acts of infringement within this district, as further detailed below, and has a regular and established place of business at 6650 Lusk Boulevard, Suite B204, San Diego, California 92121—its corporate headquarters—which is within this District. *TC Heartland LLC v. Kraft Food Grp. Brands LLC*, 137 S. Ct. 1514 (2017).

THE BNR PORTFOLIO

A. Bell Northern Research

10. Bell Northern Research is the successor in interest to a key portfolio of telecommunications-related intellectual property developed at leading telecom innovators, such as Agere Systems Inc. (“Agere”), LSI Corporation (“LSI”), Renesas Electronics Corporation, and Broadcom Corporation (“Broadcom”).

11. Key figures of BNR previously served in leadership roles within the intellectual property departments of Agere, LSI, and Nortel Networks (US and Canadian entities). They continued in similar roles with Rockstar Consortium, the entity created by the winning bidders of Nortel’s bankruptcy patent auction, where they managed Nortel’s former patent portfolio, a portfolio which many of them had spent years developing and monetizing for Nortel.

B. The BNR Portfolio

12. The BNR portfolio comprises patents that reflect important developments in telecommunications that were invented and refined by leading technology research companies, including Agere, LSI, and Broadcom. These include U.S. Patent Nos. 7,319,889; 8,204,554; 7,990,842; 6,941,156; and 8,792,432 (collectively, the “Asserted Patents”).

13. In 2002, Lucent Technologies, Inc., having its roots with Bell Laboratories and AT&T Corporation, spun off Agere. Agere was merged into LSI in 2007, which was in turn acquired by Avago Technologies (“Avago”) in 2014. In 2016, Avago purchased Broadcom and assumed its name to become the current Broadcom Inc.

14. Portions of the BNR portfolio are presently licensed and/or were previously licensed by leading technology companies.

PATENT PROSECUTION AND EXAMINATION

15. Examiners at the United States Patent and Trademark Office (“USPTO”) review patent applications to determine whether a claimed invention should be granted a patent. In general, the most important task of a patent examiner is to review the technical information disclosed in a patent application and to compare it to the state of the art. This involves reading and understanding a patent application, and then searching the prior art to determine what technological contribution the application teaches the public. A patent is a reward for informing the public about specific technical details of a new invention. The work of a patent examiner includes searching prior patents, scientific literature databases, and other resources for prior art. Then, an examiner reviews the claims of the patent application substantively to determine whether each complies with the legal requirements for granting of a patent. A claimed invention must meet patentability requirements including statutory subject matter, novelty, inventive step or non-obviousness, industrial application (or utility) and sufficiency of disclosure, and examiners must apply federal laws (Title 35 of the

1 United States Code), rules, judicial precedents, and guidance from agency
2 administrators.

3 16. All examiners must have a college degree in engineering or science.
4 Examiners are assigned to “Art Units,” typically groups of 8-15 Examiners in the
5 same area of technology. Thus, by way of required background and work experience,
6 Examiners have special knowledge and skill concerning the technologies examined by
7 them and in their particular Art Unit.

8 17. The basic steps of the examination consist of:

- 9
- 10 • reviewing patent applications to determine if they comply with basic
format, rules, and legal requirements;
 - 11 • determining the scope of the invention claimed by the inventor;
 - 12 • searching for relevant technologies to compare similar prior inventions
13 with the invention claimed in the patent application; and
 - 14 • communicating findings as to the patentability of an applicant's invention
15 via a written action to inventors/patent practitioners.

16 18. Communication of findings as to patentability are done by way of one or
17 more Office Actions in which the Examiner accepts or rejects proposed claims filed
18 by the applicant(s) and provides reasons for rejections. The applicant(s) are then
19 permitted to file a Response to Office Action, in which claims may be amended to
20 address issues raised by the Examiner, or the applicant states reasons why the
21 Examiner’s findings are incorrect. If an applicant disagrees with a Final Rejection by
22 an Examiner, the applicant may file an appeal with the Patent Trial and Appeal Board
23 (“PTAB”). If, after this process, the USPTO determines that the application meets all
24 requirements, a patent is duly allowed, and after an issue fee is paid, the patent is
25 issued.

26 19. A patent duly allowed and issued by the USPTO is presumptively valid and
27 becomes the property of the inventor(s) or assignee(s).
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20. A “Continuation Application” is one where, typically after allowance but in any event prior to issuance, the inventor applies for a second, related patent. A Continuation employs substantially the same invention disclosure as the previous, allowed application, but seeks new or different claims.

ASSERTED PATENTS

A. The Goris Patents

21. BNR is the owner by assignment of U.S. Patent No. 7,319,889 (the “’889 patent”). The ’889 Patent is entitled “System and Method for Conserving Battery Power in a Mobile Station.” The ’889 Patent issued on January 15, 2008. A true and correct copy of the ’889 Patent is attached as **Exhibit A**.

22. BNR is also the owner by assignment of U.S. Patent No. 8,204,554 (the “’554 patent”). The ’554 Patent is entitled “System and Method for Conserving Battery Power in a Mobile Station.” The ’554 Patent issued on June 19, 2012. A true and correct copy of the ’554 Patent is attached as **Exhibit B**.

23. The inventors of the ’889 Patent and the ’554 Patent (collectively, the “Goris Patents”) are Norman Goris and Wolfgang Scheit.

24. The ’889 Patent is a continuation of U.S. Patent No. 7,113,811, filed on June 17, 2003. The ’554 Patent is a continuation of the ’889 Patent.

25. The Goris Patents generally relate to “mobile station[s]...having a reduced power consumption under certain operating conditions.” Ex. A col. 1:14-17.

26. The claimed inventions in the Goris Patents are directed to methods and systems that allow a mobile station, such as a cellular phone, to conserve power – for example, to extend the amount of time for the station to operate on battery power.

27. The background sections of the Goris Patents describe the need for battery power conservation:

Usually the stand-by time, as well as the talk-time, of a mobile station depend on the lifetime of a (rechargeable) battery inserted within the mobile station and hence, on the load and/or on the capacity of the battery...Increasing of the capacity of the battery would increase the lifetime of the mobile station, but

1 batteries having increased capacities are often larger, heavier or more expensive,
2 none of which are desirable attributes for a portable, affordable mobile station.
3 Accordingly, what is needed in the art is a way to prolong the lifetime of a
mobile station without having to use a battery with an increased capacity.

4 Ex. A col. 1:27-37; Ex. B col. 1:27-37.

5 28. The Goris Patents describe the reduced power consumption resulting from
6 the invention. For example:

7 Thus, by reducing the power consumption of the display of an activated
8 telephone set in case the display is not needed, i.e., in particular during a
9 telephone call, current is saved instead of needlessly consumed from the
10 (rechargeable) battery. Accordingly, the spared available battery power may be
11 significant, especially for color displays, resulting in an overall increase of
the stand-by and/or talk time of the telephone set.

12 Ex. A col. 1:47-54; Ex. B col. 1:48-55.

13 29. Reducing a device's power consumption is increasingly important and
14 beneficial, as the devices on the market continue to grow in complexity and
15 functionality, demanding more and more power to operate their various features,
16 including audiovisual and connectivity tasks.

17 30. The preferred embodiments of the invention "are adapted to switch-off the
18 display [of a telephone set] in response to a detection that the set...is attached near to
19 an object, in particular to the ear." Ex. A col. 1:55-58; Ex. B. col. 1:56-69.

20 31. The '889 Patent contains two independent claims and thirteen total claims,
21 covering various methods and systems. Claim 1 reads:

22 A mobile station, comprising:

23 a display;
24 a proximity sensor adapted to generate a signal indicative of proximity of
25 an external object; and

26 a microprocessor adapted to:

27 (a) determine whether a telephone call is active;
28

(b) receive the signal from the proximity sensor; and

(c) reduce power to the display if (i) the microprocessor determines that a telephone call is active and (ii) the signal indicates the proximity of the external object; wherein:

the telephone call is a wireless telephone call;

the microprocessor reduces power to the display while the signal indicates the proximity of the external object only if the microprocessor determines that the wireless telephone call is active; and

the proximity sensor begins detecting whether an external object is proximate substantially concurrently with the mobile station initiating an outgoing wireless telephone call or receiving an incoming wireless telephone call.

