UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION

GENGHISCOMM HOLDINGS, LLC, Plaintiff, v. SAMSUNG ELECTRONICS AMERICA, INC., Defendant.	Case No. 2:24-cv-901 COMPLAINT FOR PATENT INFRINGEMENT AND JURY TRIAL DEMANDED

COMPLAINT

This is an action for patent infringement arising under the patent laws of the United States, Title 35 of the United States Code, against Defendant Samsung Electronics America, Inc. ("Samsung") that relates to one U.S. patent owned by GenghisComm: U.S. Patent No. 11,431,386 (the "'386 Patent").

THE PARTIES

1. Plaintiff GenghisComm Holdings, LLC ("GenghisComm") is a Colorado limited liability company with an address at 942 Broadway Street, Suite 314c, Boulder, CO 80302.

2. Steve Shattil, Director of GenghisComm, is the named inventor on the patent and holds advanced degrees in physics and electrical engineering. He invented technologies which are essential parts of cellular and wireless standards.

3. Defendant Samsung Electronics America, Inc. ("Samsung") is a New York corporation with its principal place of business at 85 Challenger Road, Ridgefield Park, New Jersey 07660. Defendant is registered to do business in the State of Texas, and can be served with process through its registered agent: CT Corporation System, 1999 Bryan Street, Suite 900, Dallas, Texas 75201.

4. Samsung conducts business operations in the Eastern District of Texas, including at facilities located at 6625 Excellence Way Plano, Texas 75023.

5. In April 2018, Samsung announced that it would be relocating its North Texas-based teams from their Richardson and Plano facilities to Legacy Central in Plano. Samsung's offices are located in a newly redeveloped 216,000 square foot building in Plano's Legacy Central campus.

6. Plano is home to Samsung 's second biggest employee population in the U.S. across multiple divisions – Customer Care, Mobile, Mobile R&D and Engineering.[1]

7. In 2020, Samsung expanded its Plano office by 75,000 square feet. In October 2021, Samsung expanded its Plano center again, adding more than 60,000 square feet, spending about $11 million on the offices at 6625 Declaration Way in Plano.[2]

8. In 2023, Samsung today announced the opening of its new executive briefing center—the Samsung Networks Innovation Center—located at its Plano, Texas, headquarters. Built to provide an interactive and collaborative space for Samsung's customers and partners, the facility showcases the company's latest network offerings and educates visitors on a wide range of advanced network technologies.[3]

9. Samsung's new briefing center is dedicated to providing visitors with a chance to experience Samsung's networks products up close. After launching a briefing center in 2018 that explored 5G use cases for the manufacturing industry, this new space includes interactive use

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[1] https://news.samsung.com/us/samsung-electronics-america-open-flagship-north-texas-campus/

[2] https://www.dallasnews.com/business/real-estate/2021/10/01/samsung-is-growing-its-huge-plano-regional-office/

[3] https://www.samsung.com/global/business/networks/insights/blog/0613-samsung-networks-innovation-center-opens-its-doors-offering-a-close-look-at-advanced-network-connectivity/

cases that demonstrate how Samsung's solutions can solve the most pressing network challenges, with a focus on technologies that are of interest to mobile operators and enterprises: Virtualized Radio Access Networks (vRAN), Fixed Wireless Access (FWA), and Private Networks. These demos showcase Samsung's advanced 5G network solutions and their role in supporting next-generation applications and services.

10. Samsung is one of Plano, Texas' largest employers.[4] Samsung employs full-term personnel such as sales personnel and engineers in this District.

11. Samsung has authorized sellers and sales representatives that offer and sell products pertinent to this Complaint throughout the State of Texas, including in this District, and to consumers throughout this District, such as: Best Buy, 422 West TX-281 Loop, Suite 100, Longview, Texas 75605; AT&T Store, 1712 East Grand Avenue, Marshall, Texas 75670; T-Mobile, 1806 East End Boulevard North, Suite 100, Marshall, TX 75670; Verizon authorized retailers, including Russell Cellular, 1111 East Grand Avenue, Marshall, Texas 75670; Victra, 1006 East End Boulevard, Marshall, Texas 75670; and Cricket Wireless authorized retailer, 120 East End Boulevard South, Marshall, TX 75670.

