

**IN THE UNITED STATES DISTRICT COURT  
FOR THE WESTERN DISTRICT OF TEXAS  
AUSTIN DIVISION**

UNILOC USA, INC. and	§	
UNILOC LUXEMBOURG, S.A.,	§	Civil Action No. 1:18-cv-00158-LY
Plaintiffs,	§	
	§	
v.	§	PATENT CASE
	§	
APPLE INC.,	§	
	§	
Defendant.	§	
	§	

**FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT**

Plaintiffs, Uniloc USA, Inc. (“Uniloc USA”) and Uniloc Luxembourg, S.A. (“Uniloc Luxembourg”) (together, “Uniloc”), for their complaint against defendant, Apple Inc. (“Apple”), allege as follows:

**THE PARTIES**

1. Uniloc USA is a Texas corporation having a principal place of business at Legacy Town Center I, Suite 380, 7160 Dallas Parkway, Plano, Texas 75024.

2. Uniloc Luxembourg is a Luxembourg public limited liability company having a principal place of business at 15, Rue Edward Steichen, 4<sup>th</sup> Floor, L-2540, Luxembourg (R.C.S. Luxembourg B159161).

3. Apple is a California corporation, having a principal place of business in Cupertino, California and regular and established places of business at 12535 Riata Vista Circle and 5501 West Parmer Lane, Austin, Texas. Apple offers its products and/or services, including

those accused herein of infringement, to customers and potential customers located in Texas and in the judicial Western District of Texas.

**JURISDICTION**

4. Uniloc brings this action for patent infringement under the patent laws of the United States, 35 U.S.C. § 271, *et seq.* This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331, 1332(a), and 1338(a).

**COUNT I**

(INFRINGEMENT OF U.S. PATENT NO. 6,868,079)

5. Uniloc incorporates paragraphs 1-4 above by reference.

6. Uniloc Luxembourg is the owner, by assignment, of U.S. Patent No. 6,868,079 (“the ’079 Patent”), entitled RADIO COMMUNICATION SYSTEM WITH REQUEST RE-TRANSMISSION UNTIL ACKNOWLEDGED, which issued on March 15, 2005. A copy of the ’079 Patent is attached as Exhibit A.

7. Uniloc USA is the exclusive licensee of the ’079 Patent, with ownership of all substantial rights, including the right to grant sublicenses, to exclude others, and to enforce and recover past damages for infringement.

8. The ’079 Patent describes in detail and claims in various ways inventions in systems and devices developed by Koninklijke Philips Electronics N.V. around 1998 for improved communication of data therebetween wherein one or more secondary stations is allocated time slots in which to request services from a primary station.

9. The ’079 Patent describes problems and shortcomings in the then-existing field of communications between portable devices and describes and claims novel and inventive technological improvements and solutions to such problems and shortcomings. The technological improvements and solutions described and claimed in the ’079 Patent were not

conventional or generic at the time of their respective inventions but involved novel and non-obvious approaches to the problems and shortcomings prevalent in the art at the time.

10. The inventions claimed in the '079 Patent involve and cover more than just the performance of well-understood, routine and/or conventional activities known to the industry prior to the invention of such novel and non-obvious systems and devices by the '079 Patent inventor.

11. The inventions claimed in the '079 Patent represent technological solutions to technological problems. The written description of the '079 Patent describes in technical detail each of the limitations of the claims, allowing a person of ordinary skill in the art to understand what the limitations cover and how the non-conventional and non-generic combination of claim elements differed markedly from and improved upon what may have been considered conventional or generic.

12. Apple imports, uses, offers for sale, and sells in the United States electronic devices that implement 3G and LTE standards. Such devices include: (1) iPhone (1<sup>st</sup> generation), iPhone 3G, iPhone 3GS, iPhone 4, iPhone 4s, iPhone5, iPhone 5c, iPhone 5s, iPhone 6, iPhone 6 Plus, iPhone 6s, iPhone 6s Plus, iPhone SE, iPhone 7, iPhone 7 Plus, iPhone 8, iPhone 8 Plus, iPhone X smartphones, and (2) iPad (3rd, 4th and 5th generation), iPad Mini, iPad Mini 2, iPad Mini 3, iPad Mini 4, iPad Pro, iPad Air, iPad Air 2 tablets (collectively, "Accused Infringing Devices").