32. The '554 Patent contains three independent claims and fourteen total claims, covering various methods and systems. Claim 1 reads:

A mobile station, comprising:

a display;

a proximity sensor adapted to generate a signal indicative of the existence of a first condition, the first condition being that an external object is proximate; and

a microprocessor adapted to:

(a) determine, without using the proximity sensor, the existence of a second condition independent and different from the first condition, the second condition being that a user of the mobile station has performed an action to initiate an outgoing call or to answer an incoming call;

(b) in response to a determination in step (a) that the second condition exists, activate the proximity sensor;

(c) receive the signal from the activated proximity sensor; and

(d) reduce power to the display if the signal from the activated proximity sensor indicates that the first condition exists.

33. The above-disclosed claim limitations from the Goris Patents comprise various elements, including, e.g., a display, a proximity sensor, and a microprocessor

1 adapted to determine whether a telephone call is active, receive signals from the
2 proximity sensor, and reduce power to the display under certain conditions. These
3 claims, as a whole, provide significant benefits and improvements to reduce a mobile
4 station's power consumption, relative to the prior art.

5 34. The examination of the '889 Patent required over a year and a half, from the
6 date of the filing of the patent application on September 6, 2006, through the issue
7 date of January 15, 2008.

8 35. Two Patent Examiners were involved in examining the application that
9 matured into the '889 Patent, namely, Examiner Kamran Afshar and Examiner
10 George Eng.

11 36. Although the publicly available prosecution history of the '889 Patent does
12 not contain a complete summary of various patent examiner searches, it indicates that
13 Examiner Afshar conducted prior art and/or other searches using at least the patent
14 examiner system Examiner Automated Search Tool ("EAST"), and performed
15 searches on at least January 17, January 29, June 25, July 19, September 24, and
16 October 11, 2007. The Patent Examiners formally cited at least five separate
17 references during the prosecution of the '889 Patent.

18 37. Between the prior art references located by and cited by the Patent
19 Examiners, and the references submitted by the applicants and considered by the
20 Patent Examiners during the prosecution of the '889 Patent, at least 24 patent
21 references were formally considered by the Patent Examiners, as indicated on the
22 front two pages of the issued '889 Patent.

23 38. On information and belief, it is the practice of the USPTO not to cite
24 excessive cumulative art, in other words, in this instance, the art cited by the Patent
25 Examiners is representative of considerable other art located by the USPTO and not
26 cited. Further on information and belief, it is the practice of the USPTO to discuss in
27 its Office Actions those references of which the Patent Examiners are aware that most
28 closely resemble the claimed inventions.

1 39. On October 11, 2007, the USPTO issued a Notice of Allowance as to all of
2 claims 1-13 presently in the '889 Patent.

3 40. The issued claims from the '889 Patent are patentably distinct from the at
4 least 24 references identified and/or discussed during prosecution. That is, each of the
5 14 claims, as a whole—which include, e.g., a display, a proximity sensor, and a
6 microprocessor adapted to determine whether a telephone call is active, receive
7 signals from the proximity sensor, and reduce power to the display under certain
8 conditions —were found to be patentably distinct from at least the 24 formally
9 identified references.

10 41. The references cited during the examination of the '889 Patent all represent
11 patentably distinct and in some instances prior art means or methods to reduce power
12 consumption by a device. By allowing the claims of the '889 Patent, each of the
13 claims in the '889 Patent, as a whole was shown to be inventive, novel, and innovative
14 over at least the 24 formally identified references.

15 42. As each claim as a whole from the '889 Patent is inventive, novel, and
16 innovative as compared to several specific patents and other publications, each claim
17 as a whole, constitutes more than the application of well-understood, routine, and
18 conventional activities.

19 43. As of July 18, 2018, the '889 Patent or one of its family members has been
20 cited as pertinent prior art by a USPTO examiner or an applicant during the
21 prosecution of at least 45 issued patents and published applications—including during
22 the prosecution of patent applications filed by leading technology companies such as
23 Motorola, LGE, Qualcomm, Apple, Kyocera, Samsung, Lenovo, and MediaTek.

24 44. The '889 patent claims priority to no later than June 17, 2003. The
25 technology disclosed and claimed in the '889 Patent was not then well-understood,
26 routine or conventional because the prior art did not teach reducing battery usage for
27 an electronic device by using a proximity sensor to reduce power consumption by the
28 display during a phone call. To the contrary, the technology claimed in the '889 Patent

1 was well ahead of the state of the art at the time of the invention because it presented a
2 way for device manufacturers and their contractors to prolong the life of a mobile
3 station without having to use a battery with an increased capacity.

4 45. The examination of the '554 Patent required over four and a half years, from
5 the date of the filing of the patent application on November 27, 2007, through the
6 issue date of June 19, 2012.

7 46. Two Patent Examiners were involved in examining the application that
8 matured into the '554 Patent, namely, Examiner Kamran Afshar and Examiner Kathy
9 Wang-Hurst.

10 47. Although the publicly available prosecution history of the '554 Patent does
11 not contain a complete summary of various patent examiner searches, it indicates that
12 Examiner Afshar conducted prior art and/or other searches using at least the patent
13 examiner system Examiner Automated Search Tool ("EAST"), and performed
14 searches on at least April 21 and December 21, 2010. It also shows that Examiner
15 Wang-Hurst conducted prior art and/or other searches using at least the EAST system
16 on at least July 28 and December 11, 2011; and February 16 and 17, 2012. The Patent
17 Examiners formally cited at least 4 separate references during the prosecution of the
18 '554 Patent.

19 48. Between the prior art references located by and cited by the Patent
20 Examiners, and the references submitted by the applicants and considered by the
21 Patent Examiners during the prosecution of the '554 Patent, at least 38 patent
22 references and 9 non-patent references were formally considered by the Patent
23 Examiners, as indicated on the front two pages of the issued '554 Patent.

24 49. On information and belief, it is the practice of the USPTO not to cite
25 excessive cumulative art, in other words, in this instance, the art cited by the Patent
26 Examiners is representative of considerable other art located by the USPTO and not
27 cited. Further on information and belief, it is the practice of the USPTO to discuss in
28

1 its Office Actions those references of which the Patent Examiners are aware that most
2 closely resemble the claimed inventions.

3 50. On February 23, 2012, the USPTO issued a Notice of Allowance as to all of
4 claims 1-14 presently in the '554 Patent.

5 51. The issued claims from the '554 Patent are patentably distinct from the at
6 least 47 references identified and/or discussed during prosecution. That is, each of the
7 14 claims, as a whole—which include, e.g., a display, a proximity sensor, and a
8 microprocessor adapted to determine whether a telephone call is active, receive
9 signals from the proximity sensor, and reduce power to the display under certain
10 conditions—were found to be patentably distinct from at least the 47 formally
11 identified references.

12 52. The references cited during the examination of the '554 Patent all represent
13 patentably distinct and in some instances prior art means or methods to reduce power
14 consumption by a device. By allowing the claims of the '554 Patent, each of the
15 claims in the '554 Patent, as a whole was shown to be inventive, novel, and innovative
16 over at least the 47 formally identified references.

17 53. As each claim as a whole from the '554 Patent is inventive, novel, and
18 innovative as compared to several specific patents and other publications, each claim
19 as a whole, constitutes more than the application of well-understood, routine, and
20 conventional activities.

21 54. As of July 18, 2018, the '554 Patent or one of its family members has been
22 cited as pertinent prior art by a USPTO examiner or an applicant during the
23 prosecution of at least 45 issued patents and published applications—including during
24 the prosecution of patent applications filed by leading technology companies such as
25 Motorola, LGE, Qualcomm, Apple, Kyocera, Samsung, Lenovo, and MediaTek.

26 55. The '889 patent claims priority to no later than June 17, 2003. The
27 technology disclosed and claimed in the '889 Patent was not then well-understood,
28 routine or conventional because the prior art did not teach reducing battery usage for

1 an electronic device by using a proximity sensor to reduce power consumption by the
 2 display during a phone call. To the contrary, the technology claimed in the '554 Patent
 3 was well ahead of the state of the art at the time of the invention because it presented a
 4 way for device manufacturers and their contractors to prolong the life of a mobile
 5 station without having to use a battery with an increased capacity.

