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16 **UNITED STATES DISTRICT COURT**  
17 **NORTHERN DISTRICT OF CALIFORNIA**

18  
19 5G IP HOLDINGS LLC,  
20 Plaintiff,

21 v.

22 APPLE, INC.,  
23 Defendant.  
24

Case No. \_\_\_\_\_

**COMPLAINT FOR PATENT  
INFRINGEMENT**

**JURY TRIAL DEMANDED**

1 Plaintiff 5G IP Holdings LLC (“5GIP”) files this complaint for patent infringement  
2 against Defendant Apple, Inc. (“Apple”) and hereby alleges as follows:

3 **BACKGROUND**

4 1. Since the advent of cellular networks, telecommunications companies have consistently  
5 sought ways to improve the performance and reliability of those networks. To advance this tech-  
6 nology, they formed an industry standard-setting consortium known as the 3rd Generation Part-  
7 nership Project (“3GPP”) in 1998. 3GPP began developing cellular standards, starting with the  
8 third-generation cellular network standard. Most recently, 3GPP developed the fifth-generation  
9 technology standard for cellular networks (“5G Standard”). The 5G Standard is the newest tele-  
10 communications standard for cellular networks and is currently being implemented around the  
11 world.

12 2. Companies began deploying networks that implemented the 5G Standard in 2019. 5G net-  
13 works provide greater bandwidth and higher download speeds over their predecessor 4G net-  
14 works, among other advancements. Because of these benefits, cellular phones, tablets, and other  
15 devices compatible with 5G networks have seen increased performance, including the ability to  
16 support new applications, and download and stream large files.

17 3. To lawfully implement the 5G Standard, companies must license all underlying patented  
18 technology. Thus, the European Technological Standards Institute (“ETSI”) requires that stand-  
19 ard essential patent (“SEP”) holders disclose their patents and the specific standards to which  
20 they are essential. Under the ETSI Intellectual Property Rights Policy, SEP holders must be “pre-  
21 pared to grant irrevocable licences [sic] on fair, reasonable and non-discriminatory (“FRAND”)  
22 terms,” and members must “adequately and fairly reward[.]” SEP holders “for the use of their  
23 [SEPs] in the implementation of” the 5G Standard.<sup>1</sup>

24 4. 5GIP is an intellectual property company that owns patents on core technologies related to  
25 the 5G Standard—including the patents asserted here. The original assignee of those patents, FG

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26 <sup>1</sup> ETSI Rules of Procedure, Annex 6: ETSI Intellectual Property Rights Policy, 29-30 November  
27 2022, <https://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf> (last visited July 5, 2023) (“ETSI  
28 IP Rights Policy”), §§ 3.2, 6.1.

1 Innovation Company Ltd. (“FGI”), is an innovator in the telecommunications space, having de-  
2 veloped numerous technologies that provide core aspects of the 5G Standard. As one example,  
3 FGI’s technology reduces latency and overhead by allowing a connection with a user device to  
4 quickly resume if it’s lost. FGI’s technology also reduces power consumption by allowing user  
5 devices to transport data more efficiently and flexibly. These technological breakthroughs helped  
6 deliver on the 5G Standard’s promise of increased bandwidth and lowered latency. FGI’s tech-  
7 nology is necessary to practice the 5G Standard. And FGI declared several of its patents essential  
8 to the 5G Standard, including the patents 5GIP asserts here.

9 5. Underscoring the significance of 5GIP’s patent portfolio to the 5G Standard, Samsung  
10 Electronics Co. Ltd., a major manufacturer of products that practice the 5G Standard, has already  
11 taken a license.<sup>2</sup>

12 **THE PARTIES AND PRODUCTS**

13 6. 5GIP is a limited liability company organized and existing under the laws of the State of  
14 Texas, with its principal place of business at 8140 Walnut Hill Lane, Suite 615, Dallas, Texas  
15 75231.

16 7. 5GIP is the owner of the entire right, title, and interest in U.S. Patent Nos. 10,624,150;  
17 10,813,163; and 10,531,385 (collectively, “the Asserted Patents”).

18 8. Upon information and belief, Defendant Apple is a California corporation having its prin-  
19 cipal place of business at One Apple Park Way, Cupertino, CA 95014.

20 9. Upon information and belief, Apple makes, uses, sells, and offers for sale products that  
21 implement and support the 5G Standard. These products include certain of Apple’s 5G iPhone  
22 and iPad products (“Apple’s 5G iPhones and iPads”). More particularly, these products include,  
23 but are not limited to: iPhone 14, iPhone 14 Plus, iPhone 14 Pro, iPhone 14 Pro Max, iPhone 13,  
24 iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPhone 12 Pro,  
25 iPhone 12 Pro Max, iPhone SE (3rd generation), iPad Pro 12.9-inch (5th generation or later),  
26

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27 <sup>2</sup> Morris, Angela, *Samsung Takes License to Settle US 5G Patent Suit* (available at  
28 <https://www.iam-media.com/article/samsung-takes-licence-in-us-npe-suit-asserting-5g-assets>).

1 iPad Pro 11-inch (3rd generation or later), iPad Air (5th generation), iPad mini (6th generation),  
2 iPad (10th generation), and any subsequent or future versions of these products that implement  
3 and support the 5G Standard.

4 10. Upon information and belief, Apple's 5G iPhones and iPads implement and support the  
5 5G Standard, including but not limited to 3GPP TS 38.211, 38.212, 38.300, 38.304, 38.321, and  
6 38.331.

7 **JURISDICTION AND VENUE**

8 11. This is a complaint for patent infringement arising under the laws of the United States,  
9 Title 35 of the United States Code.

10 12. This Court has subject-matter jurisdiction over this action under 28 U.S.C. §§ 1331 and  
11 1338.

12 13. This Court has personal jurisdiction over Apple in this action because Apple has com-  
13 mitted acts within this District giving rise to this action and has established minimum contacts  
14 with this forum such that the exercise of jurisdiction over Apple would not offend traditional no-  
15 tions of fair play and substantial justice. Apple, directly and through subsidiaries or intermediar-  
16 ies (including distributors, resellers, and others), has committed and continues to commit acts of  
17 infringement in this District by, among other things, using, offering to sell, and selling products  
18 that infringe the patents-in-suit, including Apple's 5G iPhones and iPads. Apple is registered to  
19 do business in this state and is in good standing. Upon information and belief, Apple maintains  
20 its principal place of business at One Apple Park Way, Cupertino, CA 95014. Upon information  
21 and belief, employees at this place of business attend standardization meetings and conduct re-  
22 search and development related to cellular standards such as the 5G Standard. And, upon infor-  
23 mation and belief, employees at this place of business conduct research and development related  
24 to products implementing the 5G Standard, including Apple's 5G iPhones and iPads.

25 14. Further, Apple has committed patent infringement in this District; solicits and induces  
26 customers/users in this District; and has customers/users residing in this District who purchase,  
27 acquire, and/or use Apple's infringing products in this District.

1 15. Based on the above, venue is proper in this District based on 28 U.S.C. §§ 1391(b)-(c)  
2 and 1400.