13. The Accused Infringing Devices are used in communications systems wherein one device is a primary device that allocates time slots to one or more secondary devices in which the secondary device(s) may request services from the primary device.

14. Apple has infringed, and continues to infringe, claims of the '079 Patent in the United States, including claims 17-18, by making, using, offering for sale, selling and/or importing the Accused Infringing Devices in violation of 35 U.S.C. §271(a). Using claim 17 merely as an illustrative example, the Accused Infringing Devices practice the claimed method of operating a radio communication system, comprising: allocating respective time slots in an uplink channel to a plurality of respective secondary stations. For example, the Accused Infringing Devices such as Apple phones and tablets implement 3G/ LTE standards. Such devices behave as secondary stations and communicate with the base station (primary station) in the radio communication system

iPhone X	iPhone 8 Plus	iPhone 8
<b>Cellular and Wireless</b>		
GSM/EDGE	GSM/EDGE	GSM/EDGE
UMTS/HSPA+	UMTS/HSPA+	UMTS/HSPA+
DC-HSDPA	DC-HSDPA	DC-HSDPA
CDMA EV-DO Rev. A (some models)	CDMA EV-DO Rev. A (some models)	CDMA EV-DO Rev. A (some models)
LTE Advanced <sup>7</sup>	LTE Advanced <sup>7</sup>	LTE Advanced <sup>7</sup>
802.11ac Wi-Fi with MIMO	802.11ac Wi-Fi with MIMO	802.11ac Wi-Fi with MIMO

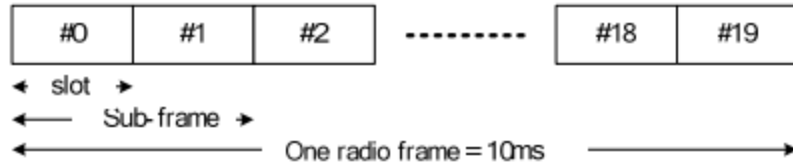
<https://www.apple.com/iphone/compare/>

For example, the LTE standard specifies a physical uplink control channel (PUCCH) used to transmit user signaling data from one or more terminals (secondary stations). The LTE standard also specifies two frame structure types for the PUCCH: frame structure Type 1 for FDD mode, and frame structure Type 2 for TDD mode. For the frame structure Type 1, a 10 ms radio frame is divided into 20 equally sized slots of 0.5 ms. For a given LTE cell, respective time slots in the PUCCH are allocated to one or more terminals within that cell on a sub-frame basis.

Downlink and uplink transmissions are organized into radio frames with 10 ms duration. Two radio frame structures are supported:

- Type 1, applicable to FDD,
- Type 2, applicable to TDD.

Frame structure Type 1 is illustrated in Figure 5.1-1. Each 10 ms radio frame is divided into ten equally sized sub-frames. Each sub-frame consists of two equally sized slots. For FDD, 10 subframes are available for downlink transmission and 10 subframes are available for uplink transmissions in each 10 ms interval. Uplink and downlink transmissions are separated in the frequency domain.