6 **B. The Wireless Computer Networking Patent**

7 56. BNR is the owner by assignment of U.S. Patent No. 7,990,842 (the "'842
 8 Patent"). The '842 Patent is entitled "Backward-Compatible Long Training Sequences
 9 for Wireless Communication Networks." The '842 Patent issued on August 2, 2011.
 10 A true and correct copy of the '842 Patent is attached as **Exhibit C**.

11 57. The inventors of the '842 Patent are Jason Trachewsky and Rajendra
 12 Moorti.

13 58. The '842 Patent is a continuation of U.S. Patent No. 7,646,703 filed on July
 14 26, 2005.

15 59. The '842 Patent claims priority to at least Provisional Application Nos.
 16 60/591,104 filed on July 27, 2004, and 60/634,102 filed on December 8, 2004.

17 60. The '842 Patent is generally related to wireless communication systems. In
 18 particular, the '842 Patent is concerned with the 802.11 standard and helping ensure
 19 backward compatibility with prior versions of that standard. The specification
 20 explains that:

21 Different wireless devices in a wireless communication system may be
 22 compliant with different standards or different variations of the same standard.
 23 For example, 802.11a an extension of the 802.11 standard, provides up to 54
 24 Mbps in the 5 GHz band. 802.11b, another extension of the 802.11 standard,
 25 provides 11 Mbps transmission (with a fallback to 5.5, 2 and 1 Mbps) in the 2.4
 26 GHz band. 802.11g, another extension of the 802.11 standard, provides 20+
 27 Mbps in the 2.4 GHz band. 802.11n, a new extension of 802.11, is being
 28 developed to address, among other [*sic*] thins, higher throughput and
 compatibility issues. An 802.11a compliant communications device may reside
 in the same WLAN as a device that is compliant with another 802.11 standard.
 When devices that are compliant with multiple versions of the 802.11 standard
 are in the same WLAN, the devices that are compliant with older versions are
 considered to be legacy devices. To ensure backward compatibility with legacy
 devices, specific mechanisms must be employed to insure that the legacy

1 devices know when a device that is compliant with a newer version of the
2 standard is using a wireless channel to avoid a collision.

3 New implementations of wireless communication protocol enable higher speed
4 throughput, while also enabling legacy devices which might be only compliant
5 with 802.11a or 802.11g to communicate in Systems which are operating at
6 higher speeds.

7 '842 Patent at Col. 1:50-2:7.

8 61. The 802.11a and 802.11g standard utilize what is known as the orthogonal
9 frequency division multiplexing (OFDM) encoding scheme. "OFDM is a frequency
10 division multiplexing modulation technique for transmitting large amounts of digital
11 data over a radio wave" and works by spreading a single data stream over a band of
12 Sub-carriers, each of which is transmitted in parallel." '842 Patent at Col. 2:10-15.

13 62. The 802.11 standard includes "training sequences" that synchronize data
14 transfer between a wireless sender and a receiver.

15 63. The background section of the '842 Patent specifies the "need to create a
16 long training sequence of minimum peak-to-average ratio that uses more Sub-carriers
17 without interfering with adjacent channels." '842 Patent at Col. 2:37-39.

18 64. The '842 Patent teaches a long training sequence of minimum peak-to-
19 average power ratio that is usable by "legacy devices in order to estimate channel
20 impulse response and to estimate carrier frequency offset between a transmitter and a
21 receiver." '842 Patent at Col. 2:39-43.

22 65. One important technical advance and improvement offered by the inventive
23 expanded long training sequence of minimum peak-to-average power ratio is
24 "decrease[d] power back-off" ('842 Patent at Col. 4:4-6), which is the reduction of
25 output power when reducing the input power. The invention may also "be used by
26 802.11a or 802.11g devices for estimating the channel impulse response and by a
27 receiver for estimating the carrier frequency offset between the transmitter clock and
28 receiver clock." '842 Patent at Col. 4:6-10. Further, the invention contributes to higher
data throughput by carrying data on multiple subcarriers.

1 66. The '842 Patent contains one independent claim and 20 total claims,
2 covering various apparatuses. Claim 1 reads:

3 1. A wireless communications device, comprising:

4 a signal generator that generates an extended long training sequence; and

5 an Inverse Fourier Transformer operatively coupled to the signal generator,

6 wherein the Inverse Fourier Transformer processes the extended long training
7 sequence from the signal generator and provides an optimal extended long
8 training sequence with a minimal peak-to-average ratio, and

9 wherein at least the optimal extended long training sequence is carried by a
10 greater number of Subcarriers than a standard wireless networking configuration
11 for an Orthogonal Frequency Division Multiplexing scheme.

12 67. The above-disclosed claim limitations from the '842 Patent comprise
13 various elements, including, e.g., a signal generator and an Inverse Fourier
14 Transformer. This claim, as a whole, provides significant benefits and improvements
15 discussed previously that directly impact and improve interoperability with devices
16 operating on legacy versions of the 802.11 standard, relative to the prior art.

17 68. The examination of the '842 Patent took nearly a year and a half, from the
18 filing of the patent application on January 8, 2010, through the issue date of August 2,
19 2011.

20 69. The publicly available prosecution history for the '842 Patent indicates that
21 a single patent examiner was involved in examining the application that matured into
22 the '842 Patent, namely, Examiner Andrew Lee.

23 70. Between any prior art references located by the Patent Examiner, and the
24 references submitted by the applicants and considered by the Patent Examiner during
25 the prosecution of the '842 Patent, at least 10 patent references were formally
26 considered by the Patent Examiner, as indicated on the front page of the issued '842
27 Patent.
28

1 71. On information and belief, it is the practice of the USPTO not to cite
2 excessive cumulative art, in other words, in this instance, the art cited by the
3 Applicants is representative of considerable other art located by the USPTO and not
4 cited. Further on information and belief, it is the practice of the USPTO to discuss in
5 its Office Actions those references of which the Patent Examiners are aware that most
6 closely resemble the claimed inventions.

7 72. On or about April 18, 2011, the USPTO issued a Notice of Allowance as to
8 all of claims 1-20 presently in the '842 Patent.

9 73. The issued claims from the '842 Patent are patentably distinct from the
10 references identified and/or discussed during prosecution. That is, each of the claims,
11 as a whole were found to be patentably distinct from the formally identified
12 references.

13 74. The references cited during the examination of the '842 Patent all represent
14 patentably distinct and in some instances may constitute prior art means or methods
15 for synchronizing data transfer in wireless devices. By allowing the claims of the '842
16 Patent, each of the claims in the '842 Patent, as a whole, was shown to be inventive,
17 novel, and innovative over at least the 10 formally identified references.

18 75. As each claim as a whole from the '842 Patent is inventive, novel, and
19 innovative as compared to the specified patents and other publications, each claim, as
20 a whole constitutes more than the application of well-understood, routine, and
21 conventional activities.

22 76. As of July 23, 2018, the '842 Patent has been cited as pertinent prior art by a
23 USPTO examiner or an applicant during the prosecution of at least 3 issued patents
24 and published applications—including during the prosecution of patent applications
25 filed by leading technology companies such as Samsung.

26 77. The '842 patent claims priority to at least provisional applications filed on
27 July 27, 2004 and December 8, 2004. The technology disclosed and claimed in the
28 '842 Patent was not then well-understood, routine or conventional. The invention

1 allows higher throughput by increasing data transmitted by a wireless device, which
2 translates to faster file transfers for end users.

3 **C. The Wireless Switching Patent**

4 78. BNR is the owner by assignment of U.S. Patent No. 6,941,156 (the “’156
5 Patent”). The ’156 Patent is entitled “Automatic Handoff for Wireless Piconet
6 Multimode Cell Phone.” The ’156 Patent issued on September 6, 2005. A true and
7 correct copy of the ’156 Patent is attached as **Exhibit D**.

8 79. The inventor of the ’156 patent is Philip D. Mooney.

9 80. The ’156 Patent is generally related to the use of multimode cellular phones
10 and the ability to smoothly switch between two different modes of communication
11 operable on the cellular phone. *See* ’156 Patent at Col. 1:5–61.

12 81. The description of related art section of the patent identifies that prior art
13 multimode cellphones required manual switching and interruption in the signal when
14 attempting to switch between the modes of the cellphone. *See* ’156 Patent at Col.
15 1:32–48.

16 82. Thus, the ’156 patent identifies a need for a cellular phone “which provides
17 smooth switchover and interaction between separate modes of operation.” *See* ’156
18 Patent at Col. 1:46–48.