12. Samsung makes, uses, imports, sells and offers for sale wireless mobile devices including smartphones and tablets) and related applications and services.

JURISDICTION AND VENUE

13. This Complaint states causes of action for patent infringement arising under the patent laws of the United States, 35 U.S.C. § 1 *et seq.,* and, more particularly 35 U.S.C. § 271.

[4] https://www.planotexas.org/180/Leading-Employers

14. This Court has subject matter jurisdiction of this action under 28 U.S.C. §§ 1331 and 1338(a) in which the district courts have original and exclusive jurisdiction of any civil action for patent infringement.

15. Samsung is subject to this Court's general personal jurisdiction pursuant to due process due at least to its substantial business conducted in this District, including: (i) having 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 in this District, including benefits directly related to the instant patent infringement causes of action set forth herein; (ii) having placed its products and services into the stream of commerce throughout the United States and having been actively engaged in transacting business in Texas and in this District, and (iii) having committed the complained of tortious acts in Texas and in this District.

16. Samsung, directly and/or through subsidiaries and agents (including distributors, retailers, and others), makes, imports, ships, distributes, offers for sale, sells, uses, and advertises (including offering products and services through its website as well as other retailers) its products and/or services in the United States, the State of Texas and the Eastern District of Texas.

17. Samsung, directly and/or through its subsidiaries and agents (including distributors, retailers, and others), has purposefully and voluntarily placed one or more of its infringing products and/or services, as described below, into the stream of commerce with the expectation that they will be purchased and used by consumers in the Eastern District of Texas. These infringing products and/or services have been and continue to be purchased and used by consumers in the Eastern District of Texas. Samsung has committed acts of patent infringement within the State of Texas and, more particularly, within the Eastern District of Texas.

18. Venue is proper in this District under §1400 (b), which provides that "Any civil action for patent infringement may be brought in the judicial district where the defendant resides, or where the defendant has committed acts of infringement and has a regular and established place of business." Venue is proper as to Defendant because it has committed acts of patent infringement in this District and because it has a regular and established places of business in this District, including at 6625 Excellence Way, Plano, Texas 75023.

BACKGROUND FACTS REGARDING THE GENGHISCOMM PATENTS

19. GenghisComm is the owner of record and assignee of the Patent-in-Suit.

20. GenghisComm has the exclusive right to sue and the exclusive right to recover damages for infringement of the Patent-in-Suit during all relevant time periods.

21. On August 30, 2022, the '386 Patent entitled "Transmit Pre-Coding" was duly and legally issued by the USPTO. The '386 Patent (at 1:5-22) notes that:

> This application is a Continuation of U.S. patent application Ser. No. 14/727,769, filed Jun. 1, 2015, which is a Continuation of U.S. patent application Ser. No. 14/276,309, filed May 13, 2014, now U.S. Pat. No. 9,048,897, which is a Continuation of U.S. patent application Ser. No. 12/545,572, filed Aug. 21, 2009, now U.S. Pat. No. 8,750,264, which is a Divisional of U.S. patent application Ser. No. 11/187,107, filed on Jul. 22, 2005, now U.S. Pat. No. 8,670,390, which claims priority to Provisional Appl. No. 60/598,187, filed Aug. 2, 2004, all of which are incorporated by reference in their entireties.

DEFENDANT'S INFRINGING PRODUCTS

22. Defendant has been, and now is, directly infringing claims of the Patent-in-Suit under 35 U.S.C. § 271(a) by making, using, offering for sale, selling, and/or importing the below accused smartphones, tablets, and other mobile wireless devices in this District and elsewhere in the United States that include the apparatuses claimed in the Patent-in-Suit.

23. Defendant's infringing products include hardware used in 5G cellular network base station receivers (e.g., gNodeB) for receiving radio signals from user equipment. One example of such a product includes, but is not limited to, the Samsung CDU50 Baseband Unit. The Samsung CDU50 Baseband Unit and other infringing Samsung products are collectively referred to as the "Accused Samsung 5G Receivers."

COUNT I: INFRINGEMENT OF U.S. PATENT '386 CLAIM 10

24. Genghiscomm incorporates by reference the allegations set forth in the preceding paragraphs of this Complaint as though set forth in full herein.

