IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

CELLULAR EVOLUTION LLC,	§	
	§	
Plaintiff,	§	
	§	**Case No. 2:19-cv-00232**
v.	§	
	§	**Jury Trial Requested**
T-MOBILE US, INC. AND T-MOBILE USA, INC.,	§	
	§	
	§	
Defendants.	§	
	§	
	§	
	§	

CELLULAR EVOLUTION LLC'S
FIRST AMENDED COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff Cellular Evolution LLC ("Cellular Evolution" or "Plaintiff") hereby submits this First Amended Complaint against Defendants T-Mobile US, Inc. ("TUS") and T-Mobile USA, Inc. ("TUSA") and states as follows:

THE PARTIES

1. Cellular Evolution is a Delaware limited liability company, having a principal place of business at 26552 La Alameda Ave., Suite 360, Mission Viejo, CA 92691.

2. On information and belief, TUS is a corporation organized and existing under the laws of the State of Delaware, with a principal place of business in Bellevue, Washington.

3. On information and belief, TUSA is a corporation organized and existing under the laws of the State of Delaware, with a principal place of business in Bellevue, Washington

4. On information and belief, TUSA is a wholly owned subsidiary of TUS.

5. On information and belief, in 2013, MetroPCS Communications, Inc. consummated a business combination transaction pursuant to an agreement with TUSA, T-Mobile Global Holding GmbH, T-Mobile Global Zwischenholding GmbH, and Deutsche Telekom AG. In connection with the transaction, MetroPCS Communications, Inc. was renamed T-Mobile US, Inc.[1]

6. On information and belief, MetroPCS Communications, Inc. changed its name to T-Mobile US, Inc. upon consummation with T-Mobile USA, Inc. on April 30, 2013.[2]

7. On information and belief, MetroPCS Wireless, Inc. was merged with and into T-Mobile USA, Inc. in connection with the April 30, 2013 business transaction.[3]

[1] *Mobility Workx, LLC v. T-Mobile US, Inc. et al., No. 4:17-cv-00567 (E.D. Tex. Oct. 12, 2017), ECF No. 16* at ¶ 7.
[2] *Id. at* ¶ 4.
[3] *Id.*

8. On information and belief, TUSA operates wireless networks across the United States and provides wireless communication services to customers under brands T-Mobile and MetroPCS.[4]

9. Collectively, TUSA, TUS, MetroPCS Communications, Inc., and MetroPCS Wireless, Inc. are referred to herein as "T-Mobile."

JURISDICTION AND VENUE

10. This Court has subject matter jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1338(a) because this action arises under the patent laws of the United States, 35 U.S.C. §§ 101 *et seq.*

11. Defendants have solicited business in the State of Texas, transacted business within the State of Texas and attempted to derive financial benefit from residents of the State of Texas, including benefits directly related to the instant patent infringement cause of action set forth herein.

12. This Court has personal jurisdiction over T-Mobile. T-Mobile has regularly conducted and continues to conduct business in the State of Texas and in the Eastern District of Texas. On information and belief, T-Mobile has committed acts of infringement in the United States, in Texas, and in this federal judicial district.

13. On information and belief, T-Mobile maintains a field office in Richardson, Texas.

14. On information and belief, T-Mobile maintains regular and established places of business in this District. For example, T-Mobile maintains or controls retail stores in this district, including at least a T-Mobile branded store at 900 E End Blvd N Ste 100, Marshall, TX 75670 (https://www.t-mobile.com/store-locator?page=1&search=Marshall,%20TX,%20USA).

[4] *Id.* at ¶ 10.

15. T-Mobile's regional headquarters including research and development facilities are located in this District, at 7668 Warren Pkwy, Frisco, TX 75034. On information and belief, at least 750 T-Mobile employees are at this location, and T-Mobile had plans to add an additional 350 employees at this location. That headquarters is a physical place located in this District, and is held out as a regular and established place of business by T-Mobile, including by signage indicating that T-Mobile operates out of the building.

https://www.dallasnews.com/business/real-estate/2017/12/13/t-mobile-growing-frisco-regional-hq-plans-350-hires

16. Similarly, T-Mobile operates MetroPCS stores in Texas and in this district including at least a MetroPCS branded store at 222 E End Blvd S APT C, Marshall, TX 75670 (https://www.metrobyt-mobile.com/storelocator).

17. Venue is proper in this federal district pursuant to 28 U.S.C. 1400(b).

18. On information and belief, T-Mobile has committed and continues to commit acts of infringement in this district. On information and belief, T-Mobile maintains a "regular and

established" place of business in this federal judicial district, including by (a) maintaining or controlling retail stores in this federal judicial district; (b) maintaining and operating infringing base stations in this federal judicial district, including on cellular towers and other installation sites owned or leased by T-Mobile; and (c) maintaining and operating other places of business, including those where research and development and sales are conducted, where customer service is provided, or where repairs are made.

19. In other recent actions, T-Mobile has either admitted or not contested that this federal judicial district is a proper venue for patent infringement actions against it. *See, e.g.,* Answer ¶ 5, *Preferential Networks IP, LLC v. T-Mobile US, Inc. et al.,* No. 2:17-cv-00626 (E.D. Tex. Nov. 1, 2017), ECF No. 17; Answer ¶ 5, *Traxcell Techs., LLC v. T-Mobile USA, Inc.,* No. 2:17-cv-00720 (E.D. Tex. Jan 23, 2018), ECF No. 8.

20. T-Mobile derives benefits from its presence in this federal judicial district, including, but not limited to, sales revenue. For example, T-Mobile receives revenue from its corporate stores in this district, by selling network access, phone products, and services and by receiving payment for its network access, phone/products, and services.

SUMMARY

21. On information and belief, in 2008, T-Mobile began the commercial launch of its Third Generation (3G) wireless network by launching its UMTS/HSPDA network.[5] In a press release in 2008, T-Mobile announced that the "company today offers multiple phones that are able to operate on the UMTS network."[6]

22. On information and belief, in order for a device to connect to the local network on the T-Mobile network, the device has to support both (1) the frequency (band) the T-Mobile

[5] https://www.t-mobile.com/news/t-mobile-usa-begins-commercial-3g-network-rollout.
[6] *Id.*

network uses in the area; and (2) the technology (4G LTE, 4G, 3G, 2G) that local network is using on that band.[7]

23. On information and belief, the T-Mobile network has supported and continues to support the 3G (UMTS/HSPA) network technology.[8]

24. UMTS is an umbrella term for the third generation ("3G") radio technologies developed within the 3GPP.[9]

25. The 3rd Generation Partnership Project ("3GPP") unites multiple telecommunications standard development organizations and provides their members with a stable environment to produce the Reports and Specifications that define the 3GPP technologies.[10]

26. One of the individual members of the 3GPP is The Alliance for Telecommunications Industry Solutions, USA ("ATIS").[11]

27. On information and belief, T-Mobile is a member of ATIS.[12]

28. On information and belief, by 2010, UMTS was among the most popular 3G mobile communication technologies.[13]

29. On information and belief, T-Mobile currently has a 3G network extending throughout the United States. On information and belief, the map below shows the coverage of T-Mobile's 3G network in the United States:[14]

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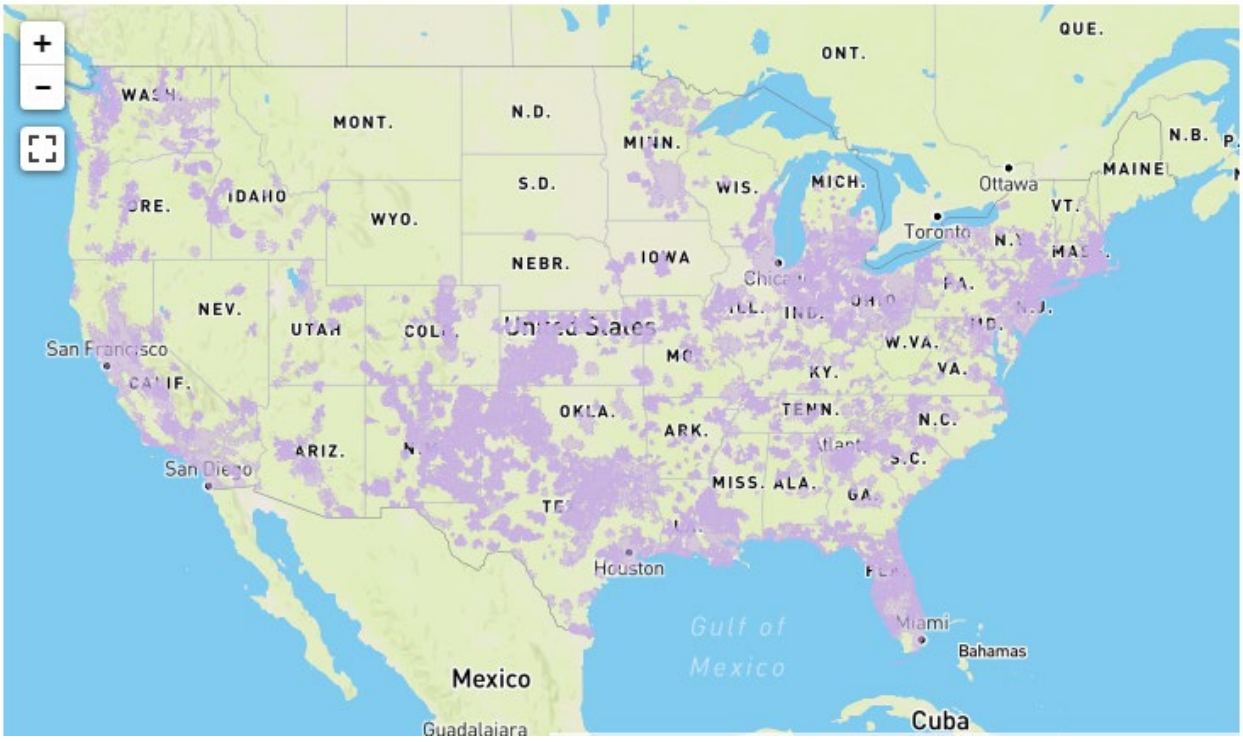
[7] https://support.t-mobile.com/docs/DOC-4988.
[8] https://support.t-mobile.com/docs/DOC-4988.
[9] https://www.3gpp.org/technologies/keywords-acronyms/103-umts.
[10] https://www.3gpp.org/about-3gpp.
[11] https://www.3gpp.org/about-3gpp/partners.
[12] https://www.atis.org/01_membership/members/.
[13] F. Qian, Z. Wang, A. Gerber, Z. M. Mao, S. Sen, and O. Spatscheck. Characterizing Radio Resource Allocation for 3G Networks, IMC '10 Proceedings of the 10th ACM SIGCOMM conference on Internet measurement Pages 137-150, Melbourne, Australia, Nov. 01-30, 2010 [available at https://dl.acm.org/citation.cfm?id=1879159] ("Qian").
[14] https://www.whistleout.com/CellPhones/Guides/t-mobile-coverage-map; *see also* https://www.cellularmaps.com/3g_compare.shtml; https://www.sensorly.com/en/map/US/operator/29/T-Mobile/type/2G-3G/coverage/?center=37.02003283583586,-89.79652540442838&zoom=5



30. A UMTS network consists of three subsystems as shown in the figure below: (1) User Equipment (UE) which is essentially a mobile handset carried by an end user; (2) UMTS Terrestrial Radio Access Network (UTRAN) which allows connectivity between a UE and a Core Network and consists of base stations (called Node-Bs) and Radio Network Controllers (RNC), which control multiple Node-Bs; and (3) the Core Network ("CN") which is the backbone of the cellular network.[15]

[15] Qian, Fig. 1.

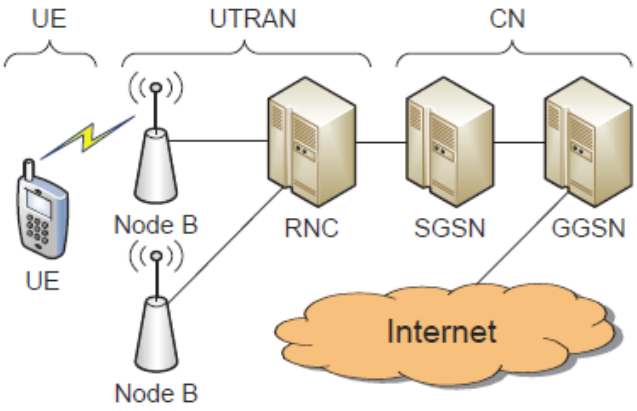


Figure 1: The UMTS architecture

31. 3GPP has adopted a standard which specifies the Radio Resource Control ("RRC") Protocol for the UE-UTRAN radio interface in a UMTS network which is titled Universal Mobile Telecommunications System (UMTS); Radio Resource Control (RRC); Protocol Specification and is set forth, for example, in 3GPP TS 25.331 and ETSI TS 125.331 ("UMTS RRC Protocol").

32. According to the UMTS RRC Protocol, "scheduling of system information blocks is performed by the RRC layer in UTRAN." UMTS RRC Protocol at 8.1.1.1.5. To that end, "system information is continuously broadcast on a regular basis in accordance with the scheduling defined for each system information block." UMTS RRC Protocol at 8.1.1.2. The UMTS RRC Protocol then requires that the "UE shall read SYSTEM INFORMATION messages broadcast on a BCH transport channel in idle mode and in the connected mode in states CELL_FACH, CELL_PCH, URA_PCH and CELL_DCH (TDD only)." UMTS RRC Protocol at 8.1.1.3.

33. On information and belief, implementation of the UMTS RRC Protocol is mandatory in a UMTS network.

34. 3GPP has also adopted a standard which specifies the Access Stratum (AS) part of the Idle Mode procedures applicable to a UE which is titled Universal Mobile Telecommunications System (UMTS); User Equipment (UE) procedures in idle mode and procedures for cell

reselection in connected mode and is set forth, for example, in 3GPP TS 25.304 and ETSI 125.304 ("UMTS UE Procedures").

35. The UMTS UE Procedures apply to all UEs that support at least UTRA, including multi-RAT UEs described in the 3GPP specifications in instances (a) when the UE is camped on a UTRA cell; and/or (b) when the UE is searching for a cell to camp on. UMTS UE Procedures at 7.

36. On information and belief, the implementation of the UMTS UE Procedures is mandatory in a UMTS network.

37. 3GPP has adopted a technical specification for the GSM, UMTS and LTE network architecture titled "Digital Cellular Telecommunications System (Phase 2+) (GSM); Universal Mobile Telecommunications System ("UMTS"); LTE; Network Architecture" as 3GPP TS 23.002 and ETSI TS 123.002 ("3GPP Network Architecture").

38. On information and belief, the T-Mobile network complies with the 3GPP Network Architecture.[16]

39. On information and belief, each Defendant is a 3rd Generation Partnership Project ("3GPP") member organization or is affiliated with a 3GPP member organization. 3GPP solicits identification of standard essential patents, and on information and belief through 3GPP, each Defendant received actual notice of the standard essential patents at issue here.