19 83. The claimed inventions in the ’156 Patent are directed to improved methods
20 of switching between modes of operation in multimode cellular phones. *See* ’156
21 Patent at Col. 1:46–48. One of the important technical advantages and improvements
22 offered by the inventive, improved switching is the automatic switching, including
23 establishing a second communications link while the first communications link is still
24 active whereas the prior art required the call to disconnect before switching modes.
25 *See* ’156 Patent at Col. 1:50–2:5.

26 84. The ’156 Patent contains three independent claims and nineteen total claims,
27 covering various methods and systems. Claim 1 reads:

28 1. A multimode cell phone, comprising:

1 a cell phone functionality; and

2
3 an RF communication functionality separate from said cell phone functionality;
4 a module to establish simultaneous communication paths from said multimode
5 cell phone using both said cell phone functionality and said RF communication
6 functionality; and

7 an automatic switch over module, in communication with both said cell phone
8 functionality and said RF communication functionality, operable to switch a
9 communication path established on one of said cell phone functionality and said
10 RF communication functionality, with another communication path later
11 established on the other of said cell phone functionality and said RF
12 communication functionality.

13
14 85. The above-disclosed claim limitations from the '156 Patent comprise
15 various elements, including, e.g., a multimode cellphone with cell phone and RF
16 communication functionality; a module to establish simultaneous communication
17 paths with both modes, and an automatic switchover module in communication with
18 both modes of communication functionality that can switch between the first
19 established communication path to the other communication path that exists in
20 parallel with the first. This claim, as a whole, provides significant benefits and
21 improvements discussed previously that directly impact the ability to switch between
22 two distinct RF communication paths of a cellphone device seamlessly and
23 automatically, relative to the prior art.

24 86. The examination of the '156 Patent required over four years, from the date
25 of the filing of the patent application on June 26, 2001, through the issue date of
26 September 6, 2005.

27 87. The Patent Examiner involved in examining the application that matured
28 into the '156 Patent was Examiner Bing Q. Bui.

88. Although the publicly available prosecution history of the '156 Patent does
not contain a complete summary of various patent examiner searches, it indicates that
Examiner Bui conducted prior art and/or other searches using at least the patent

1 examiner system Examiner Automated Search Tool (“EAST”), and performed
2 searches on at least December 6, 2004. The Patent Examiner formally cited at least 9
3 separate references during the prosecution of the ’156 Patent.

4 89. Between the prior art references located by and cited by the Patent
5 Examiner, and the references submitted by the applicants and considered by the Patent
6 Examiners during the prosecution of the ’156 Patent, at least 9 were formally
7 considered by the Patent Examiner, as indicated on the front page of the issued ’156
8 Patent.

9 90. On information and belief, it is the practice of the USPTO not to cite
10 excessive cumulative art, in other words, in this instance, the art cited by the Patent
11 Examiners is representative of considerable other art located by the USPTO and not
12 cited. Further on information and belief, it is the practice of the USPTO to discuss in
13 its Office Actions those references of which the Patent Examiners are aware that most
14 closely resemble the claimed inventions.

15 91. On April 26, 2005, the USPTO issued a Notice of Allowance as to all of
16 claims 1-19 presently in the ’156 Patent.

17 92. The issued claims from the ’156 Patent are patentably distinct from the at
18 least 9 references identified and/or discussed during prosecution. That is, each of the
19 19 claims, as a whole—which include, e.g., a multimode cellphone with cell phone
20 and RF communication functionality; a module to establish simultaneous
21 communication paths with both modes, and an automatic switchover module in
22 communication with both modes of communication functionality that can switch
23 between the first established communication path to the other communication path
24 that exists in parallel with the first—were found to be patentably distinct from at least
25 the 9 formally identified references.

26 93. The references cited during the examination of the ’156 Patent all represent
27 patentably distinct and in some instances prior art means or methods to manually
28 switching communication between two modes of a phone. *See* ’156 Patent, Col. 1:13–

1 45. By allowing the claims of the '156 Patent, each of the claims in the '156 Patent, as
 2 a whole was shown to be inventive, novel, and innovative over at least the 9 formally
 3 identified references.

4 94. As each claim as a whole from the '156 Patent is inventive, novel, and
 5 innovative as compared to several specific patents and other publications, each claim
 6 as a whole, constitutes more than the application of well-understood, routine, and
 7 conventional activities.

8 95. As of July 18, 2018, the '156 Patent or one of its family members has been
 9 cited as pertinent prior art by a USPTO examiner or an applicant during the
 10 prosecution of at least 25 issued patents and published applications—including during
 11 the prosecution of patent applications filed by leading technology companies such as
 12 Motorola, AT&T, Nokia, Sprint, and Garmin.

13 96. The '156 patent claims priority to no later than June 26, 2001. The
 14 technology disclosed and claimed in the '156 Patent was not then well-understood,
 15 routine or conventional. To the contrary, the technology claimed in the '156 Patent—
 16 namely, the automatic handoff of a call from one type of RF communication link to a
 17 different type of RF communication link without dropping the call—was well ahead
 18 of the state of the art at the time of the invention.

19 **D. The RACH Message Prioritization Patent**

20 97. BNR is the owner by assignment of U.S. Patent No. 8,792,432 (the “’432
 21 Patent”). The '432 Patent is entitled “Prioritizing RACH Message Contents.” The
 22 '432 Patent issued on July 29, 2014. A true and correct copy of the '432 Patent is
 23 attached as **Exhibit E**.

24 98. The inventors of the '432 patent are Brian Martin and Keiichi Kubota.

25 99. The '432 Patent is generally related to wireless communication systems. In
 26 particular, the '432 Patent is concerned with the portion of the 3GPP standard that
 27 addresses Random Access Channel (“RACH”) procedures. RACH procedures are
 28 used by various radio technologies for User Equipment (“UE”)—e.g., a mobile

1 device—to gain contention-based access to a network. *See* '432 Patent at Col. 1:5–9,
2 31–44.

3 100. The '432 Patent particularly addresses the prioritization of information sent
4 from a mobile device, e.g., a cellular phone, to a base station, e.g., a cell tower,
5 regarding the RACH characteristics of neighboring base stations. *See* '432 Patent at
6 Col. 1:58–2:44.

7 101. The background section of the patent identifies that prior art RACH
8 signaling did not generally allow for sufficient message space to include neighbor cell
9 measurements for both inter-frequency and intra-frequency cell neighbors, within the
10 constraints of a Radio Resource Control (“RRC”) connection request message. If
11 sufficient space were lacking, the default was to transmit only the inter-frequency
12 neighbor cell measurements, and to drop the information about intra-frequency
13 neighbor cell measurements, and other RACH message information, which otherwise
14 would have been included. This resulted in the cell network station not receiving
15 intra-frequency neighbor measurements or other information, even if that information
16 was more necessary and relevant for the cell station to receive. The patent specifically
17 identifies as deficient the current 3GPP standards in effect at the time. *See* '432 Patent
18 at Col. 2:7–44.

19 102. Thus, the '432 patent identifies a need to “allow the [mobile device] to
20 include neighbor cell measurements for both inter-frequency and intra-frequency
21 neighbors in its UL RACH message.” *See* '432 Patent at Col. 2:36–38.

22 103. The claimed inventions in the '432 Patent are directed to prioritization of
23 information transmitted from a user device to a base station in a RACH RRC
24 connection message, within the space constraints of that message. *See* '432 Patent at
25 Col. 1:58–2:44. One of the important technical advantages and improvements offered
26 by the inventive, improved prioritization is that the mobile device is enabled to
27 prioritize the content of the RRC connection request message more efficiently. The
28 invention also avoids network features being redundant, unusable, or unreliable, and

1 permits the RRC connection request to be used in future implementations of the 3GPP
2 standards. *See* '432 Patent at Col. 1:50–2:5.