25. Claim 10 of the '386 Patent provides:

Claim 10 Preamble	An apparatus for receiving an Orthogonal Frequency Division Multiplexing (OFDM) signal transmitted by a user device in a wireless network, the apparatus comprising:
Element A	at least one processor; and
Element B	a non-transitory computer-readable memory communicatively coupled to the at least one processor, the non-transitory computer-readable memory including a set of instructions stored thereon and executable by the at least one processor for:
Element C	determining a plurality of subcarrier frequencies allocated to the user device;
Element D	converting the OFDM signal to a plurality of frequency-domain values corresponding to the plurality of subcarrier frequencies; and
Element E	decoding the plurality of frequency-domain values to recover a plurality of data symbols encoded by the user device on the plurality of subcarrier frequencies;
Element F	wherein decoding employs a plurality of codes that are inverse to, complex-conjugate of, or complementary to a set of complex-valued codes that the user device employs to shape the OFDM signal into a superposition of cyclic-shifted pulse waveforms that each has one of the plurality of data symbols modulated thereon.

26. Samsung makes, uses, sells, offers for sale, and imports devices that receive radio signals from user equipment that comply with the 5G cellular standards (e.g., 3GPP TS 38.211 15.2.0 Release 15; the "5G Specification") and its requirements for physical channel communications. These communications from user equipment are received by Accused Samsung 5G Receivers located at cell sites (e.g., gNodeB).

27. Samsung has and continues to make, use, sell, import, and/or offer for sale the Accused Samsung 5G Receivers that meet each and every element of claim 10 of the '386 Patent.

28. The Accused Samsung 5G Receivers are designed to work with 5G network standards for the physical channel radio network. The signal transmitted in the uplink from the user equipment to Accused Samsung 5G Receivers is an orthogonal frequency division multiplexing (OFDM) signal. More specifically, 5G uses DFT-s-OFDM, or DFT spread OFDM, in the uplink.

29. The Accused Samsung 5G Receivers include a processor and non-transitory computer readable memory. For example, the Samsung CDU50 includes the Samsung S8600 system-on-a-chip (SoC) processing system. Upon information and belief, the SoC includes memory for storing instructions on processing signals received from user equipment.

30. The 5G specification defines that subcarrier frequencies are assigned to each user equipment. The assigned subcarriers further include the selection of subcarrier spacings that are used for different scenarios:

4.4.2 Resource grid

For each numerology and carrier, a resource grid of $N_{grid,x}^{size,\mu} N_{sc}^{RB}$ subcarriers and $N_{symb}^{subframe,\mu}$ OFDM symbols is defined, starting at common resource block $N_{grid}^{start,\mu}$ indicated by higher-layer signalling. There is one set of resource grids per transmission direction (uplink or downlink) with the subscript x set to DL and UL for downlink and uplink, respectively. When there is no risk for confusion, the subscript x may be dropped. There is one resource grid for a given antenna port p, subcarrier spacing configuration μ, and transmission direction (downlink or uplink).

* * * *

4.4.4 Resource blocks

4.4.4.1 General

A resource block is defined as $N_{sc}^{RB} = 12$ consecutive subcarriers in the frequency domain.

* * * *

4.2 Numerologies

Multiple OFDM numerologies are supported as given by Table 4.2-1 where μ and the cyclic prefix for a bandwidth part are obtained from the higher-layer parameter *subcarrierSpacing* and *cyclicPrefix*, respectively.

Table 4.2-1: Supported transmission numerologies.

μ	$\Delta f = 2^{\mu} \cdot 15$ [kHz]	Cyclic prefix
0	15	Normal
1	30	Normal
2	60	Normal, Extended
3	120	Normal
4	240	Normal

Source: 3GPP 5G Specification

Accused Samsung 5G Receivers must be able to determine the subcarrier frequencies and the corresponding spacings for each user equipment in order to properly process the received signal.