3 **DIVISIONAL ASSIGNMENT**

4 16. This case is an Intellectual Property Action under Civil Local Rule 3-2(c) and, per Civil  
5 Local Rule 3-5(b), shall be assigned on a district-wide basis.

6 **NOTICE AND THE PARTIES' PRESUIT DISCUSSIONS**

7 17. On March 16, 2022, 5GIP sent Apple a notice letter explaining that, based on publicly  
8 available information, it was 5GIP's understanding that certain Apple products infringe 5GIP's  
9 standard-essential '150, '163, and '385 Patents. As this letter stated, these Apple products in-  
10 clude at least the iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPh-  
11 one 12 mini, iPhone 12 Pro, and iPhone 12 Pro Max. This letter attached copies of  
12 the '150, '163, and '385 Patents, plus 33 pages of exemplary claim charts detailing how Apple  
13 devices that support and comply with the 5G Standard infringe at least one claim of each patent.  
14 A copy of that letter and attachments are attached as Exhibit A.

15 18. In that March 16 notice letter, 5GIP invited Apple to begin negotiations towards a  
16 FRAND license. In doing so, 5GIP reminded Apple that FGI "declared certain of its patents as  
17 standard essential to the 5G standard, including the '150, '163, and '385 Patents." 5GIP also ex-  
18 plained that it was writing "to open a dialogue with you regarding a possible FRAND license,"  
19 and that "[s]pecifically, we are inviting you to begin negotiations towards a FRAND license."

20 19. Apple did not respond.

21 20. So 5GIP sent Apple a follow-up letter on May 5, 2022, asking Apple to comply with its  
22 FRAND obligations and negotiate towards a FRAND license. Apple responded on May 17,  
23 2022, with a request for a phone call. To foster a productive discussion, 5GIP provided Apple  
24 with a FRAND license proposal before the call.

25 21. 5GIP and Apple then spoke by phone on June 1, 2022. During that conversation, rather  
26 than negotiating a license, Apple stated that it would provide a substantive response to 5GIP's  
27 initial notice letter shortly.

1 22. But another two months passed with no such response.

2 23. Then, on July 29, 2022—135 days after 5GIP’s notice letter—Apple sent 5GIP a more  
3 substantive response to the issues raised in that March 16 letter. A week later, 5GIP explained  
4 that it was reviewing and would respond shortly. During this time, 5GIP was also negotiating  
5 and finalizing its settlement and license with Samsung, Apple’s largest competitor in devices that  
6 support and comply with the 5G Standard.<sup>3</sup> On September 29, 2022, 5GIP provided Apple with a  
7 detailed response to each of the points Apple raised in its July 29 letter.

8 24. Apple’s next communication, on October 18, 2022, requested an updated patent list.  
9 5GIP provided that list just two days later. But Apple did not further respond, resulting in more  
10 time passing.

11 25. 252 days after 5GIP’s notice letter, 5GIP provided a revised FRAND license offer to Ap-  
12 ple on November 23, 2022. 5GIP had not heard from Apple since sending the requested patent  
13 list and had adjusted its prior FRAND offer based on its license agreement with Samsung.

14 26. 275 days after 5GIP’s notice letter, Apple provided a non-FRAND \$2.6 million counter-  
15 offer along with a draft license agreement on December 16, 2022.<sup>4</sup> Three days later, 5GIP sent a  
16 revised FRAND counteroffer to Apple. But, following its December 16 counteroffer, Apple once  
17 again became non-responsive.

18 27. 307 days after 5GIP’s notice letter, 5GIP emailed Apple to continue FRAND negotia-  
19 tions on January 17, 2023, but Apple did not respond.

20 28. This non-responsive pattern continued over the coming months. For instance, 338 days  
21 after 5GIP’s notice letter and 63 days after Apple’s last response, 5GIP again emailed Apple to  
22 continue FRAND negotiations. Apple did not respond. And when 5GIP next emailed Apple, 40  
23 days later, Apple again did not respond.

24  
25 <sup>3</sup> See generally *5G IP Holdings LLC v. Samsung Electronics Co., Ltd., et al.*, E.D. Tex. No. 4:21-  
26 cv-622, Dkt. 79 (Sept. 16, 2022 Stipulation of Dismissal).

27 <sup>4</sup> See generally *Optis Cellular Tech. LLC v. Apple Retail UK Ltd., v. Huawei Techs.*, Case No.  
28 HP-2019-000006, at 119-21 (May 10, 2023 UK) (rejecting Apple’s approach to FRAND negoti-  
ations).

1 29. 5GIP thus adjusted the recipients of its communications in an attempt to continue to ne-  
2 gotiate a FRAND license in good faith with Apple. Specifically, on April 6, 2023—386 days af-  
3 ter 5GIP’s notice letter and 111 days after Apple’s last response—5GIP contacted other individu-  
4 als in Apple’s legal department, seeking an Apple response to its previous communications.  
5 5GIP’s contact with those additional Apple attorneys spurred a response from Apple, and the  
6 parties scheduled a call for April 20, 2023.

7 30. And, on that call 400 days after 5GIP’s notice letter, Apple for the first time asserted that  
8 it had a license to 5GIP’s patents through its agreements with Foxconn Technology Group.

9 31. 5GIP then repeatedly asked Apple for a copy of the documents that supported Apple’s  
10 defense. Apple never provided the requested documents.

11 32. 498 days after 5GIP’s notice letter, 5GIP emailed Apple a draft of this Complaint on July  
12 27, 2023, indicating it intended to file it a week later.

13 33. In total, 5GIP has sent 23 letters and emails to Apple attempting to pursue FRAND ne-  
14 gotiations in good faith. Apple did not respond to 14 of them. And Apple otherwise failed to re-  
15 spond substantively and negotiate a license on FRAND terms. Thus, after 505 days of attempting  
16 to negotiate in good faith, 5GIP brings this action.

17 **FIRST CLAIM FOR RELIEF**

18 **INFRINGEMENT OF U.S. PATENT No. 10,624,150 (“THE ’150 PATENT”)**

19 34. 5GIP re-alleges and incorporates by reference paragraphs 1–33 above.

20 35. On April 14, 2020, the United States Patent and Trademark Office (“USPTO”) duly and  
21 legally issued U.S. Patent No. 10,624,150, entitled “Radio Resource Control Connection Resume  
22 Method of Wireless Communication System.”

23 36. 5GIP is the owner of the ’150 Patent, a true and correct copy of which is attached hereto  
24 as Exhibit B.

25 37. The ’150 Patent is valid and enforceable under the United States patent laws.

26 38. FGI declared the ’150 Patent as a standard essential patent (“SEP”) on June 18, 2020 to  
27 3GPP TS 38.304 and 38.331.