3 104. The '432 Patent contains four independent claims and fourteen total claims,
4 covering various methods and systems. Claim 12 reads:

5 12. A method comprising:

6 receiving, by a user equipment, a broadcast indication indicating whether to
7 prioritize inter-frequency or intra-frequency neighbor cell measurements for
8 inclusion in an uplink connection request message to be sent on a random
9 access channel; and

10 constructing the uplink connection request message which includes
11 measurements that are prioritized in accordance with the broadcast indication
12 so as not to exceed a maximum size of the uplink connection request message;

13 in which one value of the indication directs that the inter-frequency neighbor
14 cell measurements are prioritized over the intra-frequency neighbor cell
15 measurement results for inclusion in the uplink connection request message;
16 and a different value of the indication or omission of the indication directs
17 that the intra-frequency
18 neighbor cell measurements are prioritized over the inter-frequency neighbor
19 cell measurements for inclusion in the uplink connection request message, and

20 in which the indication is within an information element of system
21 information received on a broadcast channel from an access node of a
22 UTRAN or an E-UTRAN wireless system, and the uplink connection request
23 message is a Radio Resource Control Connection Request message.

24 105. The above-disclosed claim limitations from the '432 Patent comprise
25 various elements, including, e.g., receiving on a mobile device (“user equipment”) a
26 broadcast indication indicating prioritization of neighbor cell measurements to be sent
27 on a RACH uplink message, and constructing the uplink connection message in
28 accordance with that prioritization. This claim, as a whole, provides significant
benefits and improvements discussed previously that directly impact the ability to
transmit neighbor cell measurements to a base station in accordance with network
priorities, while staying within the confines of the Radio Resource Control
Connection Request message.

106. The examination of the '432 Patent required over three years, from the filing
of the patent application on February 14, 2011, through the issue date of July 29,
2014.

1 107. Two Patent Examiners were involved in examining the application that
2 matured into the '432 Patent, namely, Examiner Andrew Lai and Assistant Examiner
3 Sumitra Ganguly.

4 108. Although the publicly available prosecution history of the '432 Patent does
5 not contain a complete summary of various patent examiner searches, it indicates that
6 the examiners conducted prior art and/or other searches using at least the patent
7 examiner system Examiner Automated Search Tool ("EAST"), and performed
8 searches on at least March 9, 2013, and October 2, 2013. The Patent Examiners
9 formally cited at least 13 separate references during the prosecution of the '432
10 Patent.

11 109. Between the prior art references located by and cited by the Patent
12 Examiner, and the references submitted by the applicants and considered by the Patent
13 Examiners during the prosecution of the '432 Patent, at least 13 were formally
14 considered by the Patent Examiner, including five U.S. patents, two foreign patents,
15 and six other publications, as indicated on the front page of the issued '432 Patent.

16 110. On information and belief, it is the practice of the USPTO not to cite
17 excessive cumulative art, in other words, in this instance, the art cited by the Patent
18 Examiners is representative of considerable other art located by the USPTO and not
19 cited. Further on information and belief, it is the practice of the USPTO to discuss in
20 its Office Actions those references of which the Patent Examiners are aware that most
21 closely resemble the claimed inventions.

22 111. During the prosecution process, the USPTO rejected the application as being
23 anticipated by U.S. Patent No. 6,845,238 (Mueller), as well as being obvious over
24 Mueller in view of U.S. Patent Application 2008/0045213 (Norris).

25 112. On April 4, 2014, the USPTO issued a Notice of Allowance as to all of
26 claims 1-14 presently in the '432 Patent.

27 113. The issued claims from the '432 Patent are patentably distinct from the at
28 least 13 references identified and/or discussed during prosecution. That is, each of the

1 14 claims, as a whole—which include, e.g., receiving on a mobile device a broadcast
2 indication indicating prioritization of neighbor cell measurements to be sent on a
3 RACH uplink message, and constructing the uplink connection message in
4 accordance with that prioritization—were found to be patentably distinct from at least
5 the 13 formally identified references.

6 114. The references cited during the examination of the '432 Patent all represent
7 patentably distinct and in some instances prior art means or methods to communicate
8 neighboring cell information. By allowing the claims of the '432 Patent, each of the
9 claims in the '432 Patent, as a whole was shown to be inventive, novel, and innovative
10 over at least the 13 formally identified references.

11 115. As each claim as a whole from the '432 Patent is inventive, novel, and
12 innovative as compared to several specific patents and other publications, each claim
13 as a whole, constitutes more than the application of well-understood, routine, and
14 conventional activities.

15 116. As of July 25, 2018, the '432 Patent, or one of its family members, has been
16 cited as pertinent prior art by a USPTO examiner or an applicant during the
17 prosecution of at least five issued patents or published applications, including during
18 the prosecution of patent applications filed by leading technology companies such as
19 Qualcomm, Ericsson, and Huawei.

20 117. The '432 patent claims priority to no later than February 14, 2011. The
21 technology disclosed and claimed in the '432 Patent was not then well-understood,
22 routine or conventional. To the contrary, the technology claimed in the '432 Patent
23 was well ahead of the state of the art at the time of the invention. As described above,
24 the prior technology regarding sharing of neighboring cell information prioritized
25 inter-frequency information above intra-frequency information in all cases, and did
26 not allow for prioritizing intra-frequency or other RACH message information if the
27 RRC connection request message were space-constrained. The '432 Patent resolves
28 that problem.

OVERVIEW OF ACCUSED TECHNOLOGY

118. Coolpad makes and sells cellular phones in the United States. These offerings use trade names such as the Splatter, Canvas, Conjr, and Defiant. Coolpad markets each of these phones as compliant with the 3GPP standards promulgated by standard setting body the European Telecommunications Standards Institute (“ETSI”), and markets some as compliant with either or both the 802.11ac and 802.11n standards promulgated by standard setting body the Institute of Electronics and Electrical Engineers (“IEEE”). These phones also include features that offer service and device-related benefits to users, such as seamlessly switching from a cellular network call to a WiFi network call, and proximity sensors to manipulate displays under certain call conditions to reduce battery consumption.

COUNT I

(Infringement of U.S. Patent No. 7,319,889)

119. Plaintiff re-alleges and incorporates by reference the allegations in the foregoing paragraphs as if fully set forth herein.

120. Plaintiff is informed and believes, and on that basis alleges, that Defendant has infringed and is currently infringing one or more claims (*e.g.*, claim 1) of the ’889 Patent, in violation of 35 U.S.C. § 271(a).

121. Coolpad has infringed and is currently infringing literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority, infringing products, including but not limited to Splatter, Canvas, Conjr, and Defiant (collectively, the “Accused Products”) and related products and/or processes falling within the scope of one or more claims of the ’889 Patent, including claim 1.

122. By way of example only, Coolpad’s Canvas product is a mobile station (cellular phone) comprising a display, a proximity sensor (located at the top of the device) adapted to generate a signal indicative of proximity of an external object (*e.g.*,

a person's ear), a microprocessor adapted to (1) determine whether a wireless telephone call is active, (2) receive a signal from the proximity sensor, and (3) reduce power to the phone's display if a call is active and the signal indicates the proximity of the external object (e.g., ear). The microprocessor in the Canvas product reduces power to the display while the signal indicates the proximity of the external object (e.g., ear) only if it determines that the call is active, and the proximity sensor of the device begins detecting proximity substantially concurrently with the initiation of an outgoing call or receiving an incoming call.



Coolpad Canvas User Manual.¹

¹ Available at <http://support.coolpad.us/canvas/> (last accessed Aug. 1, 2018).

1 123. The Canvas's display is backlit at a normal level when a user is browsing
2 the web or sending text messages. However, when a call is active and the user brings
3 the phone proximate to the ear, the display dims, conserving battery power.

4 124. By way of example only, the remainder of the Accused Products include
5 each of the limitations described in the previous paragraph with respect to Coolpad's
6 Canvas product. For example, Coolpad advertises the proximity sensor feature for
7 each product.

8 125. Coolpad's acts of making, using, offering for sale, selling, and/or importing
9 infringing products, including but not limited to the Accused Products, and related
10 products and/or processes satisfy, literally or under the doctrine of equivalents, each
11 and every claim limitation, including but not limited to limitations of claim 1.²

12 126. Defendant's infringement is knowing, egregious, consciously wrongful, and
13 willful. Defendant learned of its infringement of the '889 Patent no later than
14 December 28, 2017 in a letter from Mr. Dean, President of Bell Northern Research, to
15 Mr. Deying, Chairman and Executive Director and CEO of Coolpad Group Limited.
16 Mr. Dean's letter identified the '889 Patent and notified Defendant that Defendant's
17 products infringe the patent. Mr. Dean identified exemplary products by name. BNR
18 offered to meet and present a detailed presentation to Defendant, describing the
19 infringement. On February 22, 2018, BNR followed up by sending another letter.
20 Despite these efforts, and knowing that it was infringing the '889 Patent, Defendant
21 continued to infringe the '889 Patent by continuing to make, use, sell, and/or offer to
22 sell the '889 Accused Products in the United States.