31. In 5G, user equipment are required to generate an OFDM baseband signal using an N-point discrete Fourier transform (DFT). This DFT converts a frequency-domain signal into a time-domain signal:

5.3.1 OFDM baseband signal generation for all channels except PRACH

The time-continuous signal $s_l^{(p,\mu)}(t)$ on antenna port p and subcarrier spacing configuration μ for OFDM symbol $l \in \{0,1,\ldots,N_{\text{slot}}^{\text{subframe},\mu} N_{\text{symb}}^{\text{slot}} - 1\}$ in a subframe for any physical channel or signal except PRACH is defined by

$$s_l^{(p,\mu)}(t) = \sum_{k=0}^{N_{\text{grid}}^{\text{size},\mu} N_{\text{sc}}^{\text{RB}} - 1} a_{k,l}^{(p,\mu)} \cdot e^{j2\pi\left(k + k_0^{\mu} - N_{\text{grid},x}^{\text{size},\mu} N_{\text{sc}}^{\text{RB}}/2\right)\Delta f\left(t - N_{\text{CP},l}^{\mu} T_c - t_{\text{start},l}^{\mu}\right)}$$

$$k_0^{\mu} = \left(N_{\text{grid},x}^{\text{start},\mu} + N_{\text{grid},x}^{\text{size},\mu}/2\right) N_{\text{sc}}^{\text{RB}} - \left(N_{\text{grid},x}^{\text{start},\mu_0} + N_{\text{grid},x}^{\text{size},\mu_0}/2\right) N_{\text{sc}}^{\text{RB}} 2^{\mu_0 - \mu}$$

where $t_{\text{start},l}^{\mu} \le t < t_{\text{start},l}^{\mu} + \left(N_{\text{u}}^{\mu} + N_{\text{CP},l}^{\mu}\right) T_c$ is the time within the subframe,

$$N_{\text{u}}^{\mu} = 2048\kappa \cdot 2^{-\mu}$$

$$N_{\text{CP},l}^{\mu} = \begin{cases} 512\kappa \cdot 2^{-\mu} & \text{extended cyclic prefix} \\ 144\kappa \cdot 2^{-\mu} + 16\kappa & \text{normal cyclic prefix, } l = 0 \text{ or } l = 7 \cdot 2^{\mu} \\ 144\kappa \cdot 2^{-\mu} & \text{normal cyclic prefix, } l \neq 0 \text{ and } l \neq 7 \cdot 2^{\mu} \end{cases}$$

Δf is given by clause 4.2, μ is the subcarrier spacing configuration, and μ_0 is the largest μ value among the subcarrier spacing configurations provided to the UE for this carrer. The starting position of OFDM symbol l for subcarrier spacing configuration μ in a subframe is given by

Source: 3GPP 5G Specification

Accused Samsung 5G Receivers must be able to convert the time-domain signal from the uplink into a frequency-domain signal using the inverse of the N-point DFT used to generate the signal at the user equipment for each of the subcarrier frequencies allocated to each user equipment.

32. In 5G, user equipment are required to generate a transform precoded signal using an M-point DFT to generate complex-valued data symbols, which are then modulated onto the subcarriers allocated to each user equipment:

6.3.1.4 Transform precoding

If transform precoding is not enabled according to 6.1.3 of [6, TS38.214], $y^{(\lambda)}(i) = x^{(\lambda)}(i)$ for each layer $\lambda = 0,1,\ldots,\upsilon-1$.

If transform precoding is enabled according to 6.1.3 of [6, TS38.214], $\upsilon = 1$ and $\tilde{x}^{(0)}(i)$ depends on the configuration of phase-tracking reference signals.

If the procedure in [6, TS 38.214] indicates that phase-tracking reference signals are not being used, the block of complex-valued symbols $x^{(0)}(0),\ldots,x^{(0)}(M_{\text{symb}}^{\text{layer}}-1)$ for the single layer $\lambda = 0$ shall be divided into $M_{\text{symb}}^{\text{layer}} / M_{\text{sc}}^{\text{PUSCH}}$ sets, each corresponding to one OFDM symbol and $\tilde{x}^{(0)}(i) = x^{(0)}(i)$.