40. On information and belief, T-Mobile, as a sophisticated user of the patent system and a sophisticated industry leader in standard-setting bodies, had actual knowledge of the patents at issue here.

[16] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.

41. On information and belief, T-Mobile sells products for use on its network ("T-Mobile UE").[17] Carriers such as T-Mobile are not mere resellers of UEs. Instead, T-Mobile subsidizes and bundles UEs with cellular service plans.

42. Defendants are not licensed to the patents asserted in this Complaint, yet each Defendant knowingly, actively, and lucratively practices and induces others to practice the claims of the patents.

ASSERTED PATENTS

43. The Asserted Patents[18] resulted from research and development efforts by Pantech, a recognized industry pioneer responsible for several breakthrough innovations in mobile technology.[19] Established in 1991, Pantech became the third largest handset manufacturer in South Korea after LG and Samsung and the seventh largest handset manufacturer in the world.[20]

44. The Pantech inventors developed a system-wide solution in the Asserted Patents to address interoperability challenges and contributed their work to the European Telecommunications Standards Institute (ETSI) in order to pave the way for a unified, next-generation telecommunications network. In fact, due to their importance, the innovations of the Asserted Patents were declared essential to the Universal Mobile Telecommunications System ("UMTS") standard.

45. By the late 1990's, two mobile telecommunications system types became prevalent: synchronous systems and asynchronous systems. Due to significant differences between the protocols governing each system, core networks of one type could not provide services to mobile

[17] https://www.t-mobile.com/cell-phones.
[18] Attached as Exhibits A-E are U.S. Patent Nos. 6,741,868 (the "'868 Patent"); 7,110,788 (the "'788 Patent"); 7,203,514 (the "'514 Patent"); 7,505,783 (the "'783 Patent"); and 8,285,325 (the "'325 Patent").
[19] *See generally* Ex. F (collection of trade articles about Pantech).
[20] *Id.*

terminals of the opposite type. *See, e.g.,* Ex. A at 7:59-8:3. This incompatibility was a direct result of fundamental technological differences between the two systems. One such fundamental difference was the technical implementation of the manner in which network operations were synchronized in each system.

46. Mobile terminals operating in a synchronous system were designed to synchronize timing to an external system clock, receiving timing information before data transmission over message channels could occur. *See, e.g., id.* at 4:24-5:17; FIGS. 6, 7A. These synchronous mobile terminals had a baseline for understanding the behavior (e.g., response time) of other network devices that were synchronized to the same clock. In contrast, asynchronous mobile terminals received no such timing information. *See id.* at 5:65-6:31. Without the benefit of an agreed-upon timing, asynchronous mobile terminals had to perform different procedures to address this indeterminacy for various functions such as data transmission and call control. Consequently, the protocols for mobility management, call control, and radio resource control were distinct for the two types of networks. *See, e.g., id.* at 2:48-3:48, 5:6-52.

47. A disadvantage of prior art systems was that a synchronous terminal could only interface with a synchronous core network and an asynchronous terminal could only interface with an asynchronous core network. *See, e.g.,* Ex. A at 7:59-8:3. The Asserted Patents solve that problem by allowing a synchronous or asynchronous terminal to connect to both a synchronous and an asynchronous core network. *See, e.g.,* Ex. A at 8:14-30, 14:36-44; FIGS. 4A-5D; 14:4-16:52.

48. Using the methods disclosed in the Asserted Patents, regardless of whether the operative core network is synchronous or asynchronous, a hybrid terminal can smoothly interface

with the core network because it is able to recognize the operating type of the core network and information related to the core network. *See, e.g.,* Ex. A at 23:33-39.

49. The claimed inventive concepts greatly enhance and facilitate telecommunications systems, architectures and methods. The technological improvements described and claimed in the Asserted Patents were not conventional or generic at the time of their invention, but rather required novel and non-obvious solutions to problems and shortcomings in the art at the time. The inventions claimed in the Asserted Patents also cover more than just the performance of well-understood, routine or conventional activities known in the art.

50. The improvements disclosed and claimed in the Asserted Patents are accomplished by (1) using a new hybrid terminal instead of the conventional synchronous terminals and asynchronous terminals [*See, e.g.,* Ex. A at 14:36-44]; (2) using a new hybrid radio network that could interface with both synchronous and asynchronous core networks [*id.* at 7:9-20, 16:55-17:55, 21:9-22:5; FIGS. 8A-8B] and activate protocols depending on the operating type of the connected core network in order to extract information that would allow the hybrid terminal to operate in the suitable mode [*id.* at 15:5-10, 15:33-39]; (3) detecting the core network operating type using the hybrid radio network [*id.* at 18:25-38, 21:15-26]; (4) sending a system information message from the hybrid radio network to the hybrid terminal, which includes new information elements indicating the core network operating type and other information related to the core network [*id.* at 20:56-23:61; FIGS. 9A-12A]; (5) using a base station controller to interface between a base station in the hybrid radio network and a core network having the same or a different operating type with/from the base station [*id.* at FIG. 8A., 16:62-17:27]; and (6) using a terminal controller to interface the hybrid terminal with a core network, where the radio network is of a synchronous or asynchronous type [*id.* at FIG. 8B, 17:28-51].

51. Specifically, the act of sending a message that is indicative of the operating type of a core network alone could offer no improvement unless prior art terminals were modified to include capabilities for interpreting the message and carrying out its directives. *See, e.g.,* Ex. A at 14:35-44.

52. Conventional terminals needed to be overhauled with an altered structure for the protocol stack, new protocol entities, and modified controllers that could interpret and use core network operating type information. *See, e.g.,* Ex. A at 14:46-16:52, 17:27-59. In fact, the Layer 3 structure of traditional terminals had to be redesigned in order to create an unconventional hybrid terminal that could implement the methods disclosed by the Asserted Patents.

53. For example, as shown in FIG. 5B of the'868 Patent, the specification proposed a new hybrid type synchronous terminal (100) having a new Layer 3 configuration (as compared to Prior Art configuration of FIG. 2A) that facilitates interfacing with an asynchronous core network. *See, e.g.,* Ex. A at FIG. 5B, 15:21-38. Similarly, as shown in FIG. 5C, the specification proposed a new hybrid type asynchronous terminal (210) having a new Layer 3 configuration (as compared to Prior Art configuration of FIG. 2B) that facilitates interfacing with a synchronous core network. *See, e.g.,* Ex. A at FIG. 5C, 15:58-16:11. In each instance, the hybrid terminal is configured to selectively activate a synchronous call control (CC)/mobility management (MM) protocol or an asynchronous CC/MM protocol depending on whether the connected core network is synchronous or asynchronous. *See, e.g.,* Ex. A at 14:61-65. In addition to these structural changes, the hybrid terminals proposed by the Asserted Patents have to perform specific steps in order to be able to interface with a core network having the opposite type.

54. In the same manner, the Asserted Patents disclose new radio network equipment required to implement the disclosed methods. *See, e.g.,* '868 Pat. at 16:55-17:27. Like the hybrid

terminal, the recited hybrid radio network required unconventional structure and components in order to be able to implement the disclosed methods. For example, an unconventional base station controller is disclosed which includes, *inter alia*, a new management/maintenance block (813), which "determines an operating type of the core network to be connected" to the terminal. *See, e.g.,* Ex. A at FIG. 8A, 17:6-11; 18:28-45. Additionally, the unconventional base station controller includes a new call processing block (815) which provides the terminal with the core network operating type information and information related to the core network. *See, e.g.,* Ex. A at FIG. 8A, 17:18-28. Finally, an unconventional terminal controller having a call processing unit (823) and a management/maintenance unit (825) provides an interface between the unconventional hybrid terminal and the unconventional hybrid radio network. *See, e.g.,* Ex. A at FIG. 8B, 17:29-51.

55. The Asserted Patents disclose "setting" the operational mode of the hybrid terminal. *See, e.g.,* Ex. A at 20:4-39. This results in a modification of the actual radio signals being exchanged and the method of synchronization being used thereafter depending on whether the terminal is set to communicate with a synchronous or asynchronous core network. *See, e.g.,* Ex. A at 20:14-39; 23:13-39; FIGS. 11A, 11B. This ability expands the functionality of prior art terminals, which could not connect a call using certain networks, perform international roaming, or take advantage of a unified network with improved services. *See, e.g.,* Ex. A at 6:32-49.

56. Accordingly, the Asserted Patents create improvements for interoperability that were not only unavailable in prior art systems, but also unattainable without overhauls to conventional devices. *See, e.g.,* Ex. A at 14:36-44.

57. The Asserted Patents identify improvements that did not exist in prior art systems, such as, for example, a hybrid mobile terminal, a hybrid radio network, and unconventional

structure and components therein, including, but not limited to, a new management/maintenance unit, modified call processing block, modified terminal controller, and modified base station controller. Unlike prior art systems, the proposed configuration of the Asserted Patents allows a hybrid terminal to interface with both a synchronous and an asynchronous core network.

58. Due to the inventive combination of the disclosed elements, the Asserted Patents achieve benefits over prior art systems and methods. The Asserted Patents solve a technical challenge in prior art systems in which synchronous terminals were only operable on synchronous mobile telecommunications systems, asynchronous terminals were only operable on asynchronous mobile telecommunications systems, and the two configurations were incompatible.

59. The methods disclosed in the Asserted Patents allow a hybrid terminal to seamlessly switch from a core network having one synchronization type to a core network having another synchronization type. As such, the Asserted Patents improve operational flexibility of a mobile terminal.

60. The claims of the Asserted Patents do not preempt any abstract idea or otherwise preempt anything that would render them unpatentable. For example, one is free to practice at least the prior art of record. Similarly, the claims of the Asserted Patents are not directed to basic tools of scientific and technological work, fundamental economic practices or the use of an abstract mathematical formula.

61. The claims of the Asserted Patents cannot be practiced by a human alone. In fact, the concept of synchronous and asynchronous core networks and the ability of mobile terminals to interface with such networks exists only in the context of telecommunications systems.

COUNT I: INFRINGEMENT OF U.S. PATENT NO. 6,741,868

62. On May 25, 2004, the USPTO duly and legally issued United States Patent No. 6,741,868 ("the '868 Patent"), entitled "Method and Apparatus for Interfacing Among Mobile Terminal, Base Station, and Core Network in Mobile Telecommunications System." Cellular Evolution holds all rights, title, and interest in and to the '868 Patent. A true and correct copy of the '868 Patent is attached as Exhibit A.

63. Upon information and belief, Defendants have infringed directly and continue to infringe directly the '868 Patent. The infringing acts include, but are not limited to, the use of products and services practicing the UMTS RRC Protocol and UMTS UE Procedures adapted by 3GPP. The infringing activity includes at least compliance with the UMTS RRC Protocol and UMTS UE Procedures in T-Mobile's 3G network including the base stations constituting that network in the United States and the UE operating on that network.

64. On information and belief, T-Mobile's 3G network employs a UMTS network.[21] On information and belief, T-Mobile's 3G network complies with the UMTS RRC Protocol and practices the requirements set forth in that standard.

65. On information and belief, the T-Mobile UE complies with the UMTS UE Procedures.

66. T-Mobile advertises and promotes its 3G network on its website.[22]

67. T-Mobile offers for sale and sells products for use on its network ("T-Mobile UE").[23]

68. The T-Mobile UE includes, but is not limited to, for example, the following products: Samsung Galaxy S10e, Samsung Galaxy S10, Samsung Galaxy S10 Plus, Apple iPhone

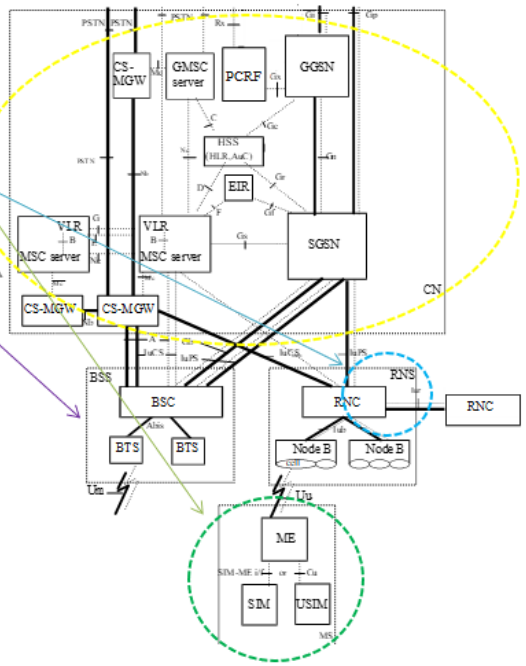
[21] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.
[22] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4963.
[23] https://www.t-mobile.com/cell-phones.

XR, Apple iPhone XS, Apple iPhone XS Max, LG G8 ThinQ, Samsung Galaxy Note9, Google Pixel 3a, Google Pixel 3a XL, OnePlus 7 Pro, Samsung Galaxy S9, OnePlus 6T, Google Pixel 3 XL, LG G7 ThinQ, LG V40 ThinQ, LG Q7+, Apple iPhone 8, Apple iPhone 8 Plus, Motorola moto g7 power, Apple iPhone 7, Apple iPhone 7 Plus, T-Mobile REVVL 2, T-Mobile REVVL 2 Plus, Motorola moto e play 5th Gen, Samsung Galaxy J3 Star, Samsung Galaxy J7 Star, Samsung Galaxy S8 Active, LG Aristo 2 Plus, LG Stylo 4, LG K30, Coolpad Snap, and Alcatel Go Flip.[24]

69. T-Mobile directly infringes the '868 Patent. For example, T-Mobile directly infringes representative claim 27 of the '868 patent because performance of all steps of the method claims of the '868 patent is attributable to T-Mobile.

70. Claim 27 of the '868 Patent recites a method for interfacing among a terminal, a radio network and a core network connected to the radio network in a mobile telecommunication system, wherein the radio network has a base station (BS). T-Mobile performs a method for interfacing among a terminal (UE), a radio network and a core network connected to the radio network in a mobile telecommunication system, wherein the radio network has a base station (BS). To the extent the preamble of claim 27 is deemed to be a limitation, it is performed by T-Mobile:

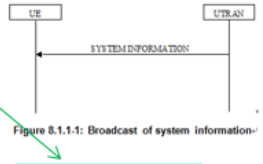
[24] https://www.t-mobile.com/cell-phones.