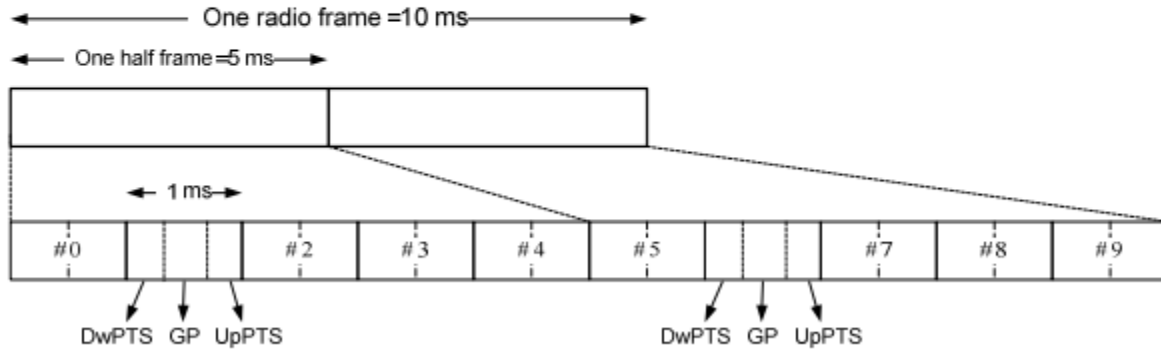


**Figure 5.1-1: Frame structure type 1**

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)  
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Frame structure Type 2 is illustrated in Figure 5.1-2. Each 10 ms radio frame consists of two half-frames of 5 ms each. Each half-frame consists of eight slots of length 0.5 ms and three special fields: DwPTS, GP and UpPTS. The length of DwPTS and UpPTS is configurable subject to the total length of DwPTS, GP and UpPTS being equal to 1ms. Both 5ms and 10ms switch-point periodicity are supported. Subframe 1 in all configurations and subframe 6 in configuration with 5ms switch-point periodicity consist of DwPTS, GP and UpPTS. Subframe 6 in configuration with 10ms switch-point periodicity consists of DwPTS only. All other subframes consist of two equally sized slots.

For TDD, GP is reserved for downlink to uplink transition. Other Subframes/Fields are assigned for either downlink or uplink transmission. Uplink and downlink transmissions are separated in the time domain.



**Figure 5.1-2: Frame structure type 2 (for 5ms switch-point periodicity)**

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)

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### 5.2.3 Physical uplink control channel

The PUCCH shall be mapped to a control channel resource in the uplink. A control channel resource is defined by a code and two resource blocks, consecutive in time, with hopping at the slot boundary.

Depending on presence or absence of uplink timing synchronization, the uplink physical control signalling can differ.

In the case of time synchronization being present, the outband control signalling consists of:

- CQI;
- ACK/NAK;
- Scheduling Request (SR)

The CQI informs the scheduler about the current channel conditions as seen by the UE. If MIMO transmission is used, the CQI includes necessary MIMO-related feedback.

The HARQ feedback in response to downlink data transmission consists of a single ACK/NAK bit per HARQ process.

PUCCH resources for SR and CQI reporting are assigned and can be revoked through RRC signalling. An SR is not necessarily assigned to UEs acquiring synchronization through the RACH (i.e. synchronised UEs may or may not have a dedicated SR channel). PUCCH resources for SR and CQI are lost when the UE is no longer synchronized.

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)

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#### Physical uplink control channel (PUCCH)

- Carries Hybrid ARQ ACK/NAKs in response to downlink transmission;
- Carries Scheduling Request (SR);
- Carries CQI reports.

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)

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The Accused Infringing Devices transmit a respective request for services to establish required services from at least one of the plurality of respective secondary stations to a primary station in

the respective time slots. For example, the LTE standard specifies several formats for the PUCCH according to the different types of information that the PUCCH can carry. PUCCH format 1 is used to transmit information regarding scheduling requests in which one or more terminals may request uplink resources (services) from the eNodeB (primary station).

Specifically, PUCCH format 1 is used to transmit, among other things, scheduling requests.

These scheduling requests are transmitted by a terminal in respective allocated time slots at every  $n$ th sub-frame.

**Physical uplink control channel (PUCCH)**

- Carries Hybrid ARQ ACK/NAKs in response to downlink transmission;
- Carries Scheduling Request (SR);
- Carries CQI reports.

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)

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### 5.2.3 Physical uplink control channel

The PUCCH shall be mapped to a control channel resource in the uplink. A control channel resource is defined by a code and two resource blocks, consecutive in time, with hopping at the slot boundary.

Depending on presence or absence of uplink timing synchronization, the uplink physical control signalling can differ.

In the case of time synchronization being present, the outband control signalling consists of:

- CQI;
- ACK/NAK;
- Scheduling Request (SR)

The CQI informs the scheduler about the current channel conditions as seen by the UE. If MIMO transmission is used, the CQI includes necessary MIMO-related feedback.

The HARQ feedback in response to downlink data transmission consists of a single ACK/NAK bit per HARQ process.

PUCCH resources for SR and CQI reporting are assigned and can be revoked through RRC signalling. An SR is not necessarily assigned to UEs acquiring synchronization through the RACH (i.e. synchronised UEs may or may not have a dedicated SR channel). PUCCH resources for SR and CQI are lost when the UE is no longer synchronized.