### **Technical Description**

1  
2 39. The '150 Patent generally is directed to providing and implementing a procedure for ra-  
3 dio resource control (“RRC”) resumption for a Narrow-Band Internet of Things. The '150 Patent  
4 claims are generally directed to technical improvements for the latency and overhead issues  
5 found in prior art wireless communications systems.<sup>5</sup> As an example, the '150 Patent provides  
6 that, when a user equipment (“UE”) receives an RRC suspend message from a first base station,  
7 the UE performs a resume procedure with a second base station, which returns an RRC resume  
8 response back to the UE. The RRC suspend message comprises target cell information and target  
9 radio access technology information comprising numerology information. Because the serving  
10 base station retains the UE context, the UE can quickly send an RRC resume message and re-  
11 sume an RRC connection for data/control transmission, reducing latency and radio access over-  
12 head.<sup>6</sup> For instance, the '150 Patent claims generally recite the interactions between the UE and  
13 the wireless communications system and also include the content of messages received by the  
14 UE.

### **Direct/Indirect Infringement**

15  
16 40. Defendant Apple has infringed and is infringing, either literally or under the doctrine of  
17 equivalents, at least claim 1 of the '150 Patent in violation of 35 U.S.C. § 271 et seq., directly  
18 and/or indirectly, by using, offering for sale, or selling in the United States, and/or importing into  
19 the United States without authority, products that implement and support the 5G Standard, in-  
20 cluding but not limited to 3GPP TS 38.304 and 38.331. Apple has and continues to indirectly in-  
21 fringe one or more claims of the '150 Patent by knowingly and intentionally inducing others, in-  
22 cluding Apple customers, resellers, distributors, retailers, and end-users, to directly infringe, ei-  
23 ther literally or under the doctrine of equivalents, by making, using, offering to sell, selling,  
24 and/or importing into the United States products that include infringing technology, such as Ap-  
25 ple's 5G iPhones and iPads.

26  
27 <sup>5</sup> *E.g.*, '150 Patent at 1:23-2:43.

28 <sup>6</sup> *Id.* at 2:47-3:9.



1 41. As just one non-limiting example, Apple’s 5G iPhones and iPads (as defined above), in-  
2 cluding but not limited to the iPhone 14, iPhone 14 Plus, iPhone 14 Pro, iPhone 14 Pro Max,  
3 iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPh-  
4 one 12 Pro, iPhone 12 Pro Max, iPhone SE (3rd generation), iPad Pro 12.9-inch (5th generation  
5 or later), iPad Pro 11-inch (3rd generation or later), iPad Air (5th generation), iPad mini (6th  
6 generation), iPad (10th generation), and other similar products, infringe at least claim 1 of  
7 the ’150 Patent.

8 42. For example, Apple’s iPhone 14 Plus is a non-limiting example of an apparatus that  
9 meets the limitations of claim 1 of the ’150 Patent by implementing the 5G Standard, including  
10 but not limited to 3GPP TS 38.304 and 38.331. As shown in the exemplary excerpts below of  
11 3GPP TS 38.331 and the exemplary claim chart attached to Exhibit A, the 5G Standard includes,  
12 for example, a radio resource control (RRC) connection resume method involving receiving  
13 RRC suspend messages from a first base station and performing an RRC resume procedure with  
14 a second base station in response to the RRC suspend message.

15 **1 Scope**

16 The present document specifies the Radio Resource Control protocol for the radio interface between UE and NG-RAN.

17 The scope of the present document also includes:

- 18 - the radio related information transported in a transparent container between source gNB and target gNB upon  
inter gNB handover;
- 19 - the radio related information transported in a transparent container between a source or target gNB and another  
system upon inter RAT handover.
- 20 - the radio related information transported in a transparent container between a source eNB and target gNB during  
21 E-UTRA-NR Dual Connectivity.

22 3GPP TS 38.331 V15.13.0 38.331 (2021-03), p. 16.

## 5.3 Connection control

### 5.3.1 Introduction

#### 5.3.1.1 RRC connection control

RRC connection establishment involves the establishment of SRB1. The network completes RRC connection establishment prior to completing the establishment of the NG connection, i.e. prior to receiving the UE context information from the 5GC. Consequently, AS security is not activated during the initial phase of the RRC connection. During this initial phase of the RRC connection, the network may configure the UE to perform measurement reporting, but the UE only sends the corresponding measurement reports after successful AS security activation. However, the UE only accepts a re-configuration with sync message when AS security has been activated.

Upon receiving the UE context from the 5GC, the RAN activates AS security (both ciphering and integrity protection) using the initial AS security activation procedure. The RRC messages to activate AS security (command and successful response) are integrity protected, while ciphering is started only after completion of the procedure. That is, the response to the message used to activate AS security is not ciphered, while the subsequent messages (e.g. used to establish SRB2 and DRBs) are both integrity protected and ciphered. After having initiated the initial AS security activation procedure, the network may initiate the establishment of SRB2 and DRBs, i.e. the network may do this prior to receiving the confirmation of the initial AS security activation from the UE. In any case, the network will apply both ciphering and integrity protection for the RRC reconfiguration messages used to establish SRB2 and DRBs. The network should release the RRC connection if the initial AS security activation and/ or the radio bearer establishment fails. A configuration with SRB2 without DRB or with DRB without SRB2 is not supported (i.e., SRB2 and at least one DRB must be configured in the same RRC Reconfiguration message, and it is not allowed to release all the DRBs without releasing the RRC Connection).

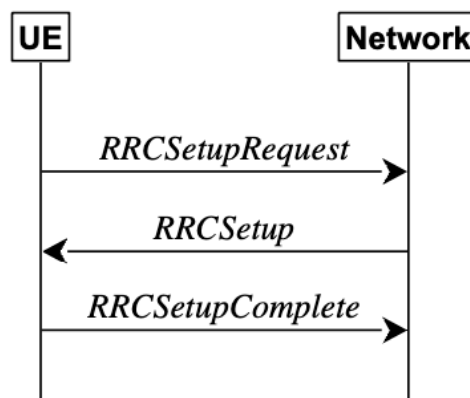
The release of the RRC connection normally is initiated by the network. The procedure may be used to re-direct the UE to an NR frequency or an E-UTRA carrier frequency.

The suspension of the RRC connection is initiated by the network. When the RRC connection is suspended, the UE stores the UE Inactive AS context and any configuration received from the network, and transits to RRC\_INACTIVE state. If the UE is configured with SCG, the UE releases the SCG configuration upon initiating a RRC Connection Resume procedure. The RRC message to suspend the RRC connection is integrity protected and ciphered.

3GPP TS 38.331 V15.13.0 38.331 (2021-03), p. 37.