A method for interfacing among a terminal, a radio network and a core network connected to the radio network in a mobile telecommunication system, wherein the radio network has a base station (BS) and	**3GPP TS 23.002 v12.4.0** 

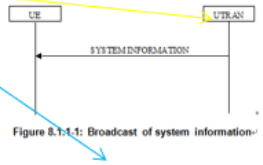
71. Claim 27 of the ‘868 Patent recites the terminal has a hybrid operating type being possible to be set as either a synchronous operating type or an asynchronous operating type. The UE and the T-Mobile radio network meet this limitation:

the terminal has a hybrid operating type being possible to be set as either a synchronous operating type or an asynchronous operating type, said method comprising the steps of:	**3GPP TS 25.304 V12.1.0** **Page 16** **5 Process and procedure descriptions** **5.1 PLMN selection** **5.1.1 General** In the UE, the AS shall report available PLMNs to the NAS on request from the NAS or autonomously. UE shall maintain a list of allowed PLMN types. The allowed PLMN type can be GSM-MAP only, ANSI-41 only or both. During PLMN selection, based on the list of allowed PLMN types and a list of PLMN identities in priority order, the particular PLMN may be selected either automatically or manually. Each PLMN in the list of PLMN identities can be identified by either 'PLMN identity' (GSM-MAP) or 'SID'. In the system information on the broadcast channel, the UE can receive a 'PLMN identity' (GSM-MAP) or a 'SID' or a 'PLMN identity' (GSM-MAP) and a 'SID', in a given cell. For a given cell, the UE might receive several 'PLMN identities' from the system information on the broadcast channel. The result of the PLMN selection is an identifier of the selected PLMN, the choice being based on the allowed PLMN types, UE capability or other factors. This identifier is one of either 'PLMN identity' for GSM-MAP type of PLMNs or 'SID' for ANSI-41 type of PLMNs. In case that the list of allowed PLMN types includes GSM-MAP, the non-access part of the PLMN selection process is specified in [5]. In the case that list of allowed PLMN types includes ANSI-41, the non-access stratum part of the PLMN selection is specified in TIA/EIA/IS-2000.5 and TIA/EIA/IS-707.

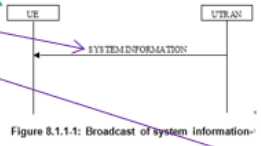
72. Claim 27 of the '868 Patent recites that the method comprises the step of storing core network operating type information and information related to the core network on a storage device. T-Mobile perform this step at the base stations of its 3G network:

a) storing core network operating type information and information related to the core network on a storage device;	**ETSI TS 125 331 V15.4.0** **Page 61** .8.1 RRC Connection Management Procedures .8.1.1 Broadcast of system information  Figure 8.1.1.1: Broadcast of system information **Note**: See below for PLMN type contained in the system information message from UTRAN to UE.

73. Claim 27 of the '868 Patent recites that the method comprises the step of reading the core network operating type information and information related to the core network stored on the storage device during a time period of initialization of the BS. T-Mobile performs this step at the base stations of its 3G network:

b) reading the core network operating type information and information related to the core network stored on the storage device during a time period of initialization of the BS;	**ETSI TS 125 331 V15.4.0** **Page 61** .8.1 RRC Connection Management Procedures .8.1.1 Broadcast of system information  Figure 8.1.1.1: Broadcast of system information **Note**: See below for PLMN type contained in the system information message from UTRAN to UE.

74. Claim 27 of the '868 Patent recites that the method comprises the step of providing the terminal with the core network operating type information and information related to the core network as a message through a predetermined channel. T-Mobile performs this step at the base stations of its 3G network:

c) providing the terminal with the core network operating type information and information related to the core network as a message through a predetermined channel;	**ETSI TS 125 331 V15.4.0** **Page 61** 8.1 RRC Connection Management Procedures 8.1.1 Broadcast of system information  Figure 8.1.1-1: Broadcast of system information **Note**: See below for PLMN type contained in the system information message from UTRAN to UE. **See page 62** 8.1.1.1 General The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell. 8.1.1.1.1 System information structure The system information elements are broadcast in *system information blocks*. A system information block groups

	See page 65 **Table 8.1.1: Specification of system information block characteristics** **System information block** / **Area scope** / **UE mode/state when block is valid** / **UE mode/state when block is read** / **Scheduling information** / **Modification of system information** / **Additional comment** Master information block / Cell / Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) / Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only) / SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2 / Value tag / See Note 5 **See page 765** 10.2.48.8.1 Master Information Block **Information Element/Group name** / **Need** / **Multi** / **Type and reference** / **Semantics description** / **Version** **Other information elements** / / / / / MIB Value tag / MP / / MIB Value tag 10.3.8.9 / / **CN information elements** / / / / / Supported PLMN types / MP / / PLMN Type 10.3.1.12 / / PLMN Identity / CV-*GSM* / / PLMN Identity 10.3.1.11 / /

page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-GSM" means that depending on or when the operating type of the core network is identified as GSM-MAP or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

ANSI-41 information elements					
ANSI-41 Core Network Information	CV-*ANSI-41*		ANSI-41 Core Network Information 10.3.9.1		
References to other system information blocks and scheduling blocks	MP		References to other system information blocks and scheduling blocks 10.3.8.14		

Condition	Explanation
ANSI-41	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-ANSI-41" means that depending on or when the operating type of the core network is identified as ANSI-41 or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

75. Claim 27 of the '868 Patent recites that the method comprises the step of extracting, at the terminal, the core network operating type information from a received message, the core network operating type information being inserted into a predetermined location of the message. A user operating a UE on the T-Mobile network performs this step under the direction and/or control of T-Mobile:

d) extracting, at the terminal, the core network operating type information from a received message, the core network operating type information being inserted into a predetermined location of the message;

ETSI TS 125 331 V15.4.0

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8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

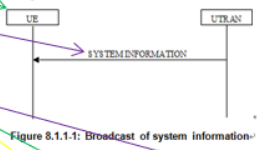

Figure 8.1.1-1: Broadcast of system information

Note: See below for PLMN type contained in the system information message from UTRAN to UE.

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See below for structure of the message.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Versi on

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-GSM" means that depending on or when the operating type of the core network is identified as GSM-MAP or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

ANSI-41 information elements					
ANSI-41 Core Network Information	CV-*ANSI-41*		ANSI-41 Core Network Information 10.3.9.1		
References to other system information blocks and scheduling blocks	MP		References to other system information blocks and scheduling blocks 10.3.8.14		

Condition	Explanation
ANSI-41	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-ANSI-41" means that depending on or when the operating type of the core network is identified as ANSI-41 or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

76. Claim 27 of the '868 Patent recites that the method comprises the step of recognizing, at the terminal, the operating type of the core network on the basis of the extracted core network operating type information. A user operating a UE on the T-Mobile network performs this step under the direction and/or control of T-Mobile:

e) recognizing, at the terminal, the operating type of the core network on the basis of the extracted core network operating type information; and

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8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

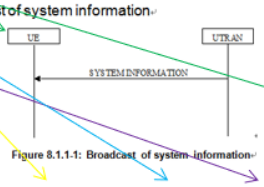


Figure 8.1.1-1: Broadcast of system information

Note: See below for PLMN type contained in the system information message from UTRAN to UE.

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-GSM" means that depending on or when the operating type of the core network is identified as GSM-MAP or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

ANSI-41 information elements					
ANSI-41 Core Network Information	CV-*ANSI-41*		ANSI-41 Core Network Information 10.3.9.1		
References to other system information blocks and scheduling blocks	MP		References to other system information blocks and scheduling blocks 10.3.8.14		

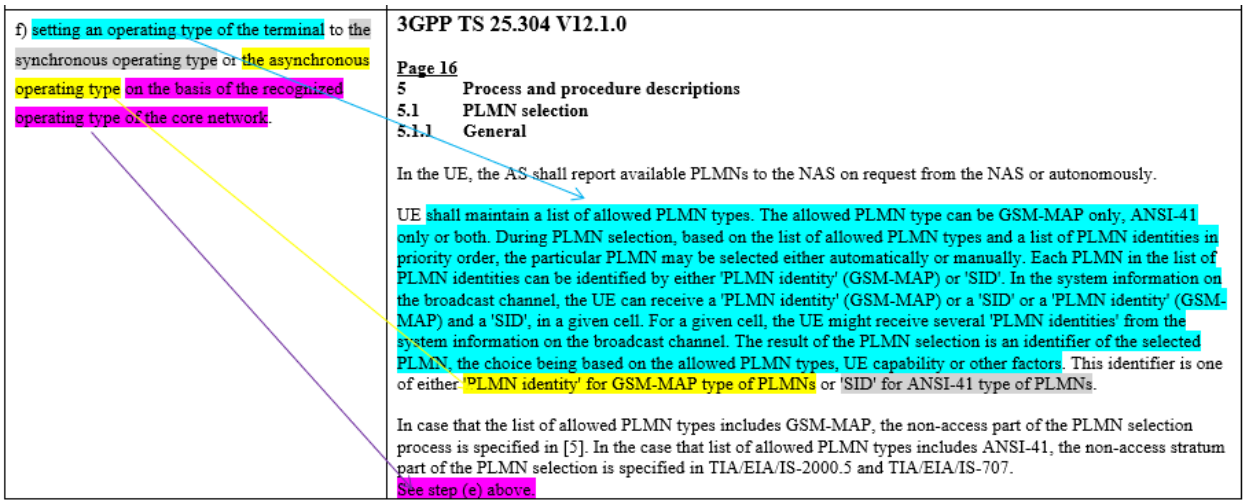
Condition	Explanation
ANSI-41	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-ANSI-41" means that depending on or when the operating type of the core network is identified as ANSI-41 or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

77. Claim 27 of the '868 Patent recites that the method comprises the step of setting an operating type of the terminal to the synchronous operating type or the asynchronous operating type on the basis of the recognized operating type of the core network. A user operating a UE on the T-Mobile network performs this step under the direction and/or control of T-Mobile:



f) setting an operating type of the terminal to the synchronous operating type or the asynchronous operating type on the basis of the recognized operating type of the core network.	**3GPP TS 25.304 V12.1.0** **Page 16** **5 Process and procedure descriptions** **5.1 PLMN selection** **5.1.1 General** In the UE, the AS shall report available PLMNs to the NAS on request from the NAS or autonomously. UE shall maintain a list of allowed PLMN types. The allowed PLMN type can be GSM-MAP only, ANSI-41 only or both. During PLMN selection, based on the list of allowed PLMN types and a list of PLMN identities in priority order, the particular PLMN may be selected either automatically or manually. Each PLMN in the list of PLMN identities can be identified by either 'PLMN identity' (GSM-MAP) or 'SID'. In the system information on the broadcast channel, the UE can receive a 'PLMN identity' (GSM-MAP) or a 'SID' or a 'PLMN identity' (GSM-MAP) and a 'SID', in a given cell. For a given cell, the UE might receive several 'PLMN identities' from the system information on the broadcast channel. The result of the PLMN selection is an identifier of the selected PLMN, the choice being based on the allowed PLMN types, UE capability or other factors. This identifier is one of either 'PLMN identity' for GSM-MAP type of PLMNs or 'SID' for ANSI-41 type of PLMNs. In case that the list of allowed PLMN types includes GSM-MAP, the non-access part of the PLMN selection process is specified in [5]. In the case that list of allowed PLMN types includes ANSI-41, the non-access stratum part of the PLMN selection is specified in TIA/EIA/IS-2000.5 and TIA/EIA/IS-707. See step (e) above.

78. Cellular Evolution is not asserting infringement of claims 15-26, 37-44, 58-69, and 83-102 of the '868 Patent.

79. T-Mobile provides consumers with instructions to activate and use UE on its network.[25] For instance, T-Mobile specifically instructs consumers to activate T-Mobile UE and non-T-Mobile UE on the T-Mobile network. [26]

80. On information and belief, the T-Mobile UE, as sold, contains the infringing software which operates in conjunction with the T-Mobile network in the infringing manner. T-Mobile establishes the manner and timing of a consumers' performance of the infringing steps using a T-Mobile UE on the T-Mobile network. On information and belief, a consumer using a T-Mobile UE has no control over the UE's compliance with the UMTS RRC Protocol and UMTS UE Procedures.

81. On information and belief, a consumer using the T-Mobile UE infringes the '868 Patent by virtue of turning on the T-Mobile UE on the T-Mobile network. Specifically, on information and belief, once a user turns on the T-Mobile UE no further action is required from

[25] *See, e.g.,* https://support.t-mobile.com/docs/DOC-10162; https://support.t-mobile.com/docs/DOC-6991; https://www.t-mobile.com/resources/device-switch-data-transfer-guide.
[26] *Id.*

the user to implement the claimed methods of the '868 Patent and the claimed methods are implemented automatically on the T-Mobile network. In fact, on information and belief, a user has no choice but to implement the infringing steps as those steps are required by the UMTS RRC Protocol and UMTS UE Procedures. Accordingly, performing the infringing steps is a technical prerequisite of using the T-Mobile UE.

82. On information and belief, a consumer hoping to obtain access to the T-Mobile network using the T-Mobile UE can only do so if he or she performs the infringing steps which are required by the UMTS RRC Protocol and UMTS UE Procedures and are programmed into the T-Mobile UE. On information and belief, the consumer performs the infringing steps under the terms prescribed by T-Mobile in compliance with the requirements of the T-Mobile network.

83. On information and belief, T-Mobile conditions the consumer's ability to use the T-Mobile UE on the T-Mobile network on the UE performing the infringing steps which are required by the UMTS RRC Protocol and UMTS UE Procedures. Moreover, in order for a user to obtain the benefits of the T-Mobile UE the user must use the device on the T-Mobile network.

84. On information and belief, benefits that T-Mobile conditions on consumers' performance of the infringing steps include, for example, allowing the UE to have a hybrid operating type which can be set as either a synchronous operating type or an asynchronous operating type and be able to selectively interface with either a synchronous or an asynchronous core network.

85. On information and belief, T-Mobile also directs and controls the performance of infringing steps by consumers who use non-T-Mobile UEs on the T-Mobile network. Specifically, non-T-Mobile UEs must comply with certain standards from the UMTS RRC Protocol and UMTS UE Procedures to communicate with the T-Mobile network. On information and belief, T-Mobile

conditions consumer participation in the T-Mobile network upon performance of the infringing steps. A consumer using a non-T-Mobile UE has no choice but to implement the infringing steps. Accordingly, the performance of the infringing steps is attributable to T-Mobile in instances when a consumer is using a non-T-Mobile UE on the T-Mobile 3G network.

86. The performance of all steps of the method claims of the '868 patent is attributable to T-Mobile because either T-Mobile actually performs those steps or because T-Mobile directs or controls the users who perform those steps using T-Mobile UE and/or non-T-Mobile UE.

87. The acts of infringement by Defendants have caused damage to Cellular Evolution, and Cellular Evolution is entitled to recover from Defendants the damages sustained by Cellular Evolution as a result of Defendants' wrongful acts in an amount subject to proof at trial. The infringement of Cellular Evolution's exclusive rights under the '868 Patent by the Defendants has damaged and will continue to damage Cellular Evolution.