[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)

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Uplink control information (UCI) in subframe  $n$  shall be transmitted

- on PUCCH using format 1/1a/1b or 2/2a/2b if the UE is not transmitting on PUSCH in subframe  $n$
- on PUSCH if the UE is transmitting on PUSCH in subframe  $n$  unless the PUSCH transmission corresponds to a Random Access Response Grant or a retransmission of the same transport block as part of the contention based random access procedure, in which case UCI is not transmitted

[http://www.etsi.org/deliver/etsi\\_ts/136200\\_136299/136213/08.08.00\\_60/ts\\_136213v080800p.pdf](http://www.etsi.org/deliver/etsi_ts/136200_136299/136213/08.08.00_60/ts_136213v080800p.pdf)

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The following combinations of uplink control information on PUCCH are supported:

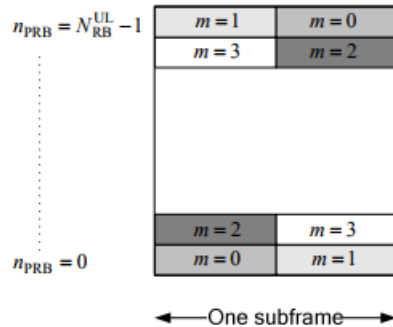
- HARQ-ACK using PUCCH format 1a or 1b
- HARQ-ACK using PUCCH format 1b with channel selection
- **Scheduling request (SR) using PUCCH format 1**
- HARQ-ACK and SR using PUCCH format 1a or 1b
- CQI using PUCCH format 2
- CQI and HARQ-ACK using PUCCH format
  - 2a or 2b for normal cyclic prefix
  - 2 for extended cyclic prefix

[http://www.etsi.org/deliver/etsi\\_ts/136200\\_136299/136213/08.08.00\\_60/ts\\_136213v080800p.pdf](http://www.etsi.org/deliver/etsi_ts/136200_136299/136213/08.08.00_60/ts_136213v080800p.pdf)

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Mapping of modulation symbols for the physical uplink control channel is illustrated in Figure 5.4.3-1.

In case of simultaneous transmission of sounding reference signal and PUCCH format 1, 1a or 1b, one SC-FDMA symbol on PUCCH shall be punctured.



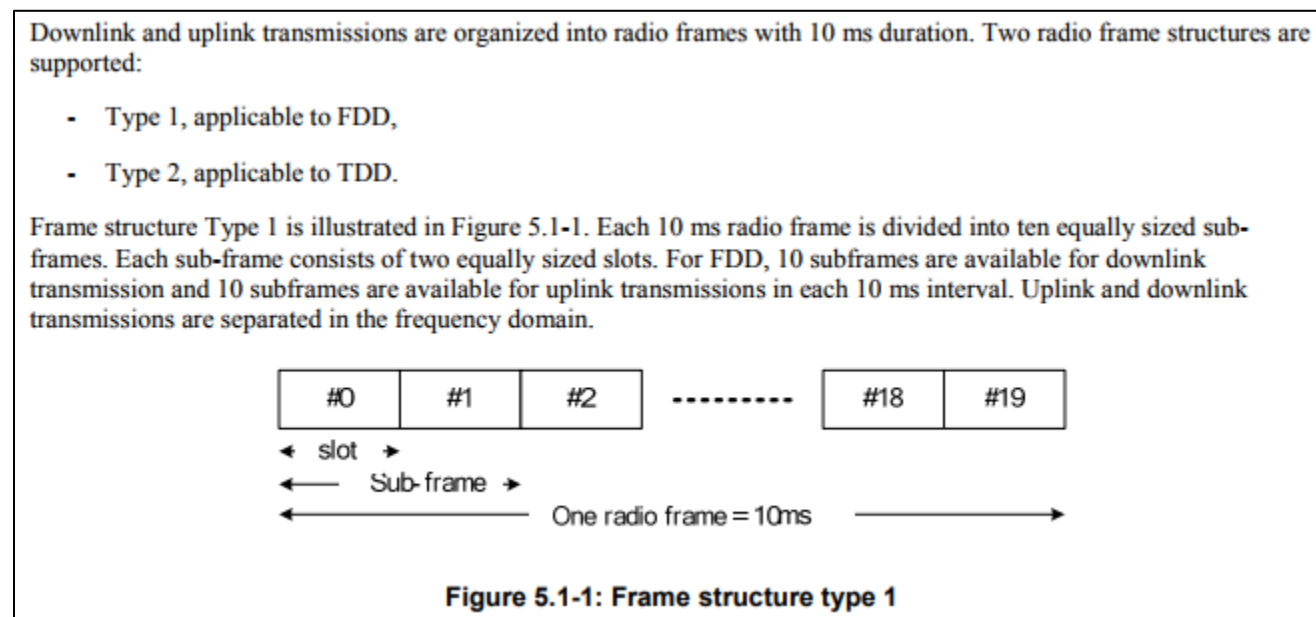
**Figure 5.4.3-1: Mapping to physical resource blocks for PUCCH.**