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27 ² Plaintiff expressly reserves the right to identify additional asserted claims and products in its
28 infringement contentions in accordance with the local patent rules. Claim 1 is provided for notice
pleading only and is not presented as an "exemplary" claim of all other claims in the '889 patent.

1 127. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been
2 met with respect to the '889 Patent.

3 128. As a result of Coolpad's infringement of the '889 Patent, Plaintiff has been
4 injured by Defendant's unauthorized use of Plaintiff's intellectual property. Plaintiff
5 seeks monetary damages in an amount adequate to compensate for Coolpad's
6 infringement, but in no event less than a reasonable royalty for the use made of the
7 invention by Coolpad, together with interest and costs as fixed by the Court, and
8 Plaintiff will continue to suffer damages in the future unless Defendant's infringing
9 activities are enjoined by this Court.

10 129. Unless a permanent injunction is issued enjoining Coolpad and its agents,
11 servants, employees, representatives, affiliates, and all others acting or in active
12 concert therewith from infringing the '889 Patent, Plaintiff will be greatly and
13 irreparably harmed.

14 **COUNT 2**

15 **(Infringement of U.S. Patent No. 8,204,554)**

16 130. Plaintiff re-alleges and incorporates by reference the allegations in the
17 foregoing paragraphs as if fully set forth herein.

18 131. Plaintiff is informed and believes, and on that basis alleges, that Defendant
19 has infringed and is currently infringing one or more claims (*e.g.*, claim 1) of the '554
20 Patent, in violation of 35 U.S.C. § 271(a).

21 132. Coolpad has infringed and is currently infringing literally and/or under the
22 doctrine of equivalents, by, among other things, making, using, offering for sale,
23 selling, and/or importing within this judicial district and elsewhere in the United
24 States, without license or authority, infringing products, including but not limited to
25 Splatter, Canvas, Conjr, and Defiant (collectively, the "Accused Products") and
26 related products and/or processes falling within the scope of one or more claims of the
27 '554 Patent, including claim 1.
28

133. By way of example only, Defendant's Canvas product is a mobile station (cellular phone) comprising a display, a proximity sensor (located at the top of the device) adapted to generate a signal indicative of the existence of a first condition, the first condition being that an external object (e.g., a person's ear) is proximate, and a microprocessor adapted to (1) determine, without using the proximity sensor, the existence of the second condition that a user has performed an action to initiate an outgoing call or to answer an incoming call, (2) activate the proximity sensor if the second condition exists, and (3) reduce power to the phone's display if the signal from the activated proximity sensor indicates that the first condition (e.g., ear is proximate to the sensor) exists.



1 Coolpad Canvas User Manual.³

2 134. The Canvas's display is backlit at a normal level when a user is browsing
3 the web or sending text messages. However, when a call is active and the user brings
4 the phone proximate to the ear, the display dims, conserving battery power.

5 135. By way of example only, the remainder of the Accused Products include
6 each of the limitations described in the previous paragraph with respect to the
7 Defendant's Canvas product. For example, Coolpad advertises the proximity sensor
8 feature for each product.

9 136. Defendant's acts of making, using, offering for sale, selling, and/or
10 importing infringing products, including but not limited to the Accused Products, and
11 related products and/or processes satisfy, literally or under the doctrine of equivalents,
12 each and every claim limitation, including but not limited to limitations of claim 1.⁴

13 137. Defendant's infringement is knowing, egregious, consciously wrongful, and
14 willful. Defendant learned of its infringement of the '554 Patent no later than
15 December 28, 2017 in a letter from Mr. Dean, President of Bell Northern Research, to
16 Mr. Deying, Chairman and Executive Director and CEO of Coolpad Group Limited.
17 Mr. Dean's letter identified the '554 Patent and notified Defendant that Defendant's
18 products infringe the patent. Mr. Dean identified exemplary products by name. BNR
19 offered to meet and present a detailed presentation to Defendant, describing the
20 infringement. On February 22, 2018, BNR followed up by sending another letter.
21 Despite these efforts, and knowing that it was infringing the '554 Patent, Defendant
22 continued to infringe the '554 Patent by continuing to make, use, sell, and/or offer to
23 sell the '554 Accused Products in the United States.

24
25
26 ³ Available at <http://support.coolpad.us/canvas/> (last accessed Aug. 1, 2018).

27 ⁴ Plaintiff expressly reserves the right to identify additional asserted claims and products in its
28 infringement contentions in accordance with the local patent rules. Claim 1 is provided for notice
pleading only and is not presented as an "exemplary" claim of all other claims in the '554 patent.

1 138. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been
2 met with respect to the '554 Patent.

3 139. As a result of Defendant's infringement of the '554 Patent, Plaintiff has
4 been injured by Defendant's unauthorized use of Plaintiff's intellectual property.
5 Plaintiff seeks monetary damages in an amount adequate to compensate for
6 Defendant's infringement, but in no event less than a reasonable royalty for the use
7 made of the invention by Defendant, together with interest and costs as fixed by the
8 Court, and Plaintiff will continue to suffer damages in the future unless Defendant's
9 infringing activities are enjoined by this Court.

10 140. Unless a permanent injunction is issued enjoining Defendant and its agents,
11 servants, employees, representatives, affiliates, and all others acting or in active
12 concert therewith from infringing the '554 Patent, Plaintiff and its licensees will be
13 greatly and irreparably harmed.

14 **COUNT 3**

15 **(Infringement of U.S. Patent No. 7,990,842)**

16 141. Plaintiff re-alleges and incorporates by reference the allegations in the
17 foregoing paragraphs as if fully set forth herein.

18 142. Plaintiff is informed and believes, and on that basis alleges, that Defendant
19 has infringed and is currently infringing one or more claims (*e.g.*, claim 1) of the '842
20 Patent, in violation of 35 U.S.C. § 271(a).

21 143. Defendant has infringed and is currently infringing literally and/or under the
22 doctrine of equivalents, by, among other things, making, using, offering for sale,
23 selling, and/or importing within this judicial district and elsewhere in the United
24 States, without license or authority, infringing products, including but not limited to
25 Splatter, Canvas, Conjr and Defiant (collectively, the "Accused Products") and related
26 products and/or processes falling within the scope of one or more claims of the '842
27 Patent, including claim 1.
28

1 144. The Accused Products, including but not limited to those identified in the
2 preceding paragraph, comply with the 802.11n Standard per Defendant's product
3 literature and/or publicly available information.

4 145. The 802.11n Standard was introduced on or about October 2009.

5 146. The 802.11n Standard provides a definition for a High Throughput Long
6 Training Field ("HT-LTF"). The first part of the HT-LTF "consists of one, two, or
7 four HT-LTFs that are necessary for demodulation of the HT-Data portion of the
8 PPDU" (*i.e.*, Protocol Data Unit). The 802.11n Standard provides a specific HT-LTF
9 sequence that is transmitted in the case of 20 MHz operation, which corresponds to
10 the long training sequence with minimum peak-to-average power ratio described in
11 the '842 Patent. *See* 802.11-2016 at 19.3.9.4.6 or 802.11-2009 at 20.3.9.4.6.

12 147. Devices operating in accordance with the 802.11n Standard (known as
13 "wireless stations" or "STAs") must be able to generate the HT-LTF described. Thus,
14 all 802.11n compliant devices include a signal generator that generates the HT-LTF
15 described above.

16 148. When data is transmitted by an STA, it is encoded in a PPDU. The
17 encoding process set forth in the 802.11n Standard requires a reverse Fourier
18 transformer. *See* 802.11-2016 at 19.3.4(b) or 802.11-2009 at 20.3.4(b). Thus, all
19 802.11n Standard compliant devices, including the Accused Products, include an
20 Inverse Fourier Transformer.

149. By way of example only, Defendant's Canvas product is a mobile station (cellular phone) that is advertised as complying with the 802.11n Standard.