88. The European Telecommunications Standards Institute ("ETSI") is a standardization organization in the telecommunications industry.[27]

89. ETSI is a founding partner of 3GPP.[28]

90. The ETSI IPR online database allows public access to patents which have been declared as being essential or potentially essential to ETSI and 3GPP Standards.[29]

91. An extract of the ESTI IPR Database is published twice a year in a Special Report SR 000 314.[30]

[27] https://www.etsi.org/about
[28] *Id.*
[29] https://www.etsi.org/intellectual-property-rights
[30] *Id.*

92. The '868 Patent has been declared essential to the UMTS RRC Protocol and identified as such in the ETSI Special Report SR 000 314.[31]

93. On information and belief, T-Mobile is and has been aware of ETSI SR 000 314. Further, on information and belief, T-Mobile is aware of ETSI SR 000 314 by virtue of its membership and involvement in ATIS and 3GPP.

94. The '868 Patent has been cited as a reference in patent applications filed by T-Mobile such as, for example, the patent application filed by T-Mobile Deutschland GmbH which issued as U.S. Patent No. 9,386,513.

95. Upon information and belief, T-Mobile actually knew of, or was willfully blind to, the existence of the '868 Patent, yet it continued to infringe said patent. T-Mobile's acts of infringement have been willful, deliberate, and in reckless disregard of Cellular Evolution's patent rights. Accordingly, Cellular Evolution is entitled to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT II: INFRINGEMENT OF U.S. PATENT NO. 7,110,788

96. On September 19, 2006, the United States Patent and Trademark Office ("USPTO") duly and legally issued United States Patent No. 7,110,788 ("the '788 Patent"), entitled "Method and Apparatus for Interfacing Among Mobile Terminal, Base Station and Core Network in Mobile Telecommunications System." Cellular Evolution holds all rights, title, and interest in and to the '788 Patent. A true and correct copy of the '788 Patent is attached as Exhibit B.

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31 https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=57494&curItemNr=1&totalNrItems=38&optDisplay=10&qSORT=HIGHVERSION&qETSI_ALL=TRUE&SearchPage=TRUE&qETSI_NUMBER=000+314&qINCLUDE_SUB_TB=True&qINCLUDE_MOVED_ON=&qSTOP_FLG=&qKEYWORD_BOOLEAN=&qCLUSTER_BOOLEAN=&qFREQUENCIES_BOOLEAN=&qSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=&includeSubProjectCode=&qREPORT_TYPE=

97. Upon information and belief, Defendants have infringed directly and continue to infringe directly the '788 Patent. The infringing acts include, but are not limited to, the use of products and services practicing the UMTS RRC Protocol and UMTS UE Procedures adapted by 3GPP. The infringing activity includes at least compliance with the UMTS RRC Protocol and UMTS UE Procedures in T-Mobile's 3G network including the base stations constituting that network in the United States and the UE operating on that network.

98. On information and belief, T-Mobile's 3G network employs a UMTS network.[32] On information and belief, T-Mobile's 3G network complies with the UMTS RRC Protocol and practices the requirements set forth in that standard.

99. On information and belief, the T-Mobile UE complies with the UMTS UE Procedures.

100. T-Mobile advertises and promotes its 3G network on its website.[33]

101. T-Mobile offers for sale and sells products for use on its network ("T-Mobile UE").[34]

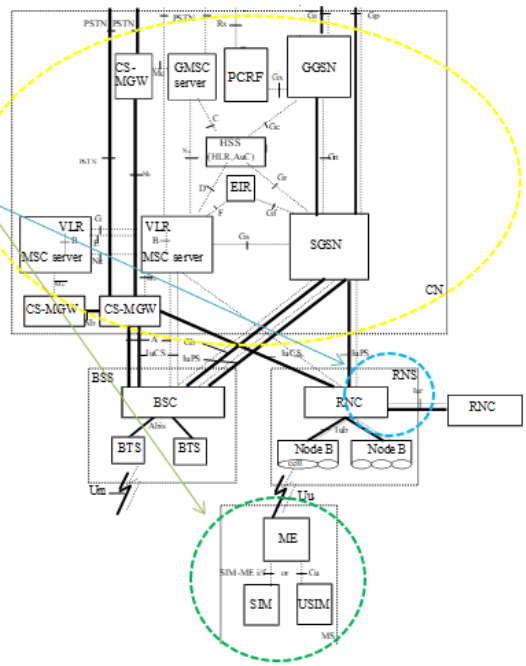
102. The T-Mobile UE includes, but is not limited to, for example, the following products: Samsung Galaxy S10e, Samsung Galaxy S10, Samsung Galaxy S10 Plus, Apple iPhone XR, Apple iPhone XS, Apple iPhone XS Max, LG G8 ThinQ, Samsung Galaxy Note9, Google Pixel 3a, Google Pixel 3a XL, OnePlus 7 Pro, Samsung Galaxy S9, OnePlus 6T, Google Pixel 3 XL, LG G7 ThinQ, LG V40 ThinQ, LG Q7+, Apple iPhone 8, Apple iPhone 8 Plus, Motorola moto g7 power, Apple iPhone 7, Apple iPhone 7 Plus, T-Mobile REVVL 2, T-Mobile REVVL 2

[32] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.
[33] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4963.
[34] https://www.t-mobile.com/cell-phones.

Plus, Motorola moto e play 5th Gen, Samsung Galaxy J3 Star, Samsung Galaxy J7 Star, Samsung Galaxy S8 Active, LG Aristo 2 Plus, LG Stylo 4, LG K30, Coolpad Snap, and Alcatel Go Flip.[35]

103. T-Mobile directly infringes the '788 Patent. For example, T-Mobile directly infringes representative claim 1 of the '788 patent because performance of all steps of the method claims of the '788 patent is attributable to T-Mobile.

104. Claim 1 of the '788 Patent recites a method for interfacing between a terminal and a core network connected to a radio network. T-Mobile performs a method for interfacing between a terminal and a core network connected to a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, it is performed by T-Mobile:

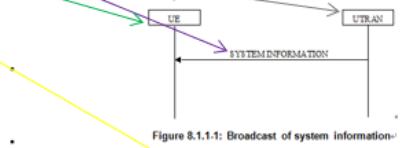
A method for interfacing between a terminal and a core network connected to a radio network,	**3GPP TS 23.002 v12.4.0** 

105. Claim 1 of the '788 Patent recites that the core network has an asynchronous operating type. The T-Mobile network meets this limitation:

[35] https://www.t-mobile.com/cell-phones.

the core network has an asynchronous operating type,	**3GPP TS 25.304 V12.1.0** **Page 16** **5 Process and procedure descriptions** **5.1 PLMN selection** **5.1.1 General** In the UE, the AS shall report available PLMNs to the NAS on request from the NAS or autonomously. UE shall maintain a list of allowed PLMN types. The allowed PLMN type can be GSM-MAP only, ANSI-41 only or both. During PLMN selection, based on the list of allowed PLMN types and a list of PLMN identities in priority order, the particular PLMN may be selected either automatically or manually. Each PLMN in the list of PLMN identities can be identified by either 'PLMN identity' (GSM-MAP) or 'SID'. In the system information on the broadcast channel, the UE can receive a 'PLMN identity' (GSM-MAP) or a 'SID' or a 'PLMN identity' (GSM-MAP) and a 'SID', in a given cell. For a given cell, the UE might receive several 'PLMN identities' from the system information on the broadcast channel. The result of the PLMN selection is an identifier of the selected PLMN, the choice being based on the allowed PLMN types, UE capability or other factors. This identifier is one of either 'PLMN identity' for GSM-MAP type of PLMNs or 'SID' for ANSI-41 type of PLMNs. In case that the list of allowed PLMN types includes GSM-MAP, the non-access part of the PLMN selection process is specified in [5]. In the case that list of allowed PLMN types includes ANSI-41, the non-access stratum part of the PLMN selection is specified in TIA/EIA/IS-2000.5 and TIA/EIA/IS-707.

106. Claim 1 of the ‘788 Patent recites that the method comprises the step of providing the terminal with a message including a core network operating type information. T-Mobile perform this step:

the method comprising the steps of: a) providing the terminal with a message including a core network operating type information; and	**ETSI TS 125 331 V15.4.0** **Page 61** 8.1 RRC Connection Management Procedures 8.1.1 Broadcast of system information  Figure 8.1.1-1: Broadcast of system information **Note**: See below for PLMN type contained in the system information message from UTRAN to UE.

107. Claim 1 of the ‘788 Patent recites that the method comprises the step of at the terminal, recognizing the operating type of the core network on the basis of the core network operating type information contained in the message. A user operating the T-Mobile UE performs this step under the direction and/or control of T-Mobile:

b) at the terminal, recognizing the operating type of the core network on the basis of the core network operating type information contained in the message,

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.8.1 RRC Connection Management Procedures

.8.1.1 Broadcast of system information

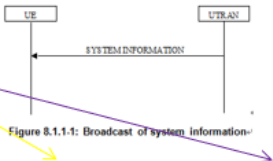

Figure 8.1.1.1: Broadcast of system information

Note: See below for PLMN type contained in the system information message from UTRAN to UE.

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

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Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

108. Claim 1 of the '788 Patent recites that the step is performed to thereby allow the terminal to operate according to the recognized operating type of the core network. In the T-Mobile UE this step is performed under the direction and/or control of T-Mobile to thereby allow the terminal to operate according to the recognized operating type of the core network:

to thereby allow the terminal to operate according to the recognized operating type of the core network.

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Page 11

The UE searches for a suitable cell of the selected PLMN and chooses that cell to provide available services, and tunes to its control channel. This choosing is known as "camping on the cell". The UE will, if necessary, then register its presence, by means of a NAS registration procedure, in the registration area of the chosen cell and as outcome of a successful Location Registration the selected PLMN becomes the registered PLMN [5].

109. Cellular Evolution is not asserting infringement of claims 25-36 and 45-56 of the '788 Patent.

110. T-Mobile provides consumers with instructions to activate and use UE on its network.[36] For instance, T-Mobile specifically instructs consumers to activate T-Mobile UE and non-T-Mobile UE on the T-Mobile network. [37]

111. On information and belief, the T-Mobile UE, as sold, contains the infringing software which operates in conjunction with the T-Mobile network in the infringing manner. T-Mobile establishes the manner and timing of a consumers' performance of the infringing steps using a T-Mobile UE on the T-Mobile network. On information and belief, a consumer using a T-Mobile UE has no control over the UE's compliance with the UMTS RRC Protocol and UMTS UE Procedures.

112. On information and belief, a consumer using the T-Mobile UE infringes the '788 Patent by virtue of turning on the T-Mobile UE on the T-Mobile network. Specifically, on information and belief, once a user turns on the T-Mobile UE no further action is required from the user to implement the claimed methods of the '788 Patent and the claimed methods are implemented automatically on the T-Mobile network. In fact, on information and belief, a user has no choice but to implement the infringing steps as those steps are required by the UMTS RRC Protocol and UMTS UE Procedures. Accordingly, performing the infringing steps is a technical prerequisite of using the T-Mobile UE.

113. On information and belief, a consumer hoping to obtain access to the T-Mobile network using the T-Mobile UE can only do so if he or she performs the infringing steps which

[36] *See, e.g.,* https://support.t-mobile.com/docs/DOC-10162; https://support.t-mobile.com/docs/DOC-6991; https://www.t-mobile.com/resources/device-switch-data-transfer-guide.
[37] *Id.*

are required by the UMTS RRC Protocol and UMTS UE Procedures and are programmed into the T-Mobile UE. On information and belief, the consumer performs the infringing steps under the terms prescribed by T-Mobile in compliance with the requirements of the T-Mobile network.

114. On information and belief, T-Mobile conditions the consumer's ability to use the T-Mobile UE on the T-Mobile network on the UE performing the infringing steps which are required by the UMTS RRC Protocol and UMTS UE Procedures. Moreover, in order for a user to obtain the benefits of the T-Mobile UE the user must use the device on the T-Mobile network.

115. On information and belief, benefits that T-Mobile conditions on consumers' performance of the infringing steps include, for example, allowing the UE to have a hybrid operating type which can be set as either a synchronous operating type or an asynchronous operating type and be able to selectively interface with either a synchronous or an asynchronous core network.

116. On information and belief, T-Mobile also directs and controls the performance of infringing steps by consumers who use non-T-Mobile UEs on the T-Mobile network. Specifically, non-T-Mobile UEs must comply with certain standards from the UMTS RRC Protocol and UMTS UE Procedures to communicate with the T-Mobile network. On information and belief, T-Mobile conditions consumer participation in the T-Mobile network upon performance of the infringing steps. A consumer using a non-T-Mobile UE has no choice but to implement the infringing steps. Accordingly, the performance of the infringing steps is attributable to T-Mobile in instances when a consumer is using a non-T-Mobile UE on the T-Mobile 3G network.

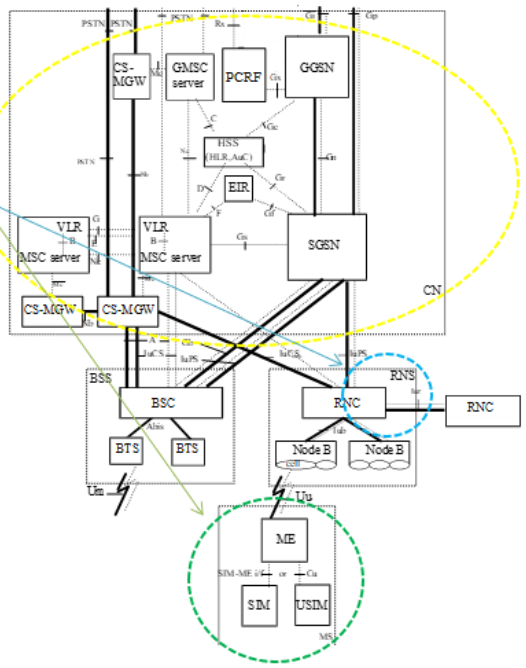
117. The performance of all steps of the method claims of the '788 patent is attributable to T-Mobile because either T-Mobile actually performs those steps or because T-Mobile directs or controls the users who perform those steps using T-Mobile UE and/or non-T-Mobile UE.

118. T-Mobile has knowledge of the ‘788 Patent at least as of the time of this Complaint for patent infringement.

119. On information and belief, T-Mobile has been and is now also indirectly infringing by way of inducing infringement and/or contributing to the infringement of the claims of the ‘788 Patent in this judicial district, and elsewhere within the United States by, among other things, making, using, selling, or offering for sale products and services utilizing its 3G network, covered by one or more claims of the ‘788 Patent, all to the injury of Cellular Evolution. In the case of such infringement, the users of User Equipment (UE) are the direct infringers of the ‘788 Patent.

120. A user using T-Mobile UE directly infringes the ‘788 Patent. For example, a user directly infringes representative claim 1 of the ‘788 patent.