[http://www.etsi.org/deliver/etsi\\_ts/136200\\_136299/136211/08.09.00\\_60/ts\\_136211v080900p.pdf](http://www.etsi.org/deliver/etsi_ts/136200_136299/136211/08.09.00_60/ts_136211v080900p.pdf)

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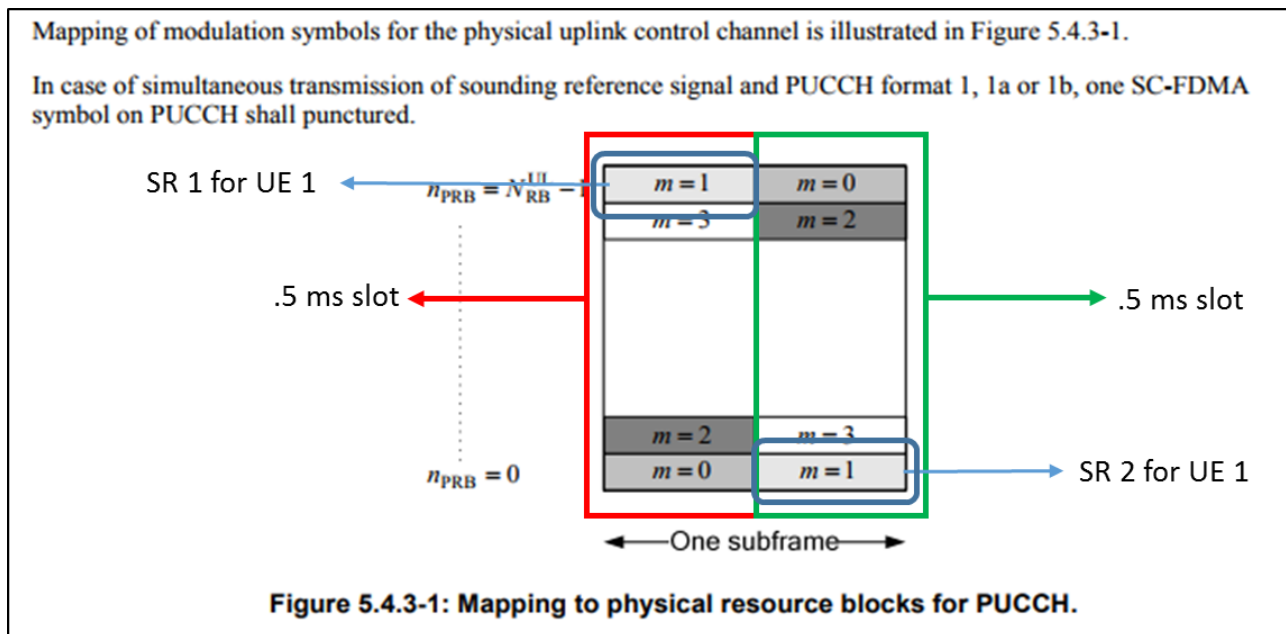
The Accused Infringing Devices practice the method of operating a radio communication system, wherein the at least one of the plurality of respective secondary stations re-transmits the same respective request in consecutive allocated time slots without waiting for an acknowledgement until said acknowledgement is received from the primary station. For

example, as shown above and reiterated below, the Type 1 frame structure for the PUCCH comprises a 10ms radio frame broken into 10 equal subframes of 1ms each.