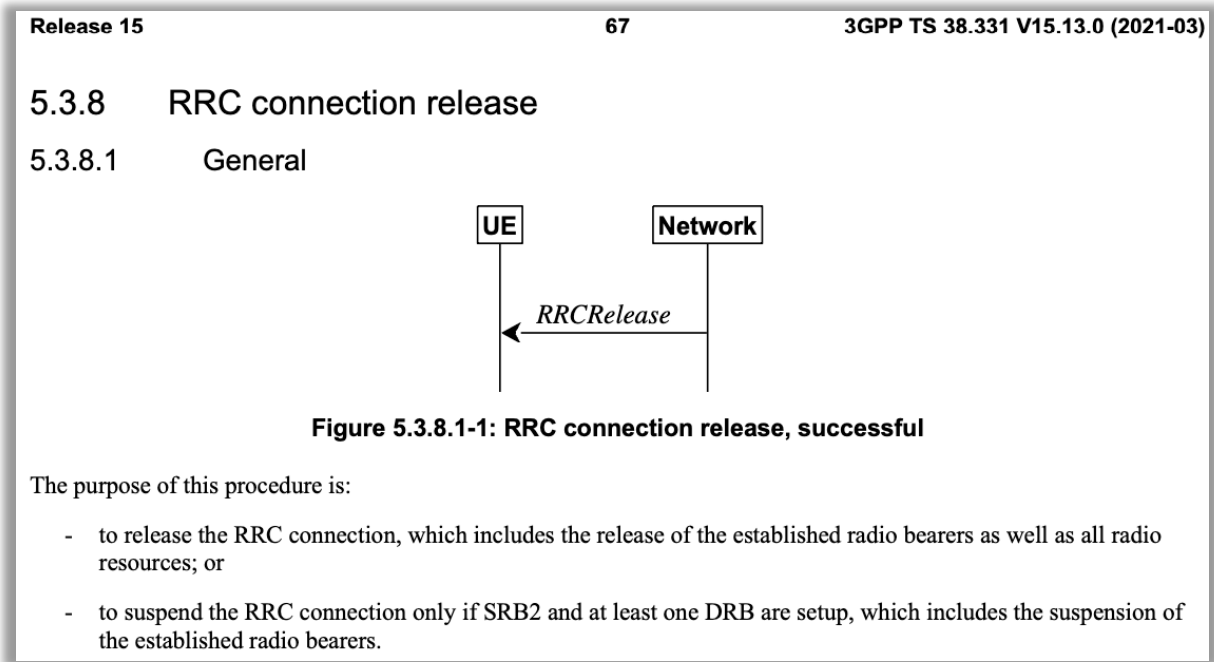
### 5.3.3 RRC connection establishment

#### 5.3.3.1 General



**Figure 5.3.3.1-1: RRC connection establishment, successful**

1 3GPP TS 38.331 V15.13.0 38.331 (2021-03), p. 40.



13 3GPP TS 38.331 V15.13.0 38.331 (2021-03), p. 67.

14 43. Apple’s marketing and advertising confirms that Apple’s 5G iPhone and iPads, including  
15 the iPhone 14 and iPhone 14 Plus, comply with the 5G Standard.

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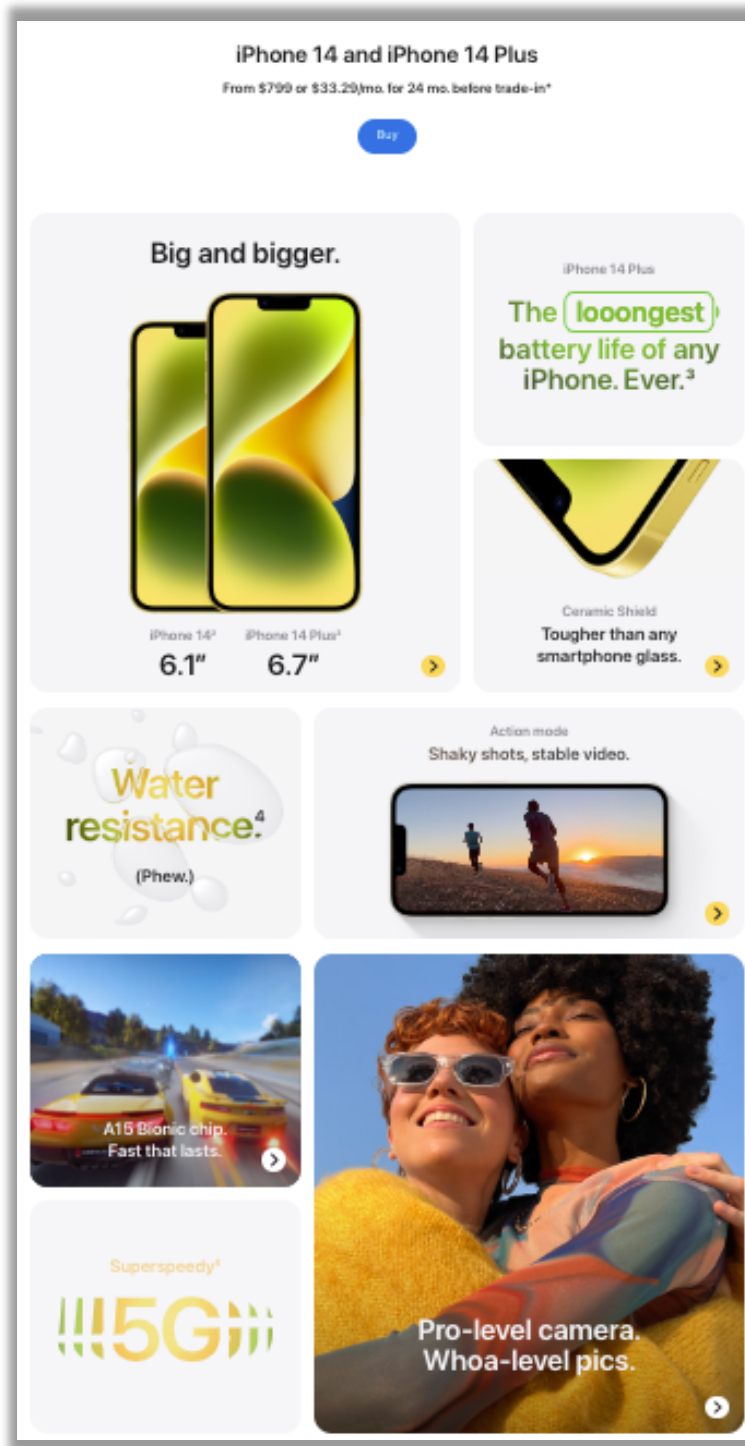
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<https://www.apple.com/iphone-14/>

### **Knowledge and Willful Infringement**

44. Apple has had actual knowledge of the '150 Patent and its infringement of the '150 Patent.

1 45. Apple has had actual knowledge of the '150 Patent and its infringement since at least  
2 March 16, 2022, when 5GIP invited Apple to begin negotiating towards a FRAND license for its  
3 patent portfolio. Based on publicly available information, 5GIP expressly identified “at least the  
4 iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPh-  
5 one 12 Pro, and iPhone 12 Pro Max” as infringing the '150 Patent in its March 16 letter and the  
6 attached claims charts.

7 46. Apple was also heavily involved in the development of the 5G Standard. And FGI unam-  
8 biguously declared the '150 Patent as standard essential to the 5G Standard. Thus, Apple knew  
9 or should have known of the '150 Patent and of its infringement since at least June 18, 2020,  
10 when FGI declared the '150 Patent as an SEP to 3GPP TS 38.304 and 38.331.

11 47. And Apple also had actual knowledge of the '150 Patent and its infringement through  
12 the filing and service of this Complaint.