121. Claim 1 of the ‘788 Patent recites a method for interfacing between a terminal and a core network connected to a radio network. A user of the T-Mobile UE performs a method for interfacing between a terminal and a core network connected to a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, it is met:

A method for interfacing between a terminal and a core network connected to a radio network,	**3GPP TS 23.002 v12.4.0** 

122. Claim 1 of the '788 Patent recites that the core network has an asynchronous operating type. The T-Mobile network meets this limitation:

the core network has an asynchronous operating type,	**3GPP TS 25.304 V12.1.0** **Page 16** **5 Process and procedure descriptions** **5.1 PLMN selection** **5.1.1 General** In the UE, the AS shall report available PLMNs to the NAS on request from the NAS or autonomously. UE shall maintain a list of allowed PLMN types. The allowed PLMN type can be GSM-MAP only, ANSI-41 only or both. During PLMN selection, based on the list of allowed PLMN types and a list of PLMN identities in priority order, the particular PLMN may be selected either automatically or manually. Each PLMN in the list of PLMN identities can be identified by either 'PLMN identity' (GSM-MAP) or 'SID'. In the system information on the broadcast channel, the UE can receive a 'PLMN identity' (GSM-MAP) or a 'SID' or a 'PLMN identity' (GSM-MAP) and a 'SID', in a given cell. For a given cell, the UE might receive several 'PLMN identities' from the system information on the broadcast channel. The result of the PLMN selection is an identifier of the selected PLMN, the choice being based on the allowed PLMN types, UE capability or other factors. This identifier is one of either 'PLMN identity' for GSM-MAP type of PLMNs or 'SID' for ANSI-41 type of PLMNs. In case that the list of allowed PLMN types includes GSM-MAP, the non-access part of the PLMN selection process is specified in [5]. In the case that list of allowed PLMN types includes ANSI-41, the non-access stratum part of the PLMN selection is specified in TIA/EIA/IS-2000.5 and TIA/EIA/IS-707.

123. Claim 1 of the '788 Patent recites that the method comprises the step of providing the terminal with a message including a core network operating type information. A user of T-Mobile UE performs this step when using the T-Mobile UE on the T-Mobile network:

the method comprising the steps of:

a) providing the terminal with a message including a core network operating type information; and

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8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

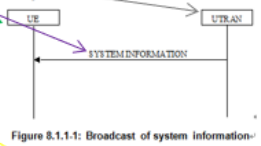

Figure 8.1.1-1: Broadcast of system information

Note: See below for PLMN type contained in the system information message from UTRAN to UE.

124. Claim 1 of the '788 Patent recites that the method comprises the step of at the terminal, recognizing the operating type of the core network on the basis of the core network operating type information contained in the message. A user operating the T-Mobile UE performs this step:

b) at the terminal, recognizing the operating type of the core network on the basis of the core network operating type information contained in the message.

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8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

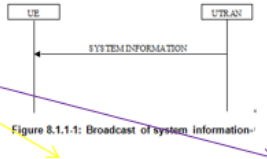


Figure 8.1.1-1: Broadcast of system information

Note: See below for PLMN type contained in the system information message from UTRAN to UE.

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

	See page 765 10.2.48.8.1 Master Information Block **Information Element/Group name** | **Need** | **Multi** | **Type and reference** | **Semantics description** | **Version** **Other information elements** MIB Value tag | MP | | MIB Value tag 10.3.8.9 **CN information elements** Supported PLMN types | MP | | PLMN Type 10.3.1.12 PLMN Identity | CV-*GSM* | | PLMN Identity 10.3.1.11 **See page 828** 10.3.1.12 PLMN Type Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol. **Information Element/Group name** | **Need** | **Multi** | **Type and reference** | **Semantics description** PLMN Type | MP | | Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41) | One spare value is needed.

125. Claim 1 of the '788 Patent recites that the step is performed to thereby allow the terminal to operate according to the recognized operating type of the core network. In the T-Mobile UE this step is performed to thereby allow the terminal to operate according to the recognized operating type of the core network:

to thereby allow the terminal to operate according to the recognized operating type of the core network.	**3GPP TS 25.304 V12.1.0** **Page 11** The UE searches for a suitable cell of the selected PLMN and chooses that cell to provide available services, and tunes to its control channel. This choosing is known as "camping on the cell". The UE will, if necessary, then register its presence, by means of a NAS registration procedure, in the registration area of the chosen cell and as outcome of a successful Location Registration the selected PLMN becomes the registered PLMN [5].

126. T-Mobile advertises and promotes its 3G network on its website.[38]

127. T-Mobile also sells products for use on its network ("T-Mobile UE").[39] On information and belief, T-Mobile provides, makes, uses, sells and offers for sale T-Mobile UE with the specific intent that its customers use that UE in an infringing manner on its 3G network. T-Mobile sells or offers for sale UE for use in practicing Cellular Evolution's patented claims. The UE provided, made, used, sold and offered for sale by T-Mobile and utilized in conjunction with T-Mobile's 3G network have no substantial non-infringing uses, and are known by T-Mobile to be especially made or especially adapted for use in an infringement of Cellular Evolution's patents by complying with the UMTS RRC Protocol and UMTS UE Procedures adapted by 3GPP.

128. The acts of infringement by Defendants have caused damage to Cellular Evolution, and Cellular Evolution is entitled to recover from Defendants the damages sustained by Cellular Evolution as a result of Defendants' wrongful acts in an amount subject to proof at trial. The infringement of Cellular Evolution's exclusive rights under the '788 Patent by the Defendants has damaged and will continue to damage Cellular Evolution.

129. The European Telecommunications Standards Institute ("ETSI") is a standardization organization in the telecommunications industry.[40]

130. ETSI is a founding partner of 3GPP.[41]

131. The ETSI IPR online database allows public access to patents which have been declared as being essential or potentially essential to ETSI and 3GPP Standards.[42]

[38] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4963.
[39] https://www.t-mobile.com/cell-phones.
[40] https://www.etsi.org/about
[41] *Id.*
[42] https://www.etsi.org/intellectual-property-rights

132. An extract of the ESTI IPR Database is published twice a year in a Special Report SR 000 314.[43]

133. The '788 Patent has been declared essential to the UMTS RRC Protocol and identified as such in the ETSI Special Report SR 000 314.[44]

134. On information and belief, T-Mobile is and has been aware of ETSI SR 000 314. Further, on information and belief, T-Mobile is aware of ETSI SR 000 314 by virtue of its membership and involvement in ATIS and 3GPP.

135. The '788 Patent has been cited as a reference in patent applications filed by T-Mobile such as, for example, the patent application filed by T-Mobile Deutschland GmbH which issued as U.S. Patent No. 9,386,513.

136. Upon information and belief, T-Mobile actually knew of, or was willfully blind to, the existence of the '788 Patent, yet it continued to infringe said patent. T-Mobile's acts of infringement have been willful, deliberate, and in reckless disregard of Cellular Evolution's patent rights. Accordingly, Cellular Evolution is entitled to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT III: INFRINGEMENT OF U.S. PATENT NO. 7,203,514

137. On April 10, 2007, the USPTO duly and legally issued United States Patent No. 7,203,514 ("the '514 Patent"), entitled "Method and Apparatus for Interfacing Among Mobile Terminal, Base Station and Core Network in Mobile Telecommunications System." Cellular

[43] *Id.*

[44] https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=57494&curItemNr=1&totalNrItems=38&optDisplay=10&qSORT=HIGHVERSION&qETSI_ALL=TRUE&SearchPage=TRUE&qETSI_NUMBER=000+314&qINCLUDE_SUB_TB=True&qINCLUDE_MOVED_ON=&qSTOP_FLG=&qKEYWORD_BOOLEAN=&qCLUSTER_BOOLEAN=&qFREQUENCIES_BOOLEAN=&qSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=&includeSubProjectCode=&qREPORT_TYPE=

Evolution holds all rights, title, and interest in and to the '514 Patent. A true and correct copy of the '514 Patent is attached as Exhibit C.

138. T-Mobile has knowledge of the '514 Patent at least as of the time of this Complaint for patent infringement.

139. On information and belief, T-Mobile has been and now is indirectly infringing by way of inducing infringement and/or contributing to the infringement of the claims of the '514 Patent in this judicial district, and elsewhere within the United States by, among other things, making, using, selling, or offering for sale products and services utilizing its 3G network, covered by one or more claims of the '514 Patent, all to the injury of Cellular Evolution. In the case of such infringement, the users of User Equipment (UE) are the direct infringers of the '514 Patent.

140. On information and belief, T-Mobile's 3G network employs a UMTS network.[45] On information and belief, T-Mobile's 3G network complies with the UMTS RRC Protocol and practices the requirements set forth in that standard.

141. On information and belief, the T-Mobile UE complies with the UMTS UE Procedures.

142. T-Mobile advertises and promotes its 3G network on its website.[46]

143. T-Mobile offers for sale and sells products for use on its network ("T-Mobile UE").[47]

144. The T-Mobile UE includes, but is not limited to, for example, the following products: Samsung Galaxy S10e, Samsung Galaxy S10, Samsung Galaxy S10 Plus, Apple iPhone XR, Apple iPhone XS, Apple iPhone XS Max, LG G8 ThinQ, Samsung Galaxy Note9, Google

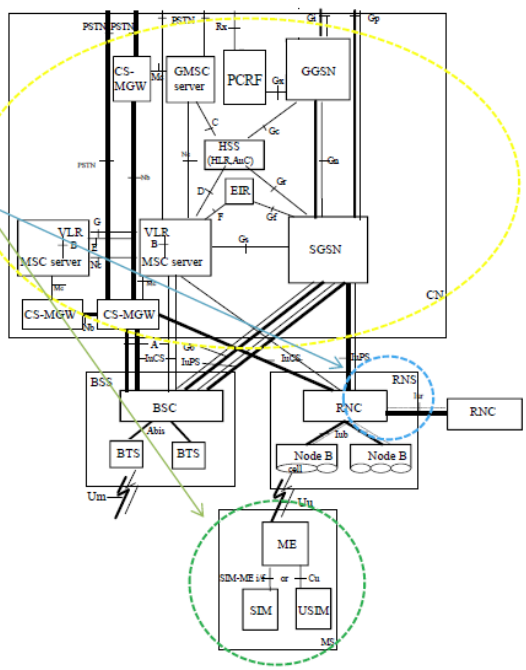
[45] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.
[46] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4963.
[47] https://www.t-mobile.com/cell-phones.

Pixel 3a, Google Pixel 3a XL, OnePlus 7 Pro, Samsung Galaxy S9, OnePlus 6T, Google Pixel 3 XL, LG G7 ThinQ, LG V40 ThinQ, LG Q7+, Apple iPhone 8, Apple iPhone 8 Plus, Motorola moto g7 power, Apple iPhone 7, Apple iPhone 7 Plus, T-Mobile REVVL 2, T-Mobile REVVL 2 Plus, Motorola moto e play 5th Gen, Samsung Galaxy J3 Star, Samsung Galaxy J7 Star, Samsung Galaxy S8 Active, LG Aristo 2 Plus, LG Stylo 4, LG K30, Coolpad Snap, and Alcatel Go Flip.[48]

145. T-Mobile indirectly infringes the '514 Patent. For example, T-Mobile indirectly infringes representative claim 1 of the '514 patent by inducing and/or contributing to the infringement of the method claimed therein in its 3G network. In the case of such infringement, the users of User Equipment (UE) are the direct infringers of the '514 Patent.

146. Claim 1 of the '514 Patent recites a method for interfacing between a terminal and a core network connected to a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, users of the T-Mobile UE perform a method for interfacing between a terminal and a core network connected to a radio network when using the T-Mobile UE:

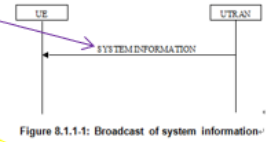
[48] https://www.t-mobile.com/cell-phones.

A method for interfacing between a terminal and a core network connected to a radio network,	3GPP TS 23.002 v12.4.0 

147. Claim 1 of the ‘514 Patent recites wherein the terminal has a hybrid operating type being possible to be set as either a synchronous operating type or an asynchronous operating type and the core network has a synchronous operating type. The T-Mobile UE has a hybrid operating type being possible to be set as either a synchronous operating type or an asynchronous operating type and the core network has a synchronous operating type:

wherein the terminal has a hybrid operating type being possible to be set as either a synchronous operating type or an asynchronous operating type and the core network has a synchronous operating type,	3GPP TS 25.304 V12.1.0 Page 16 **5 Process and procedure descriptions** **5.1 PLMN selection** **5.1.1 General** In the UE, the AS shall report available PLMNs to the NAS on request from the NAS or autonomously. UE shall maintain a list of allowed PLMN types. The allowed PLMN type can be GSM-MAP only, ANSI-41 only or both. During PLMN selection, based on the list of allowed PLMN types and a list of PLMN identities in priority order, the particular PLMN may be selected either automatically or manually. Each PLMN in the list of PLMN identities can be identified by either 'PLMN identity' (GSM-MAP) or 'SID'. In the system information on the broadcast channel, the UE can receive a 'PLMN identity' (GSM-MAP) or a 'SID' or a 'PLMN identity' (GSM-MAP) and a 'SID', in a given cell. For a given cell, the UE might receive several 'PLMN identities' from the system information on the broadcast channel. The result of the PLMN selection is an identifier of the selected PLMN, the choice being based on the allowed PLMN types, UE capability or other factors. This identifier is one of either 'PLMN identity' for GSM-MAP type of PLMNs or 'SID' for ANSI-41 type of PLMNs. In case that the list of allowed PLMN types includes GSM-MAP, the non-access part of the PLMN selection process is specified in [5]. In the case that list of allowed PLMN types includes ANSI-41, the non-access stratum part of the PLMN selection is specified in TIA/EIA/IS-2000.5 and TIA/EIA/IS-707.

148. Claim 1 of the '514 Patent recites a method comprising the step of recognizing an operating type of the core network on the basis of a core network operating type information contained in a message. Users of the T-Mobile UE perform the step of recognizing an operating type of the core network on the basis of a core network operating type information contained in a message when using the T-Mobile UE:

the method comprising the steps of: a) recognizing an operating type of the core network on the basis of a core network operating type information contained in a message,	**ETSI TS 125 331 V15.4.0** **Page 61** 8.1 RRC Connection Management Procedures 8.1.1 Broadcast of system information  Figure 8.1.1.1: Broadcast of system information **Note**: See below for PLMN type contained in the system information message from UTRAN to UE. **See page 62** 8.1.1.1 General The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

See page 828

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

149. Claim 1 of the '514 Patent recites that the prior step is performed to thereby allow the terminal to operate according to the recognized operating type of the core network. Users of the T-Mobile UE perform the step to thereby allow the terminal to operate according to the recognized operating type of the core network when using the T-Mobile UE:

to thereby allow the terminal to operate according to the recognized operating type of the core network.	**3GPP TS 25.304 V12.1.0** **Page 11** The UE searches for a suitable cell of the selected PLMN and chooses that cell to provide available services, and tunes to its control channel. This choosing is known as "camping on the cell". The UE will, if necessary, then register its presence, by means of a NAS registration procedure, in the registration area of the chosen cell and as outcome of a successful Location Registration the selected PLMN becomes the registered PLMN [5].