If the procedure in [6, TS 38.214] indicates that phase-tracking reference signals are being used, the block of complex-valued symbols $x^{(0)}(0),\ldots,x^{(0)}(M_{\text{symb}}^{\text{layer}}-1)$ shall be divided into sets, each set corresponding to one OFDM symbol, and where set l contains $M_{\text{sc}}^{\text{PUSCH}} - \varepsilon_l N_{\text{samp}}^{\text{group}} N_{\text{group}}^{\text{PTRS}}$ symbols and is mapped to the complex-valued symbols $\tilde{x}^{(0)}(lM_{\text{sc}}^{\text{PUSCH}} + i')$ corresponding to OFDM symbol l prior to transform precoding, with $i' \in \{0,1,\ldots,M_{\text{sc}}^{\text{PUSCH}}-1\}$ and $i' \neq m$. The index m of PT-RS samples in set l, the number of samples per PT-RS group $N_{\text{samp}}^{\text{group}}$, and the number of PT-RS groups $N_{\text{group}}^{\text{PTRS}}$ are defined in clause 6.4.1.2.2.2. The quantity $\varepsilon_l = 1$ when OFDM symbol l contains one or more PT-RS samples, otherwise $\varepsilon_l = 0$.

* * * *

Transform precoding shall be applied according to

$$y^{(0)}(l \cdot M_{\text{sc}}^{\text{PUSCH}} + k) = \frac{1}{\sqrt{M_{\text{sc}}^{\text{PUSCH}}}} \sum_{i=0}^{M_{\text{sc}}^{\text{PUSCH}}-1} \tilde{x}^{(0)}(l \cdot M_{\text{sc}}^{\text{PUSCH}} + i) e^{-j\frac{2\pi ik}{M_{\text{sc}}^{\text{PUSCH}}}}$$

$$k = 0,\ldots,M_{\text{sc}}^{\text{PUSCH}}-1$$

$$l = 0,\ldots,M_{\text{symb}}^{\text{layer}} / M_{\text{sc}}^{\text{PUSCH}} - 1$$

resulting in a block of complex-valued symbols $y^{(0)}(0),\ldots,y^{(0)}(M_{\text{symb}}^{\text{layer}}-1)$. The variable $M_{\text{sc}}^{\text{PUSCH}} = M_{\text{RB}}^{\text{PUSCH}} \cdot N_{\text{sc}}^{\text{RB}}$, where $M_{\text{RB}}^{\text{PUSCH}}$ represents the bandwidth of the PUSCH in terms of resource blocks, and shall fulfil

$$M_{\text{RB}}^{\text{PUSCH}} = 2^{\alpha_2} \cdot 3^{\alpha_3} \cdot 5^{\alpha_5}$$

where $\alpha_2, \alpha_3, \alpha_5$ is a set of non-negative integers.

Source: 3GPP 5G Specification

Accused Samsung 5G Receivers must be able to decode the transform precoded data symbols of the subcarriers using the inverse of the M-point DFT used to encode data symbols at the user equipment.

33. In 5G, the DFT used for transform precoding includes an exponential term that corresponds to complex-valued codes that impart a cyclic shift to the encoded symbols and resulting waveforms:

Transform precoding shall be applied according to

$$y^{(0)}(l \cdot M_{sc}^{PUSCH} + k) = \frac{1}{\sqrt{M_{sc}^{PUSCH}}} \sum_{i=0}^{M_{sc}^{PUSCH}-1} \tilde{x}^{(0)}(l \cdot M_{sc}^{PUSCH} + i) e^{-j\frac{2\pi ik}{M_{sc}^{PUSCH}}}$$

$$k = 0,\ldots,M_{sc}^{PUSCH} - 1$$

$$l = 0,\ldots,M_{symb}^{layer} / M_{sc}^{PUSCH} - 1$$

Inverse of *e* function is a complex-conjugate of the DFT used to decode transmitted signals in the base station

resulting in a block of complex-valued symbols $y^{(0)}(0),\ldots,y^{(0)}(M_{symb}^{layer} - 1)$. The variable $M_{sc}^{PUSCH} = M_{RB}^{PUSCH} \cdot N_{sc}^{RB}$, where M_{RB}^{PUSCH} represents the bandwidth of the PUSCH in terms of resource blocks, and shall fulfil

$$M_{RB}^{PUSCH} = 2^{\alpha_2} \cdot 3^{\alpha_3} \cdot 5^{\alpha_5}$$

where $\alpha_2, \alpha_3, \alpha_5$ is a set of non-negative integers.