7/20/2018 Coolpad Canvas - Specs - Coolpad | Coolpad

GSM Quad (850/900/1800/1900)	Display 5.5" HD Display 1080 x 720 resolution	Camera 8MP AF rear camera 5MP FF front camera
Battery 2500mAh	OS Android 7.0 Nougat	Video Rec Resolution: 720p at 30 FPS Play Resolution: 1080p at 30 FPS
Battery Life (Talk) 2G – 17.7 Hours 3G – 19.3 Hours LTE – 8 Hours	Connectivity WLAN 802.11 b/g/n Bluetooth 4.2 Dual Nano SIM/Hybrid	Audio MP3, AAC/AAC+,

Coolpad Canvas Technical Specifications.⁵

150. Because of its compliance with 802.11n, Defendant's Canvas contains a signal generator capable of generating training sequences and an inverse Fourier transformer that are capable of providing an extended long training sequence with a minimal peak-to-power ratio which is capable of being transmitted on subcarriers in using the Orthogonal Frequency Division Multiplexing scheme.

151. The remainder of the Accused Products include each of the limitations described in the previous paragraph with respect to the Defendant's Canvas product.

152. Defendant's acts of making, using, offering for sale, selling, and/or importing infringing products, including but not limited to the Accused Products, and related products and/or processes satisfy, literally or under the doctrine of equivalents, each and every claim limitation, including but not limited to limitations of claim 1.⁶

⁵ Available at <https://coolpad.us/products/canvas/specs/> (last accessed Aug. 1, 2018).

⁶ Plaintiff expressly reserves the right to identify additional asserted claims and products in its infringement contentions in accordance with the local patent rules. Claim 1 is provided for notice pleading only and is not presented as an "exemplary" claim of all other claims in the '842 patent.

1 153. Defendant's infringement is knowing, egregious, consciously wrongful, and
2 willful. Defendant learned of its infringement of the '842 Patent no later than
3 December 28, 2017 in a letter from Mr. Dean, President of Bell Northern Research, to
4 Mr. Deying, Chairman and Executive Director and CEO of Coolpad Group Limited.
5 Mr. Dean's letter identified the '842 Patent and notified Defendant that Defendant's
6 products infringe the patent. Mr. Dean identified exemplary products by name. BNR
7 offered to meet and present a detailed presentation to Defendant, describing the
8 infringement. On February 22, 2018, BNR followed up by sending another letter.
9 Despite these efforts, and knowing that it was infringing the '842 Patent, Defendant
10 continued to infringe the '842 Patent by continuing to make, use, sell, and/or offer to
11 sell the '842 Accused Products in the United States.

12 154. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been
13 met with respect to the '842 Patent.

14 155. As a result of Defendant's infringement of the '842 Patent, Plaintiff has
15 been injured by Defendant's unauthorized use of Plaintiff's intellectual property.
16 Plaintiff seeks monetary damages in an amount adequate to compensate for
17 Defendant's infringement, but in no event less than a reasonable royalty for the use
18 made of the invention by Defendant, together with interest and costs as fixed by the
19 Court, and Plaintiff will continue to suffer damages in the future unless Defendant's
20 infringing activities are enjoined by this Court. BNR is willing to abide by any
21 applicable FRAND obligations.

22 156. Unless a permanent injunction is issued enjoining Defendant and its agents,
23 servants, employees, representatives, affiliates, and all others acting or in active
24 concert therewith from infringing the '842 Patent, Plaintiff and its licensees will be
25 greatly and irreparably harmed.

COUNT 4**(Infringement of U.S. Patent No. 6,941,156)**

157. Plaintiff re-alleges and incorporates by reference the allegations in the foregoing paragraphs as if fully set forth herein.

158. Plaintiff is informed and believes, and on that basis alleges, that Defendant has infringed and is currently infringing one or more claims (*e.g.*, claim 1) of the '156 Patent, in violation of 35 U.S.C. § 271(a).

159. Defendant has infringed and is currently infringing literally and/or under the doctrine of equivalents, by, among other things, making, using, offering for sale, selling, and/or importing within this judicial district and elsewhere in the United States, without license or authority, infringing products, including but not limited to Canvas and Defiant (collectively, the "156 Accused Products") and related products and/or processes falling within the scope of one or more claims of the '156 Patent, including claim 1.

160. The '156 Accused Products, including but not limited to those identified in the preceding paragraph, include both an RF radio for cellular communications and a separate RF radio for connection to WiFi networks. Further, those radios are designed and able to operate simultaneous communication paths at different frequencies and automatically switch over communication from either the cellular communication or the WiFi functionality to the other.

161. By way of example only, Defendant's Defiant product is a multimode cellular phone that includes cellular RF communication functionality, and RF communication functionality separate and different from the cellular RF phone functionality (namely WiFi), a module operable to establish simultaneous communication paths from the multimode cellular phone using both the cellular functionality and the WiFi functionality, and an automatic switchover module, as shown by the device's capability to maintain a voice call while switching between a cellular connection and a WiFi connection.

1 162. More specifically, when a user of a Defiant is in an existing call on a first
2 RF connection type, either a WiFi or cellular connection, and then moves to an area
3 where a different and distinct second RF connection type is available, either cellular
4 or WiFi connection, the Defiant then switches modes from the first RF connection
5 type to the second, different RF connection type automatically and without dropping
6 the call and having to reconnect.

7 163. By way of example only, the remainder of the '156 Accused Products
8 include each of the limitations described in the previous paragraph with respect to the
9 Defendant's Defiant product.

10 164. Defendant's acts of making, using, offering for sale, selling, and/or
11 importing infringing products, including but not limited to the '156 Accused Products,
12 and related products and/or processes satisfy, literally or under the doctrine of
13 equivalents, each and every claim limitation, including but not limited to limitations
14 of claim 1.⁷

15 165. Defendant's infringement is knowing, egregious, consciously wrongful, and
16 willful. Defendant learned of its infringement of the '156 Patent no later than
17 December 28, 2017 in a letter from Mr. Dean, President of Bell Northern Research, to
18 Mr. Deying, Chairman and Executive Director and CEO of Coolpad Group Limited.
19 Mr. Dean's letter identified the '156 Patent and notified Defendant that Defendant's
20 products infringe the patent. Mr. Dean identified exemplary products by name. BNR
21 offered to meet and present a detailed presentation to Defendant, describing the
22 infringement. On February 22, 2018, BNR followed up by sending another letter.
23 Despite these efforts, and knowing that it was infringing the '156 Patent, Defendant
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27 ⁷ Plaintiff expressly reserves the right to identify additional asserted claims and products in its
28 infringement contentions in accordance with the local patent rules. Claim 1 is provided for notice
pleading only and is not presented as an "exemplary" claim of all other claims in the '156 patent.

1 continued to infringe the '156 Patent by continuing to make, use, sell, and/or offer to
2 sell the '156 Accused Products in the United States.

3 166. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been
4 met with respect to the '156 Patent.

5 167. As a result of Defendant's infringement of the '156 Patent, Plaintiff has
6 been injured by Defendant's unauthorized use of Plaintiff's intellectual property.
7 Plaintiff seeks monetary damages in an amount adequate to compensate for
8 Defendant's infringement, but in no event less than a reasonable royalty for the use
9 made of the invention by Defendant, together with interest and costs as fixed by the
10 Court, and Plaintiff will continue to suffer damages in the future unless Defendant's
11 infringing activities are enjoined by this Court.

12 168. Unless a permanent injunction is issued enjoining Defendant and its agents,
13 servants, employees, representatives, affiliates, and all others acting or in active
14 concert therewith from infringing the '156 Patent, Plaintiff and its licensees will be
15 greatly and irreparably harmed.

16 **COUNT 5**

17 **(Infringement of U.S. Patent No. 8,792,432)**

18 169. Plaintiff re-alleges and incorporates by reference the allegations in the
19 foregoing paragraphs as if fully set forth herein.

20 170. Plaintiff is informed and believes, and on that basis alleges, that Defendant
21 has infringed and is currently infringing one or more claims (*e.g.*, claim 12) of the
22 '432 Patent, in violation of 35 U.S.C. § 271(a).

23 171. Defendant has infringed and is currently infringing literally and/or under the
24 doctrine of equivalents, by, among other things, making, using, offering for sale,
25 selling, and/or importing within this judicial district and elsewhere in the United
26 States, without license or authority, infringing products, including but not limited to
27 the Splatter, Canvas, Conjr, and Defiant (collectively, the "Accused Products") and
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1 related products and/or processes falling within the scope of one or more claims of the
2 '432 Patent, including claim 12.