13 48. Notwithstanding this knowledge, Apple has knowingly or with reckless disregard will-  
14 fully infringed the '150 Patent. Apple continues to commit acts of infringement despite being on  
15 notice of an objectively high likelihood that its actions constitute infringement of 5GIP's valid  
16 patent rights, either literally or equivalently. Thus, 5GIP seeks enhanced damages pursuant to 35  
17 U.S.C. §§ 284 and 285.

18 49. 5GIP has been, and continues to be, damaged by Apple's infringement of the '150 Pa-  
19 tent.

20 **SECOND CLAIM FOR RELIEF**

21 **INFRINGEMENT OF U.S. PATENT No. 10,813,163 (“THE '163 PATENT”)**

22 50. 5GIP re-alleges and incorporates by reference paragraphs 1-33 above.

23 51. On October 20, 2020, the USPTO duly and legally issued U.S. Patent No. 10,813,163,  
24 entitled “Devices and Methods for Controlling Discontinuous Reception in New Radio.”

25 52. 5GIP is the owner of the '163 Patent, a true and correct copy of which is attached hereto  
26 as Exhibit C.

27 53. The '163 Patent is valid and enforceable under the United States patent laws.

1 54. FGI declared the '163 Patent as an SEP on May 21, 2019 and again on April 13, 2020 to  
2 3GPP TS 38.321 and 38.331, respectively.

### 3 Technical Description

4 55. The '163 Patent generally is directed to a method and apparatus for controlling discon-  
5 tinuous reception ("DRX") in New Radio ("NR"). The '163 Patent claims are generally directed  
6 to a technical improvement to prior art wireless communications systems to accommodate a  
7 more flexible frame structure.<sup>7</sup> For instance, the '163 Patent provides that a UE receives an RRC  
8 message having a DRX Start Offset ("drx-StartOffset") and a DRX Slot Offset ("drx-  
9 StartOffset\_slot") to determine the start subframe and start time in the start subframe. This helps  
10 accommodate a variety of communication configurations while maintaining reliability, high data  
11 rate, and low latency. As an example, the '163 Patent claims generally recite the contents of the  
12 message the UE receives and the calculations the UE performs to allow for a frame structure  
13 without a fixed time unit.

### 14 Direct/Indirect Infringement

15 56. Defendant Apple has infringed and is infringing, either literally or under the doctrine of  
16 equivalents, at least claim 1 of the '163 Patent in violation of 35 U.S.C. § 271 et seq., directly  
17 and/or indirectly, by using, offering for sale, or selling in the United States, and/or importing into  
18 the United States without authority, products that implement and support the 5G Standard, in-  
19 cluding but not limited to 3GPP TS 38.321 and 38.331. Apple has and continues to indirectly in-  
20 fringe one or more claims of the '163 Patent by knowingly and intentionally inducing others, in-  
21 cluding Apple customers, resellers, distributors, retailers, and end-users, to directly infringe, ei-  
22 ther literally or under the doctrine of equivalents, by making, using, offering to sell, selling,  
23 and/or importing into the United States products that include infringing technology, such as Ap-  
24 ple's 5G iPhones and iPads.

25 57. As just one non-limiting example, Apple's 5G iPhones and iPads (as defined above), in-  
26 cluding but not limited to the iPhone 14, iPhone 14 Plus, iPhone 14 Pro, iPhone 14 Pro Max,

27 <sup>7</sup> *E.g.*, '163 Patent at 1:24-1:48.

1 iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPh-  
 2 one 12 Pro, iPhone 12 Pro Max, iPhone SE (3rd generation), iPad Pro 12.9-inch (5th generation  
 3 or later), iPad Pro 11-inch (3rd generation or later), iPad Air (5th generation), iPad mini (6th  
 4 generation), iPad (10th generation), and other similar products, infringe at least claim 1 of the of  
 5 the '163 Patent.

6 58. For example, Apple's iPad Pro is a non-limiting example of an apparatus that meets the  
 7 limitations of claim 1 of the '163 Patent by implementing the 5G Standard, including but not  
 8 limited to 3GPP TS 38.321 and 38.331. As shown in the exemplary excerpts below of 3GPP TS  
 9 38.321 and the exemplary claim chart attached to Exhibit A, the 5G standard includes, for exam-  
 10 ple, a method for discontinuous reception (DRX) where the UE receives an RRC message, and  
 11 the UE determines a start subframe and start time based on the RRC message values.

## 12 5.7 Discontinuous Reception (DRX)

13 The MAC entity may be configured by RRC with a DRX functionality that controls the UE's PDCCH monitoring  
 14 activity for the MAC entity's C-RNTI, CS-RNTI, INT-RNTI, SFI-RNTI, SP-CSI-RNTI, TPC-PUCCH-RNTI, TPC-  
 15 PUSCH-RNTI, and TPC-SRS-RNTI. When using DRX operation, the MAC entity shall also monitor PDCCH  
 16 according to requirements found in other clauses of this specification. When in RRC\_CONNECTED, if DRX is  
 configured, for all the activated Serving Cells, the MAC entity may monitor the PDCCH discontinuously using the  
 DRX operation specified in this clause; otherwise the MAC entity shall monitor the PDCCH as specified in TS 38.213  
 [6].

17 3GPP TS 38.321 V15.12.0 38.321 (2021-03), pp. 38-39.

18 RRC controls DRX operation by configuring the following parameters:

- 19 - *drx-onDurationTimer*: the duration at the beginning of a DRX Cycle;
- 20 - *drx-SlotOffset*: the delay before starting the *drx-onDurationTimer*;
- 21 - *drx-InactivityTimer*: the duration after the PDCCH occasion in which a PDCCH indicates a new UL or DL  
 22 transmission for the MAC entity;
- 23 - *drx-RetransmissionTimerDL* (per DL HARQ process except for the broadcast process): the maximum duration  
 24 until a DL retransmission is received;



Release 15

39

3GPP TS 38.321 V15.12.0 (2021-03)

- *drx-RetransmissionTimerUL* (per UL HARQ process): the maximum duration until a grant for UL retransmission is received;
- *drx-LongCycleStartOffset*: the Long DRX cycle and *drx-StartOffset* which defines the subframe where the Long and Short DRX Cycle starts;
- *drx-ShortCycle* (optional): the Short DRX cycle;
- *drx-ShortCycleTimer* (optional): the duration the UE shall follow the Short DRX cycle;
- *drx-HARQ-RTT-TimerDL* (per DL HARQ process except for the broadcast process): the minimum duration before a DL assignment for HARQ retransmission is expected by the MAC entity;
- *drx-HARQ-RTT-TimerUL* (per UL HARQ process): the minimum duration before a UL HARQ retransmission grant is expected by the MAC entity.

3GPP TS 38.321 V15.12.0 38.321 (2021-03), pp. 38-39.

59. Apple’s marketing and advertising confirms that Apple’s 5G iPhone and iPads, including the iPad Pro, comply with the 5G Standard.





1 <https://www.apple.com/ipad-pro/>

2 **Knowledge and Willful Infringement**

3 60. Apple has had actual knowledge of the '163 Patent and its infringement of the '163 Pa-  
4 tent.