Source: 3GPP 5G Specification

In order to decode the transform precoding, the inverse DFT is used by Accused Samsung 5G Receivers. The inverse DFT includes the inverse *e* function, and is a complex-conjugate of the DFT used by the user equipment.

34. An OFDM signal is a superposition of subcarriers. The 5G specification's SC-FDMA baseband generation step uses an IFFT (inverse fast Fourier transform) for transforming from the frequency-domain to the time-domain. Each input symbol to an IFFT is modulated onto a particular subcarrier frequency, and the output of the IFFT is a discrete-time signal. If multiple symbols are input to the IFFT at the same time, the output discrete-time signal is a sum (i.e., superposition) of the subcarrier frequencies modulated with their corresponding symbols. The amplitudes of the various subcarrier frequencies at a given time will not be the same; summing

waveforms will result in either constructive or destructive interference. Thus, the transform precoding step shapes interference patterns.

35. Samsung directly infringes claim 10 of the ’386 Patent by selling, offering to sell, and using the Accused Samsung 5G Receivers.

36. Samsung makes, uses, and/or imports the Accused Samsung 5G Receivers knowing that Samsung infringed and continues to infringe at least claim 10 of the ’386 Patent under 35 U.S.C. § 271(a) directly.

37. As a direct and proximate result of Samsung’s acts of patent infringement, GenghisComm has been and continues to be injured, and has sustained and will continue to sustain damages.

COUNT II: INFRINGEMENT OF U.S. PATENT ’386 CLAIM 15

38. GenghisComm incorporates by reference the allegations set forth in the preceding paragraphs of this Complaint as though set forth in full herein.

39. Claim 15 of the ’386 Patent provides:

Element A	The apparatus of claim 10, wherein converting the OFDM signal to a plurality of frequency-domain values uses a discrete Fourier transform.

40. Samsung has and continues to make, use, sell, import, and/or offer for sale the Accused Samsung 5G Receivers that meet each and every element of claim 2 of the ’386 Patent.

41. In 5G, user equipment are required to generate an OFDM baseband signal using an N-point discrete Fourier transform (DFT). This DFT converts a frequency-domain signal into a time-domain signal:

5.3.1 OFDM baseband signal generation for all channels except PRACH

The time-continuous signal $s_l^{(p,\mu)}(t)$ on antenna port p and subcarrier spacing configuration μ for OFDM symbol $l \in \{0,1,\ldots,N_{\text{slot}}^{\text{subframe},\mu} N_{\text{symb}}^{\text{slot}} - 1\}$ in a subframe for any physical channel or signal except PRACH is defined by

$$s_l^{(p,\mu)}(t) = \sum_{k=0}^{N_{\text{grid},x}^{\text{size},\mu} N_{\text{sc}}^{\text{RB}} - 1} a_{k,l}^{(p,\mu)} \cdot e^{j2\pi\left(k + k_0^{\mu} - N_{\text{grid},x}^{\text{size},\mu} N_{\text{sc}}^{\text{RB}}/2\right)\Delta f\left(t - N_{\text{CP},l}^{\mu} T_c - t_{\text{start},l}^{\mu}\right)}$$

$$k_0^{\mu} = \left(N_{\text{grid},x}^{\text{start},\mu} + N_{\text{grid},x}^{\text{size},\mu}/2\right) N_{\text{sc}}^{\text{RB}} - \left(N_{\text{grid},x}^{\text{start},\mu_0} + N_{\text{grid},x}^{\text{size},\mu_0}/2\right) N_{\text{sc}}^{\text{RB}} 2^{\mu_0 - \mu}$$

where $t_{\text{start},l}^{\mu} \le t < t_{\text{start},l}^{\mu} + \left(N_{\text{u}}^{\mu} + N_{\text{CP},l}^{\mu}\right) T_c$ is the time within the subframe,

$$N_{\text{u}}^{\mu} = 2048\kappa \cdot 2^{-\mu}$$

$$N_{\text{CP},l}^{\mu} = \begin{cases} 512\kappa \cdot 2^{-\mu} & \text{extended cyclic prefix} \\ 144\kappa \cdot 2^{-\mu} + 16\kappa & \text{normal cyclic prefix, } l = 0 \text{ or } l = 7 \cdot 2^{\mu} \\ 144\kappa \cdot 2^{-\mu} & \text{normal cyclic prefix, } l \neq 0 \text{ and } l \neq 7 \cdot 2^{\mu} \end{cases}$$