150. Claim 1 of the '514 Patent recites that the message is represented by:

INFORMATION ELEMENT	PRE-SENCE	MULTI	IE TYPE AND REFER-ENCE	SEMAN-TICS DESCRIP-TION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS		1 . . . <MAX SYS INFO BLOCK COUNT>		
>SCHEDULING INFORMATION	M			
CN INFORMATION ELEMENTS				
CN TYPE	M		ANSI-41	
ANSI-41 INFORMATION ELEMENTS	C-ANSI			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "GSM-MAP") OR (CN TYPE == "GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "ANSI-41") OR (CN TYPE == "GSM-MAP AND ANSI-41").

The message used by users of the T-Mobile UE meets this limitation:

wherein the message is represented by:

INFORMATION ELEMENT	PRE-SENCE	MULTI	IE TYPE AND REFER-ENCE	SEMAN-TICS DESCR-IPTION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS		1 . . . <MAX SYS INFO BLOCK COUNT>		
>SCHEDULING INFORMATION	M			
CN INFORMATION ELEMENTS				
CN TYPE	M		ANSI-41	
ANSI-41 INFORMATION ELEMENTS	C-ANSI			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "GSM-MAP") OR (CN TYPE == "GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "ANSI-41") OR (CN TYPE == "GSM-MAP AND ANSI-41").

ETSI TS 125 331 V15.4.0

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

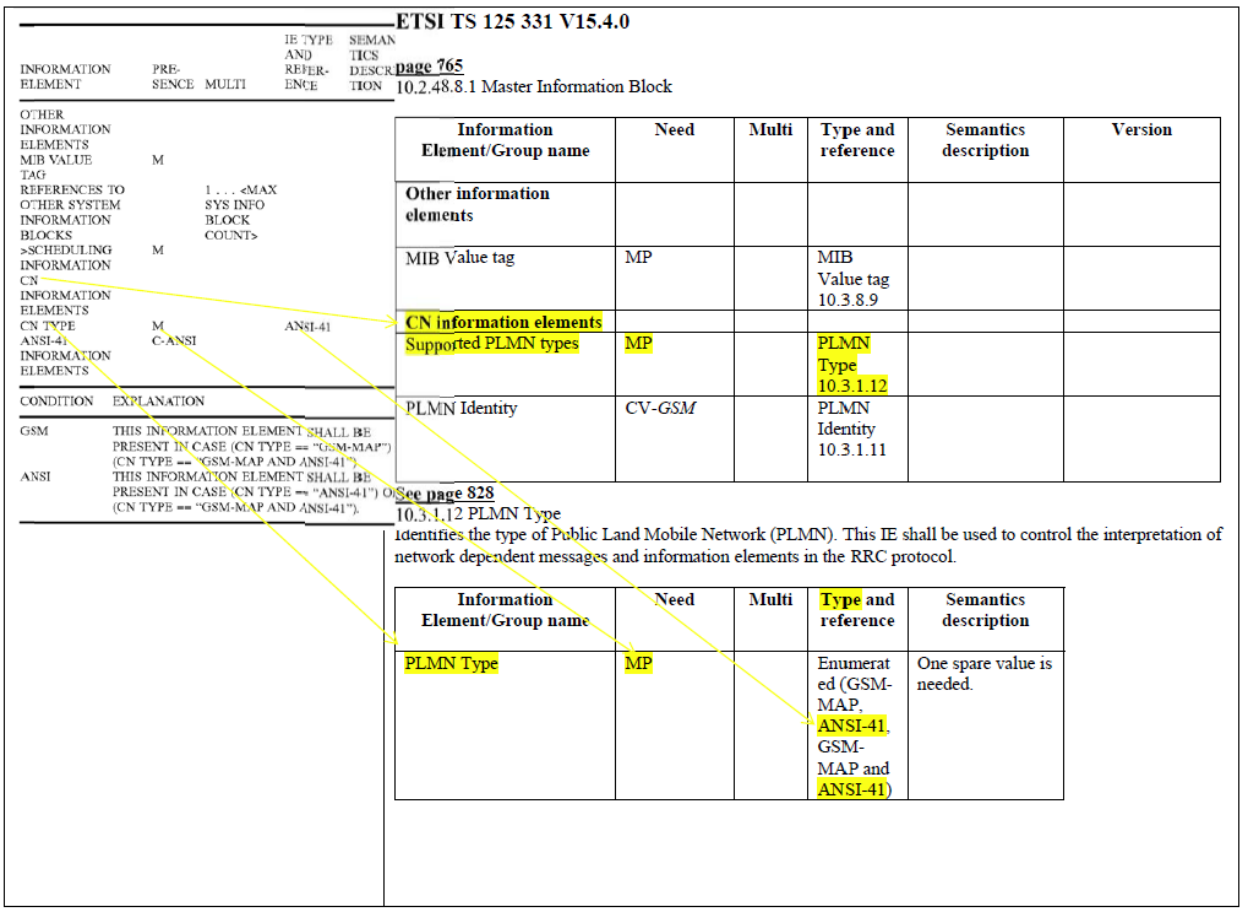
Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF= 2	Value tag	See Note 5
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Specified by the IE "Scheduling information" in MIB	Value tag	See Note 3

See page 765

10.2.48.8.1 Master Information Block

MIB Value tag	MP		MIB Value tag 10.3.8.9		



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10.2.48.8.1 Master Information Block

INFORMATION ELEMENT	PRESENCE	MULTI	IE TYPE AND REFERENCE	SEMANTICS DESCRIPTION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS		1 . . . <MAX SYS INFO BLOCK COUNT>		
>SCHEDULING INFORMATION	M			
CN INFORMATION ELEMENTS				
CN TYPE	M		ANSI-41	
ANSI-41 INFORMATION ELEMENTS	C-ANSI			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "GSM-MAP") (CN TYPE == "GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "ANSI-41") O (CN TYPE == "GSM-MAP AND ANSI-41").

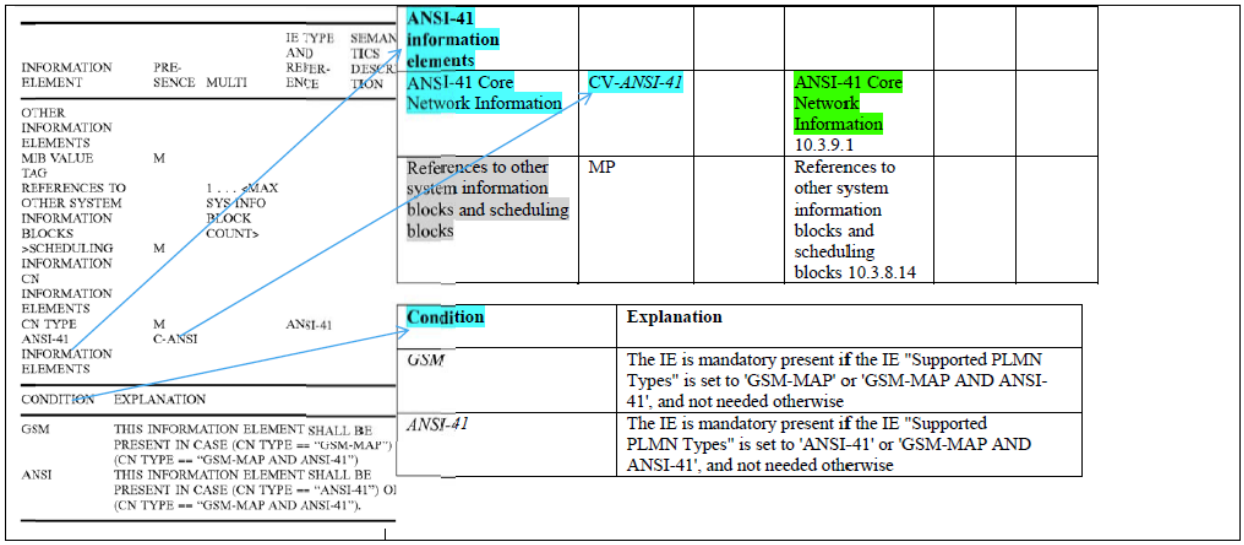
Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

See page 828

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.



INFORMATION ELEMENT	PRESENCE	MULTI	IE TYPE AND REFERENCE	SEMANTICS DESCRIPTION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS		1 . . . <MAX SYS INFO BLOCK COUNT>		
>SCHEDULING INFORMATION	M			
CN INFORMATION ELEMENTS				
CN TYPE	M		ANSI-41	
ANSI-41 INFORMATION ELEMENTS	C-ANSI			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "GSM-MAP") (CN TYPE == "GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE == "ANSI-41") O (CN TYPE == "GSM-MAP AND ANSI-41").

ANSI-41 information elements					
ANSI-41 Core Network Information	CV-*ANSI-41*		ANSI-41 Core Network Information 10.3.9.1		
References to other system information blocks and scheduling blocks	MP		References to other system information blocks and scheduling blocks 10.3.8.14		

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise
ANSI-41	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'ANSI-41' or 'GSM-MAP AND ANSI-41', and not needed otherwise

151. T-Mobile's conduct includes knowingly instructing consumers to use UE and methods that T-Mobile knows or should know infringe one or more claims of the '514 Patent. Defendant instructs its customers to use the patented methods of the '514 Patent by operating T-

Mobile UE in accordance with written specifications facilitating the operation of the T-Mobile UE on the T-Mobile network. T-Mobile sells the T-Mobile UE for use on the T-Mobile network and specifically intends the consumers to use the T-Mobile UE on its network in an infringing manner.

152. On information and belief, a consumer using UE on the T-Mobile network infringes the '514 Patent by virtue of turning on the UE. Specifically, on information and belief, once a user turns on the UE on the T-Mobile network no further action is required from the user to implement the claimed methods of the '514 Patent and the claimed methods are implemented automatically using the T-Mobile network.

153. Cellular Evolution is not asserting infringement of claims 2, 4, 7, and 11 of the '514 Patent.

154. T-Mobile provides consumers with instructions to activate and use UE on its network.[49] For instance, T-Mobile specifically instructs consumers to activate T-Mobile UE and non-T-Mobile UE on the T-Mobile network. [50]

155. T-Mobile is liable for indirect infringement by inducing and/or contributing to the infringement of the '514 Patent.

156. The acts of infringement by Defendants have caused damage to Cellular Evolution, and Cellular Evolution is entitled to recover from Defendants the damages sustained by Cellular Evolution as a result of Defendants' wrongful acts in an amount subject to proof at trial. The infringement of Cellular Evolution's exclusive rights under the '514 Patent by the Defendants has damaged and will continue to damage Cellular Evolution.

[49] *See, e.g.,* https://support.t-mobile.com/docs/DOC-10162; https://support.t-mobile.com/docs/DOC-6991; https://www.t-mobile.com/resources/device-switch-data-transfer-guide.
[50] *Id*.

157. The European Telecommunications Standards Institute ("ETSI") is a standardization organization in the telecommunications industry.[51]

158. ETSI is a founding partner of 3GPP.[52]

159. The ETSI IPR online database allows public access to patents which have been declared as being essential or potentially essential to ETSI and 3GPP Standards.[53]

160. An extract of the ESTI IPR Database is published twice a year in a Special Report SR 000 314.[54]

161. The '514 Patent has been declared essential to the UMTS RRC Protocol and identified as such in the ETSI Special Report SR 000 314.[55]

162. On information and belief, T-Mobile is and has been aware of ETSI SR 000 314. Further, on information and belief, T-Mobile is aware of ETSI SR 000 314 by virtue of its membership and involvement in ATIS and 3GPP.

163. Upon information and belief, T-Mobile actually knew of, or was willfully blind to, the existence of the '514 Patent, yet it continued to infringe said patent. T-Mobile's acts of infringement have been willful, deliberate, and in reckless disregard of Cellular Evolution's patent rights. Accordingly, Cellular Evolution is entitled to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT IV: INFRINGEMENT OF U.S. PATENT NO. 7,505,783

[51] https://www.etsi.org/about
[52] *Id.*
[53] https://www.etsi.org/intellectual-property-rights
[54] *Id.*
[55] https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=57494&curItemNr=1&totalNrItems=38&optDisplay=10&qSORT=HIGHVERSION&qETSI_ALL=TRUE&SearchPage=TRUE&qETSI_NUMBER=000+314&qINCLUDE_SUB_TB=True&qINCLUDE_MOVED_ON=&qSTOP_FLG=&qKEYWORD_BOOLEAN=&qCLUSTER_BOOLEAN=&qFREQUENCIES_BOOLEAN=&qSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=&includeSubProjectCode=&qREPORT_TYPE=

164. On March 17, 2009, the USPTO duly and legally issued United States Patent No. 7,505,783 ("the '783 Patent"), entitled "Method and Apparatus for Interfacing Among Mobile Terminal, Base Station, and Core Network in Mobile Telecommunications System." Cellular Evolution holds all rights, title, and interest in and to the '783 Patent. A true and correct copy of the '783 Patent is attached as Exhibit D.

165. Upon information and belief, Defendants have infringed directly and continue to infringe directly the '783 Patent. The infringing acts include, but are not limited to, the use of products and services practicing the UMTS RRC Protocol. The infringing activity includes at least compliance with the UMTS RRC Protocol in T-Mobile's 3G network including the base stations constituting that network in the United States.

166. On information and belief, T-Mobile's 3G network employs a UMTS network.[56] On information and belief, T-Mobile's 3G network complies with the UMTS RRC Protocol and practices the requirements set forth in that standard.

167. T-Mobile directly infringes the '783 Patent. For example, T-Mobile directly infringes representative claim 1 of the '783 patent by practicing the method claimed therein in its 3G network.

168. Claim 1 of the '783 Patent recites a method for interfacing between a terminal and a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

[56] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.

1 Scope

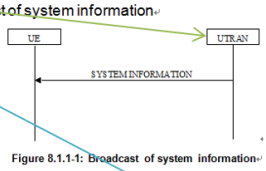
The present document specifies the Radio Resource Control protocol for the UE-UTRAN radio interface.

The scope of the present document also includes:

- the information to be transported in a transparent container between source RNC and target RNC in connection with SRNC relocation;
- the information to be transported in a transparent container between a target RNC and another system.

[57]

169. Claim 1 of the '783 Patent recites wherein the radio network has an asynchronous operating type. UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the radio network has an asynchronous operating type, the method comprising the steps of:	**See page 61** .8.1 RRC Connection Management Procedures .8.1.1 Broadcast of system information  Figure 8.1.1-1: Broadcast of system information **ETSI TS 127 002 V15.0.0 (2018-07)** **See page 6** The present document defines the interfaces and Terminal Adaptation Functions (TAF) integral to a Mobile Termination (MT) which enable the use of asynchronous bearer services in the PLMN and the attachment of asynchronous terminals to a MT (see 3GPP TS 24.002 [3] and 3GPP TS 23.101 [6]).