5 61. Apple has had actual knowledge of the '163 Patent and its infringement since at least  
6 March 16, 2022, when 5GIP invited Apple to begin negotiating towards a FRAND license for its  
7 patent portfolio. Based on publicly available information, 5GIP expressly identified “at least the  
8 iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPh-  
9 one 12 Pro, and iPhone 12 Pro Max” as infringing the '163 Patent in its March 16 letter and the  
10 attached claims charts.

11 62. Apple was also heavily involved in the development of the 5G Standard. And FGI unam-  
12 biguously declared the '163 Patent as standard essential to the 5G Standard. Thus, Apple knew  
13 or should have known of the '163 Patent and of its infringement since at least May 21, 2019,  
14 when FGI declared the '163 Patent as an SEP to 3GPP TS 38.321.

15 63. And Apple also had actual knowledge of the '163 Patent and its infringement through  
16 the filing and service of this Complaint.

17 64. Notwithstanding this knowledge, Apple has knowingly or with reckless disregard will-  
18 fully infringed the '163 Patent. Apple continues to commit acts of infringement despite being on  
19 notice of an objectively high likelihood that its actions constitute infringement of 5GIP's valid  
20 patent rights, either literally or equivalently. Thus, 5GIP seeks enhanced damages pursuant to 35  
21 U.S.C. §§ 284 and 285.

22 65. 5GIP has been, and continues to be, damaged by Apple's infringement of the '163 Pa-  
23 tent.

24 **THIRD CLAIM FOR RELIEF**

25 **INFRINGEMENT OF U.S. PATENT No. 10,531,385 (“THE '385 PATENT”)**

26 66. 5GIP re-alleges and incorporates by reference paragraphs 1–36 above.

1 67. On January 7, 2020, the USPTO duly and legally issued U.S. Patent No. 10,531,385, en-  
2 titled “Devices and Methods for Discontinuous Reception in New Radio.”

3 68. 5GIP is the owner of the ’385 Patent, a true and correct copy of which is attached hereto  
4 as Exhibit D.

5 69. The ’385 Patent is valid and enforceable under the United States patent laws.

6 70. FGI declared the ’385 Patent as an SEP on April 13, 2020 to 3GPP TS 38.331, TS  
7 38.211, TS 38.321, and TS 38.300.

8 **Technical Description**

9 71. The ’385 Patent generally is directed to a method and an apparatus for discontinuous re-  
10 ception (“DRX”) operation in New Radio (“NR”). The ’385 Patent claims are generally directed  
11 to a technical improvement to prior art wireless communications systems to accommodate a  
12 more flexible frame structure.<sup>8</sup> For instance, the ’385 Patent provides that a UE receives an RRC  
13 configuration containing a DRX parameter with a scalable duration. This allows the UE to oper-  
14 ate on 5G networks, where the lack of a fixed time unit helps improve data scheduling flexibility,  
15 which helps maintain the reliability, high data rate, and low latency benefits of 5G networks.

16 **Direct/Indirect Infringement**

17 72. Defendant Apple has infringed and is infringing, either literally or under the doctrine of  
18 equivalents, at least claim 1 of the ’385 Patent in violation of 35 U.S.C. § 271 et seq., directly  
19 and/or indirectly, by offering for sale, or selling in the United States, and/or importing into the  
20 United States without authority, products that implement and support aspects of the 5G Standard,  
21 including but not limited to 3GPP TS 38.331, TS 38.321, TS 38.212, TS 38.300, and TS 38.211.  
22 Apple has and continues to indirectly infringe one or more claims of the ’385 Patent by know-  
23 ingly and intentionally inducing others, including Apple customers, distributors, resellers, retail-  
24 ers, and end-users, to directly infringe, either literally or under the doctrine of equivalents, by  
25 making, using, offering to sell, selling, and/or importing into the United States products that in-  
26 clude infringing technology, such as Apple’s 5G iPhones and iPads.

27 <sup>8</sup> *E.g.*, ’385 Patent at 1:24-1:52.

1 73. As just one non-limiting example, Apple's 5G iPhones and iPads (as defined above), in-  
2 cluding but not limited to the iPhone 14, iPhone 14 Plus, iPhone 14 Pro, iPhone 14 Pro Max,  
3 iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPh-  
4 one 12 Pro, iPhone 12 Pro Max, iPhone SE (3rd generation), iPad Pro 12.9-inch (5th generation  
5 or later), iPad Pro 11-inch (3rd generation or later), iPad Air (5th generation), iPad mini (6th  
6 generation), iPad (10th generation), and other similar products, infringe at least claim 1 of  
7 the '385 Patent.

8 74. For example, Apple's iPhone 12 is a non-limiting example of an apparatus that meets the  
9 limitations of at least claim 1 of the '385 Patent by implementing the 5G Standard network, in-  
10 cluding but not limited to 3GPP TS 38.321, TS 38.212, and TS 38.300. As shown in the exem-  
11 plary excerpts below of 3GPP TS 38.321 and TS 38.212 and the exemplary claim chart attached  
12 to Exhibit A, the 5G Standard includes, for example, a method for configuring transport channels  
13 where the UE receives a downlink control information (DCI) which indicates a transport block  
14 reception on a bandwidth part (BWP).

## 15 16 **5.7 Discontinuous Reception (DRX)**

17 The MAC entity may be configured by RRC with a DRX functionality that controls the UE's PDCCH monitoring  
18 activity for the MAC entity's C-RNTI, CS-RNTI, INT-RNTI, SFI-RNTI, SP-CSI-RNTI, TPC-PUCCH-RNTI, TPC-  
19 PUSCH-RNTI, and TPC-SRS-RNTI. When using DRX operation, the MAC entity shall also monitor PDCCH  
20 according to requirements found in other subclauses of this specification. When in RRC\_CONNECTED, if DRX is  
configured, the MAC entity may monitor the PDCCH discontinuously using the DRX operation specified in this  
subclause; otherwise the MAC entity shall monitor the PDCCH continuously.

21 3GPP TS 38.321 V15.3.0 38.321 (2018-09), p. 37.  
22  
23  
24  
25  
26  
27  
28

7.3.1.2.2 Format 1\_1

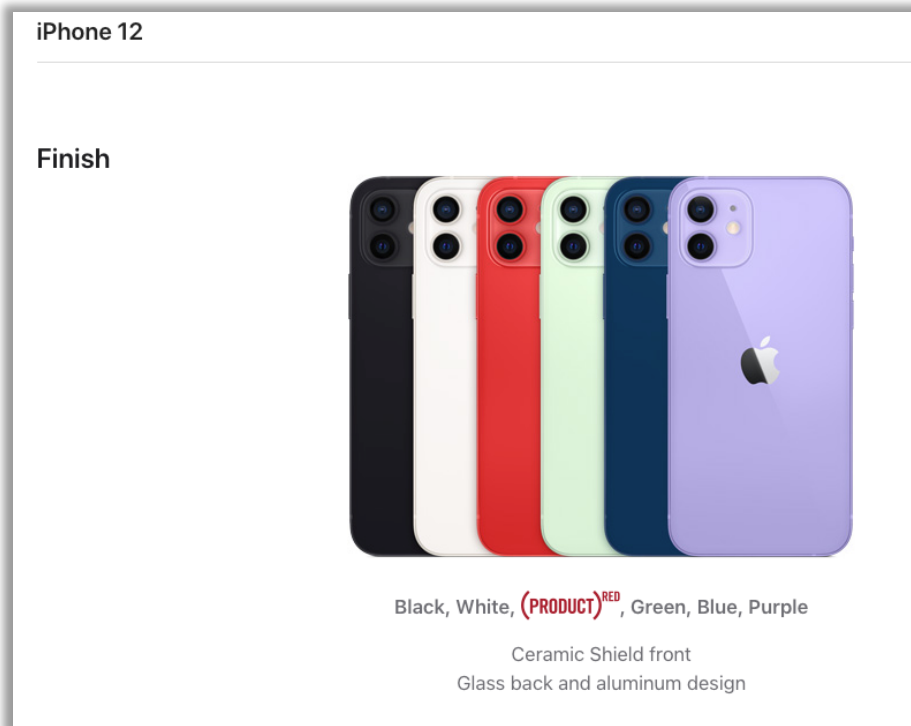
DCI format 1\_1 is used for the scheduling of PDSCH in one cell.