[http://www.etsi.org/deliver/etsi\\_ts/136300\\_136399/136300/08.12.00\\_60/ts\\_136300v081200p.pdf](http://www.etsi.org/deliver/etsi_ts/136300_136399/136300/08.12.00_60/ts_136300v081200p.pdf)  
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Each subframe includes two .5ms time slots. Furthermore, each Scheduling Request is sent twice, once in each of the two consecutive .5ms subframe timeslots, separated in the frequency domain, which is repeated until a resource allocation (acknowledgement) is received.



[http://www.etsi.org/deliver/etsi\\_ts/136200\\_136299/136211/08.09.00\\_60/ts\\_136211v080900p.pdf](http://www.etsi.org/deliver/etsi_ts/136200_136299/136211/08.09.00_60/ts_136211v080900p.pdf)  
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The Accused Infringing Devices practice a method of operating a radio communication system, wherein the primary station determines whether a request for services has been transmitted by the at least one of the plurality of respective secondary stations by determining whether a signal strength of the respective transmitted request of the at least one of the plurality of respective secondary stations exceeds a threshold value. For example, the base stations determine whether a Scheduling Request has been transmitted on the PUCCH by detecting the presence of energy on the channel. When sufficient energy is detected to indicate the presence of a scheduling request the base station treats the transmission as a scheduling request from the respective mobile terminal.

Scheduling requests are used to request resources for uplink data transmission. Obviously, a scheduling request should only be transmitted when the terminal is requesting resources, otherwise the terminal should be silent to save battery resources and not create unnecessary interference. Hence, unlike hybrid-ARQ acknowledgements, no explicit information bit is transmitted by the scheduling request; instead the information is conveyed by the presence (or absence) of energy on the corresponding PUCCH. However, the scheduling request, although used for a completely different purpose, shares the same PUCCH format as the hybrid-ARQ acknowledgement. This format is referred to as *PUCCH format 1* in the specifications.<sup>14</sup>

#### 4G: LTE/LTE-Advanced for Mobile Broadband (Page 229)

15. Apple has also infringed, and continues to infringe, claims 17-18 of the '079 Patent by actively inducing others to use, offer for sale, and sell the Accused Infringing Devices. Apple's customers who use those devices in accordance with Apple's instructions infringe claims 17-18 of the '079 Patent, in violation of 35 U.S.C. § 271(a).

16. Apple has been on notice of the '079 patent since, at the latest, the service of the original Complaint. Apple has also been on notice of Uniloc's infringement allegations and theory of infringement since that date, and thus has known that its continued actions would contribute to the infringement of claims of the '079 patent.

17. Apple has actively induced, and continues to actively induce, infringement by others, including customers using the Accused Infringing Devices, by encouraging them to use, and instructing them how to use, those devices that Apple has intentionally designed and programmed to operate in accordance with the 3G and/or LTE Standards whereby the devices infringe the asserted claims of the '079 Patent.

18. Apple's customers who use those devices in accordance with Apple's intentions infringe claims of the '079 Patent. Apple intentionally instructs its customers to infringe through training videos, demonstrations, brochures, specifications and installation and user guides, such as those located at:

- [www.apple.com/iphone-x/specs/](http://www.apple.com/iphone-x/specs/)

- [www.apple.com/iphone-8/specs/](http://www.apple.com/iphone-8/specs/)
- [www.apple.com/iphone-7/specs/](http://www.apple.com/iphone-7/specs/)
- [www.apple.com/iphone-6s/specs/](http://www.apple.com/iphone-6s/specs/)
- [www.apple.com/iphone-se/specs/](http://www.apple.com/iphone-se/specs/)
- [www.apple.com/ipad-pro/specs/](http://www.apple.com/ipad-pro/specs/)
- [www.apple.com/ipad-9.7/specs/](http://www.apple.com/ipad-9.7/specs/)
- [www.apple.com/ipad-mini-4/specs/](http://www.apple.com/ipad-mini-4/specs/)
- [www.apple.com/iphone/LTE/](http://www.apple.com/iphone/LTE/)
- [www.apple.com/ipad/LTE/](http://www.apple.com/ipad/LTE/)
- <https://support.apple.com/en-us/HT201673>
- <https://support.apple.com/en-us/HT203124>
- <https://support.apple.com/en-us/HT204039>