Δf is given by clause 4.2, μ is the subcarrier spacing configuration, and μ_0 is the largest μ value among the subcarrier spacing configurations provided to the UE for this carrer. The starting position of OFDM symbol l for subcarrier spacing configuration μ in a subframe is given by

Source: 3GPP 5G Specification

Accused Samsung 5G Receivers must be able to convert the time-domain signal from the uplink into a frequency-domain signal using the inverse of the N-point DFT used to generate the signal at the user equipment for each of the subcarrier frequencies allocated to each user equipment.

42. Samsung directly infringes claim 15 of the ’386 Patent by selling, offering to sell, and using the Accused Samsung 5G Receivers.

43. Samsung makes, uses, and/or imports the Accused Samsung 5G Receivers knowing that Samsung infringed and continues to infringe at least claim 15 of the ’386 Patent under 35 U.S.C. § 271(a) directly.

44. As a direct and proximate result of Samsung’s acts of patent infringement, GenghisComm has been and continues to be injured, and has sustained and will continue to sustain damages.

COUNT III: INFRINGEMENT OF U.S. PATENT '386 CLAIM 17

45. GenghisComm incorporates by reference the allegations set forth in the preceding paragraphs of this Complaint as though set forth in full herein.

46. Claim 17 of the '386 Patent provides:

Element A	The apparatus of claim 10, wherein converting the OFDM signal to the plurality of frequency-domain values provides for orthogonal frequency division multiple access for the user device and at least one other user device.

47. Samsung has and continues to make, use, sell, import, and/or offer for sale the Accused Samsung 5G Receivers that meet each and every element of claim 17 of the '386 Patent.

48. Accused Samsung 5G Receivers support the receiving of signals from multiple user equipment, with each user equipment having its own frequency-domain values that are converted by the Accused Samsung 5G Receivers.

49. Samsung directly infringes claim 17 of the '386 Patent by selling, offering to sell, and using the Accused Samsung 5G Receivers.

50. Samsung makes, uses, and/or imports the Accused Samsung 5G Receivers knowing that Samsung infringed and continues to infringe at least claim 17 of the '386 Patent under 35 U.S.C. § 271(a) directly.

51. As a direct and proximate result of Samsung's acts of patent infringement, GenghisComm has been and continues to be injured, and has sustained and will continue to sustain damages.

JURY DEMAND

GenghisComm demands a trial by jury on all issues so triable.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff GenghisComm requests that this Court enter judgment in its favor and against Samsung as follows:

A. Adjudging, finding, and declaring that Samsung has infringed of the above-identified claims of each of the Patent-in-Suit under 35 U.S.C. § 271;

B. Awarding the past and future damages arising out of Samsung's infringement of the Patent-in-Suit to GenghisComm in an amount no less than a reasonable royalty, together with prejudgment and post-judgment interest, in an amount according to proof;

C. Adjudging, finding, and declaring that Samsung's infringement is willful and enhanced damages and fees as a result of that willfulness under 35 U.S.C. § 284;

D. Adjudging, finding, and declaring that this is an "exceptional" case pursuant to 35 U.S.C. § 285;

E. Awarding attorney's fees, costs, or other damages pursuant to 35 U.S.C. §§ 284 or 285 or as otherwise permitted by law; and

F. Granting GenghisComm such other further relief as is just and proper, or as the Court deems appropriate.

Dated: November 5, 2024

Respectfully submitted,

/s/ Alison Richards

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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing document was filed electronically in compliance with Local Rule CV-5(a). Therefore, this document was served on all counsel who are deemed to have consented to electronic service. Local Rule CV-5(a)(3)(A). Pursuant to Fed. R. Civ. P. 5(d) and Local Rule CV-5(d) and (e), all other counsel of record not deemed to have consented to electronic service were served with a true and correct copy of the foregoing by email on November 5, 2024.

/s/ Alison Richards

Alison Aubry Richards