170. Claim 1 of the '783 Patent recites that the method comprises providing the terminal with a message. As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

[57] 3GPP TS 25.331 version 15.4.0 Release 15 at 41.

a) providing the terminal with a message comprising

See page 61

8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

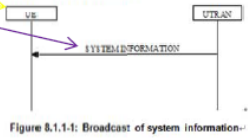


Figure 8.1.1-1: Broadcast of system information

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

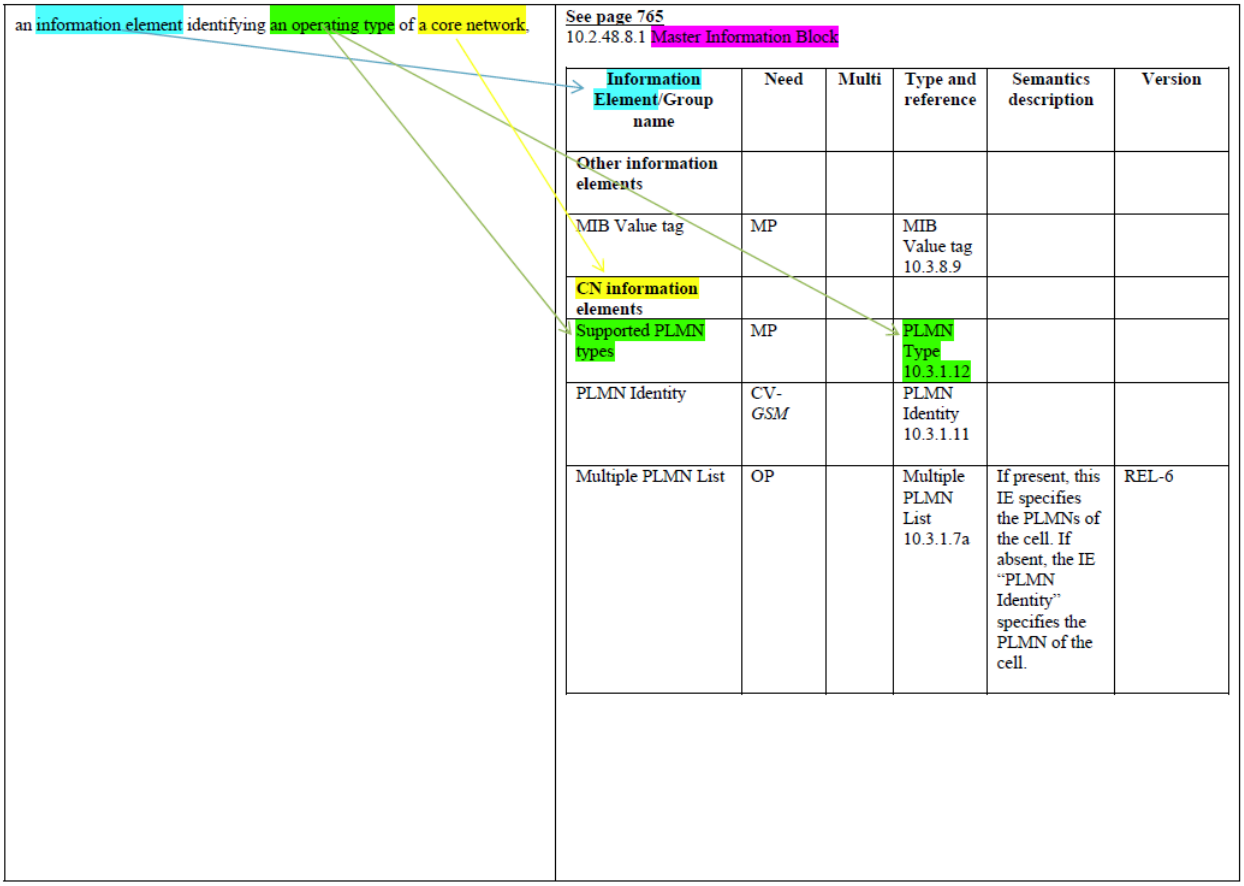
The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF= 2	Value tag	See Note 5

171. Claim 1 of the ‘783 Patent recites that the message comprises an information element identifying an operating type of a core network. As shown below, the UMTS RRC Protocol utilized in T-Mobile’s 3G network meets this limitation:



an information element identifying an operating type of a core network,

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		
Multiple PLMN List	OP		Multiple PLMN List 10.3.1.7a	If present, this IE specifies the PLMNs of the cell. If absent, the IE "PLMN Identity" specifies the PLMN of the cell.	REL-6

172. Claim 1 of the '783 Patent recites that the operating type of the core network comprises a global system for mobile communications application part (GSM-MAP). As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the operating type of the core network comprises global system for mobile communications application part (GSM-MAP), and

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of
network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

173. Claim 1 of the '783 Patent recites that the message is represented in a particular way as shown below. As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the message is represented by:

INFORMATION ELEMENT	PRESENCE	MULTI	IE TYPE AND REFERENCE	SEMANTICS DESCRIPTION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS				
>SCHEDULING	M			

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF= 2	Value tag	See Note 5
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Specified by the IE "Scheduling information " in MIB	Value tag	See Note 3

See page 765

10.2.48.8.1 Master Information Block

MIB Value tag	MP		MIB Value tag 10.3.8.9		

INFORMATION				
CN INFORMATION ELEMENTS				
CN TYPE	M		GSM-MAP	
PLMN IDENTITY	C-GSM			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE = = "GSM-MAP") or (CN TYPE = ="GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE = = "ANSI-41") or (CN TYPE = ="GSM-MAP AND ANSI-41")

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		
Multiple PLMN List	OP		Multiple PLMN List 10.3.1.7a	If present, this IE specifies the PLMNs of the cell. If absent, the IE "PLMN Identity" specifies the PLMN of the cell.	REL-6

See page 828

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

174. In addition to its direct infringement, T-Mobile has been and is now indirectly infringing by way of inducing infringement and/or contributing to the infringement of the method claims of the '783 Patent in this judicial district, and elsewhere within the United States by, among other things, making, using, selling, or offering for sale products and services utilizing its 3G network, covered by one or more method claims of the '783 Patent, all to the injury of Cellular Evolution. In the case of such infringement, the users of User Equipment (UE) are the direct infringers of the '783 Patent.

175. Users of UE on the T-Mobile network directly infringe the '783 Patent. For example, users of UE on the T-Mobile network directly infringe representative claim 1 of the '783 patent by practicing the method claimed therein in its 3G network.

176. Claim 1 of the '783 Patent recites a method for interfacing between a terminal and a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

1 Scope

The present document specifies the Radio Resource Control protocol for the UE-UTRAN radio interface.

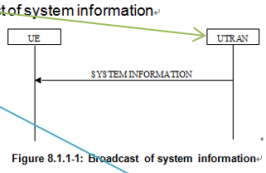
The scope of the present document also includes:

- the information to be transported in a transparent container between source RNC and target RNC in connection with SRNC relocation;
- the information to be transported in a transparent container between a target RNC and another system.

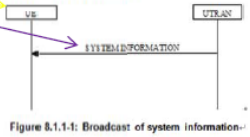
[58]

177. Claim 1 of the '783 Patent recites wherein the radio network has an asynchronous operating type. UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

[58] 3GPP TS 25.331 version 15.4.0 Release 15 at 41.

wherein the radio network has an asynchronous operating type, the method comprising the steps of:	**See page 61** .8.1 RRC Connection Management Procedures .8.1.1 Broadcast of system information  Figure 8.1.1-1: Broadcast of system information **ETSI TS 127 002 V15.0.0 (2018-07)** **See page 6** The present document defines the interfaces and Terminal Adaptation Functions (TAF) integral to a Mobile Termination (MT) which enable the use of asynchronous bearer services in the PLMN and the attachment of asynchronous terminals to a MT (see 3GPP TS 24.002 [3] and 3GPP TS 23.101 [6]).

178. Claim 1 of the '783 Patent recites that the method comprises providing the terminal with a message. As shown below, a user of UE on the T-Mobile network performs this step:

a) providing the terminal with a message comprising	**See page 61** .8.1 RRC Connection Management Procedures .8.1.1 Broadcast of system information  Figure 8.1.1-1: Broadcast of system information **See page 62** 8.1.1.1 General The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell. 8.1.1.1.1 System information structure The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks. **See page 65** **Table 8.1.1: Specification of system information block characteristics**

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF= 2	Value tag	See Note 5

179. Claim 1 of the '783 Patent recites that the message comprises an information element identifying an operating type of a core network. As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

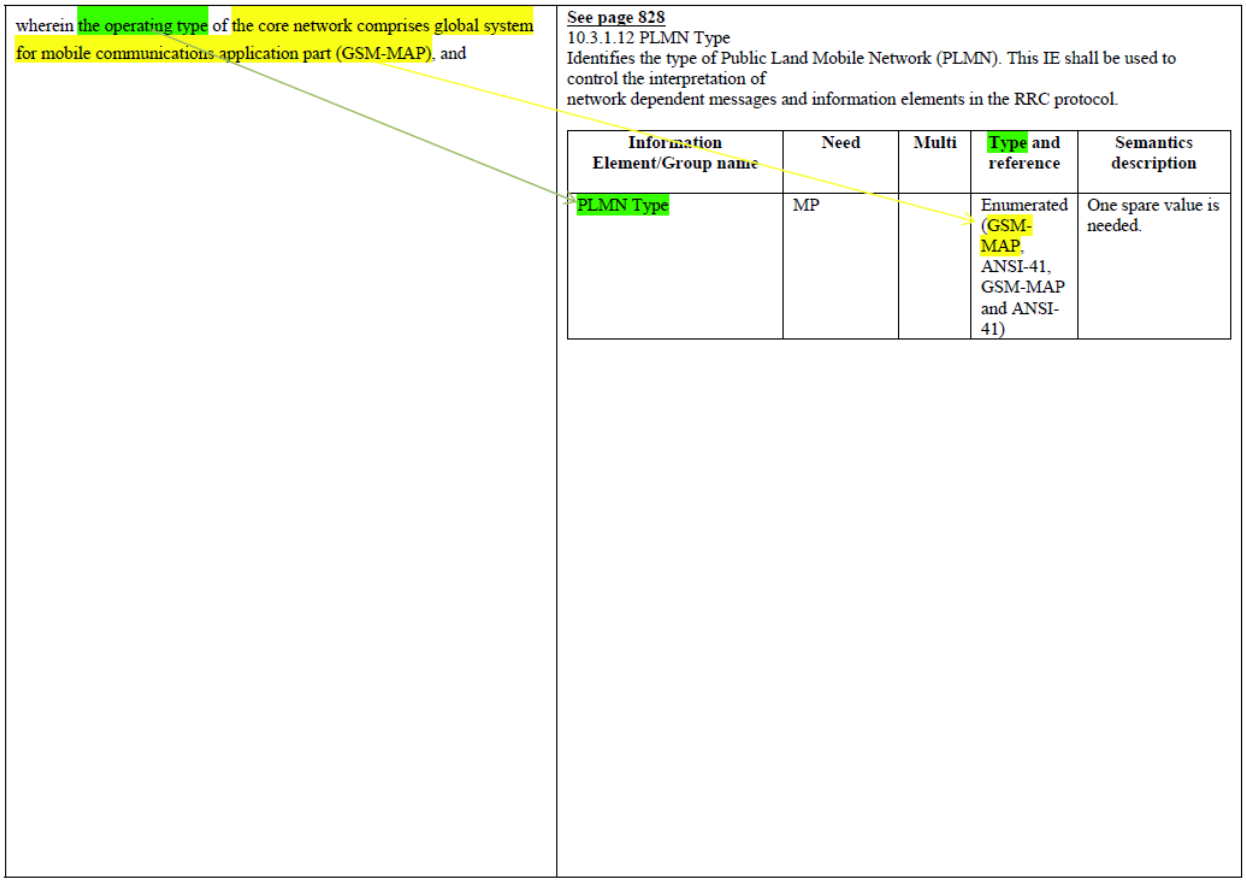
an information element identifying an operating type of a core network.

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		
Multiple PLMN List	OP		Multiple PLMN List 10.3.1.7a	If present, this IE specifies the PLMNs of the cell. If absent, the IE "PLMN Identity" specifies the PLMN of the cell.	REL-6

180. Claim 1 of the '783 Patent recites that the operating type of the core network comprises a global system for mobile communications application part (GSM-MAP). As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the operating type of the core network comprises global system for mobile communications application part (GSM-MAP), and



See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of
network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

181. Claim 1 of the '783 Patent recites that the message is represented in a particular way as shown below. As shown below, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the message is represented by:

INFORMATION ELEMENT	PRESENCE	MULTI	IE TYPE AND REFERENCE	SEMANTICS DESCRIPTION
OTHER INFORMATION ELEMENTS				
MIB VALUE TAG	M			
REFERENCES TO OTHER SYSTEM INFORMATION BLOCKS				
>SCHEDULING	M			

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF= 2	Value tag	See Note 5
Scheduling block 1	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Specified by the IE "Scheduling information " in MIB	Value tag	See Note 3

See page 765

10.2.48.8.1 Master Information Block

MIB Value tag	MP		MIB Value tag 10.3.8.9		

INFORMATION				
CN INFORMATION ELEMENTS				
CN TYPE	M		GSM-MAP	
PLMN IDENTITY	C-GSM			

CONDITION	EXPLANATION
GSM	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE = = "GSM-MAP") or (CN TYPE = ="GSM-MAP AND ANSI-41")
ANSI	THIS INFORMATION ELEMENT SHALL BE PRESENT IN CASE (CN TYPE = = "ANSI-41") or (CN TYPE = ="GSM-MAP AND ANSI-41")

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		
Multiple PLMN List	OP		Multiple PLMN List 10.3.1.7a	If present, this IE specifies the PLMNs of the cell. If absent, the IE "PLMN Identity" specifies the PLMN of the cell.	REL-6

See page 828

10.3.1.12 PLMN Type

Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

182. T-Mobile advertises and promotes its 3G network on its website.[59]

183. T-Mobile also sells products (UE) for use on its network.[60] On information and belief, T-Mobile provides, makes, uses, sells and offers for sale T-Mobile UE with the specific intent that its customers use that UE in an infringing manner on its 3G network. T-Mobile sells or offers for sale UE for use in practicing Cellular Evolution's patented processes. The UMTS RRC Protocol utilized in T-Mobile's 3G network has no substantial non-infringing uses and is known by T-Mobile to be especially made or especially adapted for use in an infringement of Cellular Evolution's patents by complying with the UMTS RRC Protocol standard adapted by 3GPP.

184. Cellular Evolution is not asserting infringement of claims 3, 4, 6, 9, and 12-15 of the '783 Patent.

185. The acts of infringement by Defendants have caused damage to Cellular Evolution, and Cellular Evolution is entitled to recover from Defendants the damages sustained by Cellular Evolution as a result of Defendants' wrongful acts in an amount subject to proof at trial. The infringement of Cellular Evolution's exclusive rights under the '783 Patent by the Defendants has damaged and will continue to damage Cellular Evolution.