3 172. The Accused Products, including but not limited to those identified in the
4 preceding paragraph, comply with the 3GPP TS 25.331 standard, Version 11.4.0
5 Release 11 (the "TS 25.331 v.11.4.0 Standard") or later, per Defendant's product
6 literature.

7 173. The TS 25.331 v.11.4.0 Standard was introduced on or about February 2013.

8 174. The TS 25.331 v.11.4.0 Standard provides a protocol specification for
9 Universal Mobile Telecommunications System ("UTMS") Radio Resource Control
10 ("RRC") standards. This includes the function of and informational elements to be
11 included in RRC Connection Request messages.

12 175. The TS 25.331 v.11.4.0 Standard requires that compliant devices be capable
13 of receiving the network's RACH reporting priority, indicating the order of limiting
14 intra/inter neighbor cell measurements and other information. *See* TS 25.331 v.11.4.0
15 at 10.3.7.136. This means that compliant devices, including the Accused Products, can
16 receive a broadcast indication indicating whether to prioritize inter-frequency or intra-
17 frequency neighbor cell measurements for inclusion in an uplink connection request
18 message to be sent on a random-access channel.

19 176. Devices operating in accordance with the TS 25.331 v.11.4.0 Standard
20 transmit an uplink RRC message, which includes the measured RACH characteristics,
21 including neighbor cell characteristics in accordance with the prioritization noted
22 above, and does not exceed the maximum allowed message size. *See* TS 25.331
23 v.11.4.0 at 8.5.23. Therefore, any compliant devices, including the accused products,
24 construct the uplink connection request message, which includes measurements that
25 are prioritized in accordance with the broadcast indication so as not to exceed a
26 maximum size of the uplink connection request message.

27 177. The TS 25.331 v.11.4.0 Standard sets forth protocols for transmitting the
28 uplink RRC message and limiting the number of included neighboring cells according

1 to the priority indicated by the network—e.g., an “InterEUTRAIntra,” indication
2 limits the number of intra-frequency cells reported first, and an “IntraEUTRAInter”
3 indication limits the number of inter-frequency cells reported first. *See* TS 25.331
4 v.11.4.0 at 8.5.23. Therefore, the broadcast indication discussed above is one in which
5 one value of the indication directs that the inter-frequency neighbor cell
6 measurements are prioritized over the intra-frequency neighbor cell measurement
7 results for inclusion in the uplink connection request message; and a different value of
8 the indication or omission of the indication directs that the intra-frequency neighbor
9 cell measurements are prioritized over the inter-frequency neighbor cell
10 measurements for inclusion in the uplink connection request message.

11 178. The TS 25.331 v.11.4.0 Standard requires the broadcast indication discussed
12 above to be an information element of system information received on a broadcast
13 channel from an access node of a Universal Terrestrial Radio Access Network or an
14 Evolved Universal Terrestrial Radio Access Network (e.g., a cell network), and, as
15 discussed above, the uplink connection request message is a Radio Resource Control
16 Connection Request Message. *See* TS 25.331 v.11.4.0 at 8.5.23, 10.2.39, 10.2.48,
17 10.2.48.8.22.

18 179. By way of example only, Defendant’s Canvas product is a receiving
19 wireless device (cellular phone) that is advertised as containing features that comply
20 with the TS 25.331 v.11.4.0 Standard or later, including carrier aggregation.

21 180. Because it complies with that standard, it therefore implements the
22 mandatory portions of that standard described above.

23 181. Because of its compliance with the TS 25.331 v.11.4.0 Standard or later,
24 Defendant’s Canvas receives a broadcast indication indicating whether to prioritize
25 inter-frequency or intra-frequency neighbor cell measurements for inclusion in an
26 uplink connection request message to be sent on a random access channel, and
27 constructs the uplink connection request message which includes measurements that
28 are prioritized in accordance with the broadcast indication so as not to exceed a

1 maximum size of the uplink connection request message, in which one value of the
2 indication directs that the inter-frequency neighbor cell measurements are prioritized
3 over the intra-frequency neighbor cell measurement results for inclusion in the uplink
4 connection request message, and a different value of the indication or omission of the
5 indication directs that the intra-frequency neighbor cell measurements are prioritized
6 over the inter-frequency neighbor cell measurements for inclusion in the uplink
7 connection request message, and in which the indication is within an information
8 element of system information received on a broadcast channel from an access node
9 of a UTRAN or an E-UTRAN wireless system, and the uplink connection request
10 message is a Radio Resource Control Connection Request message.

11 182. By way of example only, the remainder of the Accused Products include
12 each of the limitations described in the previous paragraph with respect to the
13 Defendant's Canvas product.

14 183. Defendant's acts of making, using, offering for sale, selling, and/or
15 importing infringing products, including but not limited to the Accused Products, and
16 related products and/or processes satisfy, literally or under the doctrine of equivalents,
17 each and every claim limitation, including but not limited to limitations of claim 12.⁸

18 184. Defendant's infringement is knowing, egregious, consciously wrongful, and
19 willful. Defendant learned of its infringement of the '432 Patent no later than
20 December 28, 2017 in a letter from Mr. Dean, President of Bell Northern Research, to
21 Mr. Deying, Chairman and Executive Director and CEO of Coolpad Group Limited.
22 Mr. Dean's letter identified the '432 Patent and notified Defendant that Defendant's
23 products infringe the patent. Mr. Dean identified exemplary products by name. BNR
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27 ⁸ Plaintiff expressly reserves the right to identify additional asserted claims and products in its
28 infringement contentions in accordance with the local patent rules. Claim 12 is provided for notice
pleading only and is not presented as an "exemplary" claim of all other claims in the '432 patent.

1 offered to meet and present a detailed presentation to Defendant, describing the
2 infringement. On February 22, 2018, BNR followed up by sending another letter.
3 Despite these efforts, and knowing that it was infringing the '432 Patent, Defendant
4 continued to infringe the '432 Patent by continuing to make, use, sell, and/or offer to
5 sell the '432 Accused Products in the United States.

6 185. To the extent applicable, the requirements of 35 U.S.C. § 287(a) have been
7 met with respect to the '432 Patent.

8 186. As a result of Defendant's infringement of the '432 Patent, Plaintiff has
9 been injured by Defendant's unauthorized use of Plaintiff's intellectual property.
10 Plaintiff seeks monetary damages in an amount adequate to compensate for
11 Defendant's infringement, but in no event less than a reasonable royalty for the use
12 made of the invention by Defendant, together with interest and costs as fixed by the
13 Court, and Plaintiff will continue to suffer damages in the future unless Defendant's
14 infringing activities are enjoined by this Court. BNR is willing to abide by any
15 applicable FRAND obligations.

16 187. Unless a permanent injunction is issued enjoining Defendant and its agents,
17 servants, employees, representatives, affiliates, and all others acting or in active
18 concert therewith from infringing the '432 Patent, Plaintiff and its licensees will be
19 greatly and irreparably harmed.

20 **PRAYER FOR RELIEF**

21 Plaintiff prays for the following relief:

22 A. A judgment that Defendant has infringed one or more claims of the
23 Asserted Patents;

24 B. A permanent injunction enjoining Defendant and its officers, directors,
25 agents, servants, affiliates, employees, divisions, branches, subsidiaries, parents, and
26 all others acting in active concert or participation with Defendant, from infringing the
27 Asserted Patents;
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1 C. An award of damages resulting from Defendant's acts of infringement in
2 accordance with 35 U.S.C. § 284;

3 D. A judgment and order finding that Defendant's acts of infringement were
4 egregious and willful and trebling damages under 35 U.S.C. § 284;

5 E. A judgment and order finding that this is an exceptional case within the
6 meaning of 35 U.S.C. § 285 and awarding to Plaintiff its reasonable attorneys' fees
7 against Defendant.

8 F. A judgment and order requiring Defendant to provide accountings and to
9 pay supplemental damages to Plaintiff, including, without limitation, prejudgment and
10 post-judgment interest; and

11 G. Any and all other relief to which Plaintiff may show itself to be entitled.

12 **JURY TRIAL DEMANDED**

13 Plaintiff hereby demands a trial by jury of all issues so triable.
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1 Dated: August 1, 2018

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