The following information is transmitted by means of the DCI format 1\_1 with CRC scrambled by C-RNTI or CS-RNTI or MCS-C-RNTI:

- Identifier for DCI formats – 1 bits
  - The value of this bit field is always set to 1, indicating a DL DCI format
- Carrier indicator – 0 or 3 bits as defined in Clause 10.1 of [5, TS 38.213].
- Bandwidth part indicator – 0, 1 or 2 bits as determined by the number of DL BWPs  $n_{\text{BWP,RRC}}$  configured by higher layers, excluding the initial DL bandwidth part. The bitwidth for this field is determined as  $\lceil \log_2(n_{\text{BWP}}) \rceil$  bits, where
  - $n_{\text{BWP}} = n_{\text{BWP,RRC}} + 1$  if  $n_{\text{BWP,RRC}} \leq 3$ , in which case the bandwidth part indicator is equivalent to the ascending order of the higher layer parameter *BWP-Id*;
  - otherwise  $n_{\text{BWP}} = n_{\text{BWP,RRC}}$ , in which case the bandwidth part indicator is defined in Table 7.3.1.1.2-1;

3GPP TS 38.212 V16.4.0 38.212 (2021-01), p. 122.

75. And Apple’s marketing and advertising confirm Apple’s 5G iPhones and iPads, including the iPhone 12, comply with the 5G Standard.



**Cellular and  
Wireless**

Model A2172\*

5G NR (Bands n1, n2, n3, n5, n7, n8, n12, n20, n25, n28, n38, n40, n41, n66, n71, n77, n78, n79)

5G NR mmWave (Bands n260, n261)

FDD-LTE (Bands 1, 2, 3, 4, 5, 7, 8, 12, 13, 14, 17, 18, 19, 20, 25, 26, 28, 29, 30, 32, 66, 71)

TD-LTE (Bands 34, 38, 39, 40, 41, 42, 46, 48)

CDMA EV-DO Rev. A (800, 1900 MHz)

UMTS/HSPA+/DC-HSDPA (850, 900, 1700/2100, 1900, 2100 MHz)

GSM/EDGE (850, 900, 1800, 1900 MHz)

All models

5G (sub-6 GHz and mmWave) with 4x4 MIMO<sup>7</sup>Gigabit LTE with 4x4 MIMO and LAA<sup>7</sup>

Wi-Fi 6 (802.11ax) with 2x2 MIMO

Bluetooth 5.0

Ultra Wideband chip for spatial awareness<sup>8</sup>

NFC with reader mode

Express Cards with power reserve

<https://www.apple.com/iphone-12/specs/>

**Knowledge and Willful Infringement**

76. Apple has had actual knowledge of the '385 Patent and its infringement of the '385 Patent.

77. Apple has had actual knowledge of the '385 Patent and its infringement since at least March 16, 2022, when 5GIP invited Apple to begin negotiating towards a FRAND license for its patent portfolio. Based on publicly available information, 5GIP expressly identified "at least the iPhone 13, iPhone 13 mini, iPhone 13 Pro, iPhone 13 Pro Max, iPhone 12, iPhone 12 mini, iPhone 12 Pro, and iPhone 12 Pro Max" as infringing the '385 Patent in its March 16 letter and the attached claims charts.

78. Apple was also heavily involved in the development of the 5G Standard. And FGI unambiguously declared the '385 Patent as standard essential to the 5G Standard. Thus, Apple knew or should have known of the '385 Patent and of its infringement since at least April 13, 2020, when FGI declared the '385 Patent as an SEP to 3GPP TS 38.331, TS 38.211, TS 38.321, and TS 38.300.

79. And Apple also had actual knowledge of the '385 Patent and its infringement through

1 the filing and service of this Complaint.

2 80. Notwithstanding this knowledge, Apple has knowingly or with reckless disregard will-  
3 fully infringed the '385 Patent. Apple continues to commit acts of infringement despite being on  
4 notice of an objectively high likelihood that its actions constitute infringement of 5GIP's valid  
5 patent rights, either literally or equivalently. Thus, 5GIP seeks enhanced damages pursuant to 35  
6 U.S.C. §§ 284 and 285.

7 81. 5GIP has been, and continues to be, damaged by Apple's infringement of the '385 Pa-  
8 tent.

9 **FOURTH CLAIM FOR RELIEF**

10 **BREACH OF CONTRACT – APPLE BREACHED ITS OBLIGATIONS TO ETSI**

11 82. 5GIP re-alleges and incorporates by reference paragraphs 1-33 above.

12 83. Upon information and belief, Apple is, and at all applicable times has been, an ETSI  
13 member. As an ETSI member, Apple must comply with the ETSI Intellectual Property Rights  
14 (“IP Rights”) Policy.

15 84. Clause 3.2 of the ETSI IP Rights Policy requires that members fairly reward IP Rights  
16 holders for the use of their intellectual property in ETSI standards:

17 [IP Rights] holders whether members of ETSI and their AFFILI-  
18 ATES or third parties, should be adequately and fairly rewarded  
19 for the use of their [IP Rights] in the implementation of STAND-  
ARDS and TECHNICAL SPECIFICATIONS.

20 85. This obligation applies equally to all SEP holders, regardless of their status as an ETSI  
21 member, affiliate, or third party. Therefore, under the ETSI IP Rights Policy, Apple must ade-  
22 quately and fairly reward 5GIP, which is a third-party SEP holder and the current owner of the  
23 entire right, title, and interest in the Asserted Patents.

24 86. 5GIP is an intended beneficiary entitled to enforce Apple's obligation to ETSI under  
25 Clause 3.2 of the ETSI IP Rights Policy.

26 87. Apple repeatedly demonstrated its unwillingness to adequately and fairly reward 5GIP  
27 for use of the Asserted Patents. Since 5GIP first offered to begin FRAND negotiations in March

1 2022, 5GIP made Apple three FRAND offers to license the Asserted Patents. Apple rejected or  
2 failed to respond to 5GIP's offers and only once provided a non-FRAND counteroffer.<sup>9</sup>

3 88. Apple breached its obligation to ETSI to adequately and fairly reward SEP holders when  
4 it refused to negotiate with 5GIP in good faith towards an adequate and fair royalty. And Apple  
5 breached its obligation when it refused to license the Asserted Patents, which are essential under  
6 the 3GPP 5G Standard, at FRAND rates.