19. In its marketing and instructional materials, including those identified above, Apple specifically and intentionally instructs its customers to use the Apple Wireless Devices in an infringing manner. Apple has intentionally designed and sells the Accused Infringing Devices to automatically operate in normal mode in compliance with the 3G and/or LTE Standards in violation of the '079 Patent, as shown, for example, below:

20. In its marketing and instructional materials, including those identified above, Apple specifically and intentionally instructs its customers to use the Apple Wireless Devices in an infringing manner. Apple has intentionally designed and sells the Accused Infringing Devices to automatically operate in normal mode in compliance with the 3G and/or LTE standards in violation of the '079 Patent as shown, for example, below:

iPhone X	iPhone 8 Plus	iPhone 8
<b>Cellular and Wireless</b>		
GSM/EDGE	GSM/EDGE	GSM/EDGE
UMTS/HSPA+	UMTS/HSPA+	UMTS/HSPA+
DC-HSDPA	DC-HSDPA	DC-HSDPA
CDMA EV-DO Rev. A (some models)	CDMA EV-DO Rev. A (some models)	CDMA EV-DO Rev. A (some models)
LTE Advanced <sup>1</sup>	LTE Advanced <sup>1</sup>	LTE Advanced <sup>1</sup>
802.11ac Wi-Fi with MIMO	802.11ac Wi-Fi with MIMO	802.11ac Wi-Fi with MIMO

Source: <https://www.apple.com/iphone/compare/>

21. Apple intends and knows that its customers use the Accused Infringing Devices to operate in compliance with the 3G and/or LTE Standards. When the Accused Infringing Devices are used as intended by Apple, Apple intentionally induces such infringement.

22. Apple has known and intended, since service of the original Complaint, that its continuing encouragement and instructions to perform those infringing acts would induce performance of the infringing acts by others, including customers. Despite that knowledge, and as evidence of its intent, Apple has refused to discontinue the inducing acts and refused to remove the infringing functionality from the Accused Infringing Devices.

23. Apple has also infringed, and continues to infringe, claims 17-18 of the '079 patent by offering to commercially distribute, commercially distributing, or importing the Accused Infringing Devices which devices are used in practicing the processes, or using the systems, of the '079 patent, and constitute a material part of the invention. For example, the Accused Infringing Devices include software for causing the devices to perform the steps of the claimed method of operating a radio communication system ("Infringing Software"), which is packaged with other software in the Accused Infringing Devices. Apple knows that the Infringing Software is especially made or especially adapted for use in infringement of the '079 patent, not a staple article, and not a commodity of commerce suitable for substantial non-

infringing use. Apple is thereby liable for infringement of the '079 Patent under 35 U.S.C. § 271(c).

24. Apple has been on notice of the '079 Patent and of its and its customers' infringement thereof, since at the latest the date of the service of the original complaint upon it. By the time of trial, Apple will have known and intended (since receiving such notice) that its continued actions would actively induce and contribute to the infringement of claims 17-18 of the '079 Patent.

25. Apple may have infringed the '079 Patent through other software and devices utilizing the same or reasonably similar functionality, including other versions of the Accused Infringing Devices.

26. Uniloc has been damaged by Apple's infringement of the '079 Patent.

#### **PRAYER FOR RELIEF**

Uniloc requests that the Court enter judgment against Apple:

- (A) declaring that Apple has infringed the '079 Patent;
- (B) awarding Uniloc its damages suffered as a result of Apple's infringement of the '079 Patent;
- (C) awarding Uniloc its costs, attorneys' fees, expenses, and interest, and
- (D) granting Uniloc such further relief as the Court finds appropriate.

Date: May 30, 2018

Respectfully submitted,

/s/ Kevin Gannon

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**ATTORNEYS FOR THE PLAINTIFFS**

**CERTIFICATE OF SERVICE**

I certify that all counsel of record who have consented to electronic service are being served with a copy of this document via the Court's CM/ECF system per Local Rule CV-5(a)(3) on May 30, 2018.

/s/ Kevin Gannon

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Kevin Gannon