186. The European Telecommunications Standards Institute ("ETSI") is a standardization organization in the telecommunications industry.[61]

187. ETSI is a founding partner of 3GPP.[62]

188. The ETSI IPR online database allows public access to patents which have been declared as being essential or potentially essential to ETSI and 3GPP Standards.[63]

[59] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4963.
[60] https://www.t-mobile.com/cell-phones.
[61] https://www.etsi.org/about
[62] *Id.*
[63] https://www.etsi.org/intellectual-property-rights

189. An extract of the ESTI IPR Database is published twice a year in a Special Report SR 000 314.[64]

190. The '783 Patent has been declared essential to the UMTS RRC Protocol and identified as such in the ETSI Special Report SR 000 314.[65]

191. On information and belief, T-Mobile is and has been aware of ETSI SR 000 314. Further, on information and belief, T-Mobile is aware of ETSI SR 000 314 by virtue of its membership and involvement in ATIS and 3GPP.

192. Upon information and belief, T-Mobile actually knew of, or was willfully blind to, the existence of the '783 Patent, yet it continued to infringe said patent. T-Mobile's acts of infringement have been willful, deliberate, and in reckless disregard of Cellular Evolution's patent rights. Accordingly, Cellular Evolution is entitled to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

COUNT V: INFRINGEMENT OF U.S. PATENT NO. 8,285,325

193. On October 9, 2012, the USPTO duly and legally issued United States Patent No. 8,285,325 ("the '325 Patent"), entitled "Method and Apparatus for Interfacing Among Mobile Terminal, Base Stations and Core Network in Mobile Telecommunications System." Cellular Evolution holds all rights, title, and interest in and to the '325 Patent. A true and correct copy of the '325 Patent is attached as Exhibit E.

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[64] *Id.*

[65] https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=57494&curItemNr=1&totalNrItems=38&optDisplay=10&qSORT=HIGHVERSION&qETSI_ALL=TRUE&SearchPage=TRUE&qETSI_NUMBER=000+314&qINCLUDE_SUB_TB=True&qINCLUDE_MOVED_ON=&qSTOP_FLG=&qKEYWORD_BOOLEAN=&qCLUSTER_BOOLEAN=&qFREQUENCIES_BOOLEAN=&qSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=&includeSubProjectCode=&qREPORT_TYPE=

194. Upon information and belief, Defendants have infringed directly and continue to infringe directly the '325 Patent. The infringing acts include, but are not limited to, the use of products and services practicing the UMTS RRC Protocol. The infringing activity includes at least compliance with the UMTS RRC Protocol in T-Mobile's 3G network including the base stations constituting that network in the United States.

195. On information and belief, T-Mobile's 3G network employs a UMTS network.[66] On information and belief, T-Mobile's 3G network complies with the UMTS RRC Protocol and practices the requirements set forth in that standard.

196. T-Mobile directly infringes the '325 Patent. For example, T-Mobile directly infringes representative claim 1 of the '325 patent by practicing the method claimed therein in its 3G network.

197. Claim 1 of the '325 Patent recites a method for interfacing between a terminal and a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, the UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

1 Scope

The present document specifies the Radio Resource Control protocol for the UE-UTRAN radio interface.

The scope of the present document also includes:

- the information to be transported in a transparent container between source RNC and target RNC in connection with SRNC relocation;
- the information to be transported in a transparent container between a target RNC and another system.

198. Claim 1 of the '325 Patent recites that the method comprises providing the terminal with a message. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

[66] *See, e.g.,* https://support.t-mobile.com/docs/DOC-4988.

providing the terminal with a message comprising

See page 61

8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

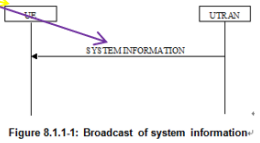

Figure 8.1.1.1: Broadcast of system information

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

199. Claim 1 of the '325 Patent recites that the message comprises an information element identifying an operating type of a core network. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

an information element identifying an operating type of a core network,

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

200. Claim 1 of the '325 Patent recites that the operating type of the core network comprises global system for mobile communications application part (GSM-MAP). The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the operating type of the core network comprises global system for mobile communications application part (GSM-MAP), and	See page 828 10.3.1.12 PLMN Type Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol. **Information Element/Group name** | **Need** | **Multi** | **Type and reference** | **Semantics description** PLMN Type | MP | | Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41) | One spare value is needed.

201. Claim 1 of the '325 Patent recites that the message further comprises core network information elements in a master information block. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the message further comprises core network information elements in a master information block,	See page 765 10.2.48.8.1 Master Information Block **Information Element/Group name** | **Need** | **Multi** | **Type and reference** | **Semantics description** | **Version** **Other information elements** |				| MIB Value tag | MP | | MIB Value tag 10.3.8.9 | | | **CN information elements** |				| Supported PLMN types | MP | | PLMN Type 10.3.1.12 | | | PLMN Identity | CV-*GSM* | | PLMN Identity 10.3.1.11 | |

202. Claim 1 of the '325 Patent recites the core network information elements identifying a Public Land Mobile Network depending upon the value of the information element identifying the operating type of the core network. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

the core network information elements identifying a Public Land Mobile Network depending upon the value of the information element identifying the operating type of the core network.

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-GSM" means that depending on or when the operating type of the core network is identified as GSM-MAP or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

See page 828
10.3.1.11 PLMN identity
This information element identifies a Public Land Mobile Network for a GSM-MAP type of PLMN. Setting of digits is defined in [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC	MP	3		The first element contains the first MCC digit, the second element
				the second MCC digit and so on.
>MCC digit	MP		INTEGER(0..9)	
MNC	MP	2 to 3		The first element contains the first MNC digit, the second element the second MNC digit and so on.
>MNC digit	MP		INTEGER(0..9)	

203. In addition to its direct infringement, T-Mobile has been and is now indirectly infringing by way of inducing infringement and/or contributing to the infringement of the method

claims of the '325 Patent in this judicial district, and elsewhere within the United States by, among other things, making, using, selling, or offering for sale products and services utilizing its 3G network, covered by one or more method claims of the '325 Patent, all to the injury of Cellular Evolution. In the case of such infringement, the users of User Equipment (UE) are the direct infringers of the '325 Patent.

204. Users of UE on the T-Mobile network directly infringe the '325 Patent. For example, users of UE on the T-Mobile network directly infringe representative claim 1 of the '325 patent by practicing the method claimed therein in its 3G network.

205. Claim 1 of the '325 Patent recites a method for interfacing between a terminal and a radio network. To the extent the preamble of claim 1 is deemed to be a limitation, users of UE on the T-Mobile network perform this method:

1 Scope

The present document specifies the Radio Resource Control protocol for the UE-UTRAN radio interface.

The scope of the present document also includes:

- the information to be transported in a transparent container between source RNC and target RNC in connection with SRNC relocation;
- the information to be transported in a transparent container between a target RNC and another system.

206. Claim 1 of the '325 Patent recites that the method comprises providing the terminal with a message. Users of UE on the T-Mobile network perform this limitation in accordance with the UMTS RRC Protocol utilized in T-Mobile's 3G network:

providing the terminal with a message comprising

See page 61

8.1 RRC Connection Management Procedures

8.1.1 Broadcast of system information

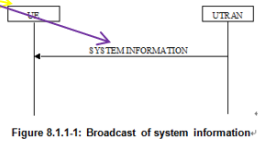

Figure 8.1.1-1: Broadcast of system information

See page 62

8.1.1.1 General

The purpose of this procedure is to broadcast system information from the UTRAN to UEs in a cell.

8.1.1.1.1 System information structure

The system information elements are broadcast in *system information blocks*. A system information block groups together system information elements of the same nature. Different system information blocks may have different characteristics, e.g. regarding their repetition rate and the requirements on UEs to re-read the system information blocks.

See page 65

Table 8.1.1: Specification of system information block characteristics

System information block	Area scope	UE mode/state when block is valid	UE mode/state when block is read	Scheduling information	Modification of system information	Additional comment
Master information block	Cell	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	Idle mode, CELL_FACH, CELL_PCH, URA_PCH, CELL_DCH (TDD only)	SIB_POS = 0 SIB_REP = 8 (FDD) SIB_REP = 8, 16, 32 (TDD) SIB_OFF=2	Value tag	See Note 5

207. Claim 1 of the '325 Patent recites that the message comprises an information element identifying an operating type of a core network. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

an information element identifying an operating type of a core network,

See page 765

10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

208. Claim 1 of the '325 Patent recites that the operating type of the core network comprises global system for mobile communications application part (GSM-MAP). The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the operating type of the core network comprises global system for mobile communications application part (GSM-MAP), and

See page 828
10.3.1.12 PLMN Type
Identifies the type of Public Land Mobile Network (PLMN). This IE shall be used to control the interpretation of network dependent messages and information elements in the RRC protocol.

Information Element/Group name	Need	Multi	Type and reference	Semantics description
PLMN Type	MP		Enumerated (GSM-MAP, ANSI-41, GSM-MAP and ANSI-41)	One spare value is needed.

209. Claim 1 of the '325 Patent recites that the message further comprises core network information elements in a master information block. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

wherein the message further comprises core network information elements in a master information block,

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

210. Claim 1 of the '325 Patent recites the core network information elements identifying a Public Land Mobile Network depending upon the value of the information element identifying the operating type of the core network. The UMTS RRC Protocol utilized in T-Mobile's 3G network meets this limitation:

the core network information elements identifying a Public Land Mobile Network depending upon the value of the information element identifying the operating type of the core network.

See page 765
10.2.48.8.1 Master Information Block

Information Element/Group name	Need	Multi	Type and reference	Semantics description	Version
Other information elements					
MIB Value tag	MP		MIB Value tag 10.3.8.9		
CN information elements					
Supported PLMN types	MP		PLMN Type 10.3.1.12		
PLMN Identity	CV-*GSM*		PLMN Identity 10.3.1.11		

Condition	Explanation
GSM	The IE is mandatory present if the IE "Supported PLMN Types" is set to 'GSM-MAP' or 'GSM-MAP AND ANSI-41', and not needed otherwise

Note: "CV" is defined as "Conditional on Value" by the Spec on page 47. As such, "CV-GSM" means that depending on or when the operating type of the core network is identified as GSM-MAP or GSM-MAP and ANSI-41, then PLMN Identity field is needed or is mandatory, as defined below.

See page 828
10.3.1.11 PLMN identity
This information element identifies a Public Land Mobile Network for a GSM-MAP type of PLMN. Setting of digits is defined in [11].

Information Element/Group name	Need	Multi	Type and reference	Semantics description
MCC	MP	3		The first element contains the first MCC digit, the second element
				the second MCC digit and so on.
>MCC digit	MP		INTEGER(0..9)	
MNC	MP	2 to 3		The first element contains the first MNC digit, the second element the second MNC digit and so on.
>MNC digit	MP		INTEGER(0..9)	

211. T-Mobile advertises and promotes its 3G network on its website.[67]

[67] https://support.t-mobile.com/docs/DOC-4963.

212. T-Mobile also sells products (UE) for use on its network.[68] On information and belief, T-Mobile provides, makes, uses, sells and offers for sale T-Mobile UE with the specific intent that its customers use that UE in an infringing manner on its 3G network. T-Mobile sells or offers for sale UE for use in practicing Cellular Evolution's patented processes. The UMTS RRC Protocol utilized in T-Mobile's 3G network has no substantial non-infringing uses and is known by T-Mobile to be especially made or especially adapted for use in an infringement of Cellular Evolution's patents by complying with the UMTS RRC Protocol standard adapted by 3GPP.

213. Cellular Evolution is not asserting infringement of claims 3, 4, 6, 8, 10-13 of the '325 Patent.

214. The acts of infringement by Defendants have caused damage to Cellular Evolution, and Cellular Evolution is entitled to recover from Defendants the damages sustained by Cellular Evolution as a result of Defendants' wrongful acts in an amount subject to proof at trial. The infringement of Cellular Evolution's exclusive rights under the '325 Patent by the Defendants has damaged and will continue to damage Cellular Evolution.

215. The European Telecommunications Standards Institute ("ETSI") is a standardization organization in the telecommunications industry.[69]

216. ETSI is a founding partner of 3GPP.[70]

217. The ETSI IPR online database allows public access to patents which have been declared as being essential or potentially essential to ETSI and 3GPP Standards.[71]

[68] https://www.t-mobile.com/cell-phones.
[69] https://www.etsi.org/about
[70] *Id.*
[71] https://www.etsi.org/intellectual-property-rights

218. An extract of the ESTI IPR Database is published twice a year in a Special Report SR 000 314.[72]

219. The '325 Patent has been declared essential to the UMTS RRC Protocol and identified as such in the ETSI Special Report SR 000 314.[73]

220. On information and belief, T-Mobile is and has been aware of ETSI SR 000 314. Further, on information and belief, T-Mobile is aware of ETSI SR 000 314 by virtue of its membership and involvement in ATIS and 3GPP.

221. Upon information and belief, T-Mobile actually knew of, or was willfully blind to, the existence of the '325 Patent, yet it continued to infringe said patent. T-Mobile's acts of infringement have been willful, deliberate, and in reckless disregard of Cellular Evolution's patent rights. Accordingly, Cellular Evolution is entitled to increased damages under 35 U.S.C. § 284 and to attorneys' fees and costs incurred in prosecuting this action under 35 U.S.C. § 285.

JURY DEMAND

222. Cellular Evolution hereby demands a trial by jury on all issues.

PRAYER FOR RELIEF

WHEREFORE, Cellular Evolution requests entry of judgment in its favor and against Defendant as follows:

a. A judgment that Defendants have infringed and are infringing one or more claims of the '868, '788, '514, '783, and '325 Patents literally and/or under the doctrine of

[72] *Id.*

[73] https://portal.etsi.org/webapp/workprogram/Report_WorkItem.asp?WKI_ID=57494&curItemNr=1&totalNrItems=38&optDisplay=10&qSORT=HIGHVERSION&qETSI_ALL=TRUE&SearchPage=TRUE&qETSI_NUMBER=000+314&qINCLUDE_SUB_TB=True&qINCLUDE_MOVED_ON=&qSTOP_FLG=&qKEYWORD_BOOLEAN=&qCLUSTER_BOOLEAN=&qFREQUENCIES_BOOLEAN=&qSTOPPING_OUTDATED=&butSimple=Search&includeNonActiveTB=&includeSubProjectCode=&qREPORT_TYPE=

equivalents, directly and/or indirectly by inducing infringement and/or by contributory infringement;

b. An award of damages to Cellular Evolution arising out of Defendant's infringement of the '868, '788, '514, '783, and '325 Patents, including enhanced damages pursuant to 35 U.S.C. § 284, together with prejudgment and post-judgment interest, in an amount according to proof;

c. An award of attorneys' fees pursuant to 35 U.S.C. § 285 or as otherwise permitted by law;

d. An award to Cellular Evolution of its costs; and

e. Such other and further relief, whether legal, equitable, or otherwise, to which Cellular Evolution may be entitled or which this Court may order.

Dated: October 7, 2019

Respectfully submitted,

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