7 89. Apple further breached its obligation when it refused to engage in FRAND negotiations  
8 with 5GIP. After making its only counteroffer in December 2022, Apple refused to respond to  
9 5GIP's requests to continue FRAND negotiations. And Apple further failed to engage and pro-  
10 vide documents to support its purported license defense. This led 5GIP to expend additional time  
11 and resources.

12 90. Through its breach, Apple has harmed 5GIP by denying it an adequate and fair reward  
13 for Apple's use of the Asserted Patents. Furthermore, 5GIP must now bear unnecessary addi-  
14 tional expense to resolve the issue.

15 **FIFTH CLAIM FOR RELIEF**

16 **BREACH OF OBLIGATION TO NEGOTIATE IN GOOD FAITH**

17 91. 5GIP re-alleges and incorporates by reference paragraphs 1-33 above.

18 92. The ETSI IP Rights Policy and ETSI IP Rights Licensing Declaration forms are gov-  
19 erned by French law.<sup>10</sup>

20 93. Once 5GIP initiated negotiations, French law obligated Apple to negotiate with them in  
21 good faith.

22 94. Apple breached its obligation to negotiate in good faith by, among other things, ignoring  
23 14 of 5GIP's 21 letters and emails, despite Apple's written commitment to discuss a FRAND li-  
24 cense with 5GIP. For example, Apple sent 5GIP a draft license and a counteroffer on non-

25  
26 <sup>9</sup> See *Optis Cellular Tech. LLC v. Apple Retail UK Ltd., v. Huawei Techs.*, Case No. HP-2019-  
000006, at 119-21 (May 10, 2023 UK) (rejecting Apple's approach to FRAND negotiations).

27 <sup>10</sup> ETSI IP Rights Policy, § 12, Appendix A.1.

1 FRAND terms in December 2022, then failed to respond to 5GIP in any way until April 2023.<sup>11</sup>

2 95. At that point, 400 days after first being placed on notice, Apple did not provide an addi-  
3 tional counteroffer, but instead asserted for the first time that it had a license to the Asserted Pa-  
4 tents based on its agreements with Foxconn Technology Group. 5GIP investigated Apple's claim  
5 based on the information available to it and found it meritless. And then when repeatedly asked,  
6 Apple failed to provide any documents showing it was licensed based on its agreements with  
7 Foxconn Technology Group.

8 96. Taken together, Apple's behavior demonstrates a lack of willingness to enter into a  
9 FRAND license with 5GIP for the Accused Patents.

10 97. Apple's refusal to take a FRAND license or negotiate in good faith deprived 5GIP of  
11 royalties and resulted in substantial commercial benefit to Apple, through at least the sale of Ap-  
12 ple's 5G iPhones and iPads. In addition, Apple's refusal to take a FRAND license or negotiate in  
13 good faith has led 5GIP to expend the additional time and resources that it spent negotiating in  
14 good faith.

15 98. As a remedy for Apple's breach, 5GIP seeks compensation for its aforementioned losses  
16 and requests a declaratory judgment that Apple has repudiated and forfeited any rights associated  
17 with 5GIP's ETSI FRAND commitment.

18 **SIXTH CLAIM FOR RELIEF**

19 **DECLARATORY JUDGMENT THAT APPLE IS AN UNWILLING LICENSEE NOT**  
20 **ENTITLED TO THE BENEFITS OF 5GIP'S ETSI FRAND COMMITMENT**

21 99. 5GIP re-alleges and incorporates by reference paragraphs 1-33 above.

22 100. An entity which implements the 5G Standard must negotiate fairly and reasonably for  
23 underlying SEPs. If it does not, the entity becomes an unwilling licensee and is thus not entitled  
24 to the benefits of SEP holders' FRAND commitments.<sup>12</sup>

25 <sup>11</sup> See *Optis Cellular Tech. LLC v. Apple Retail UK Ltd., v. Huawei Techs.*, Case No. HP-2019-  
26 000006, at 119-21 (May 10, 2023 UK) (rejecting Apple's approach to FRAND negotiations).

27 <sup>12</sup> See *Apple Inc. v. Qualcomm Inc.*, No. 3:17-CV-00108, 2017 WL 3966944, at \*10 (S.D. Cal.  
28 Sept. 7, 2017) (“[I]f Apple wishes to enforce Qualcomm's commitment to ETSI it must demon-  
strate that it was a willing licensee and, therefore, a proper third-party beneficiary.”); *Unwired*



1 101. Apple is an unwilling licensee, as demonstrated by its refusing to negotiate in good  
2 faith with 5GIP, providing a non-FRAND counteroffer, refusing to respond to 5GIP's FRAND-  
3 related correspondence, and rejecting 5GIP's FRAND offers. As such, Apple has repudiated, re-  
4 jected, and/or forfeited any rights associated with 5GIP's ETSI FRAND commitment.

5 102. Accordingly, 5GIP seeks a declaration that Apple is an unwilling licensee not entitled  
6 to the benefits of 5GIP's ETSI FRAND commitment, including the right to assert itself as a  
7 third-party beneficiary of the ETSI FRAND commitment.

8 **PRAYER FOR RELIEF**

9 WHEREFORE, Plaintiff 5GIP demands judgment against Defendant Apple, including its  
10 affiliates, officers, agents, servants, employees, and all persons in active concert or participation  
11 with Apple, as follows:

12 A. An award to Plaintiff 5GIP of such damages under 35 U.S.C. § 284 as proven against De-  
13 fendant Apple for infringement of the '150 Patent, '163 Patent, and '385 Patent, together with  
14 pre-judgment and post-judgment interest;

15 B. A declaration that Defendant Apple has willfully infringed the '150 Patent, '163 Patent,  
16 and '385 Patent;

17 C. Under 35 U.S.C. § 284, an increase in the award of damages to Plaintiff 5GIP up to three  
18 times the amount of its actual damages for Defendant Apple's willful infringement;

19 D. Under 35 U.S.C. § 285, an award to Plaintiff 5GIP of its reasonable attorney's fees and  
20 the costs of this action;

21 E. An award to Plaintiff 5GIP of such damages as 5GIP proves against Defendant Apple for  
22 Defendant Apple's breach of contract and breach of its duty to negotiate in good faith;

23 F. A declaration that Defendant Apple has repudiated, rejected, and/or forfeited any rights  
24 associated with 5GIP's ETSI FRAND commitment, including the right to assert itself as a third-  
25 party beneficiary.

26 G. Such other and further relief as this Court deems just and appropriate.

27 

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*Planet Int'l v. Huawei Techs.* [2017] EWHC (Pat) 711, [160] (UK).

**JURY DEMAND**

5GIP demands a trial by jury on all issues so triable in this action.

Dated: August 4, 2023

Respectfully submitted,

/s/ Ken K. Fung

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