

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT7676553

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
HUA ZHOU	03/03/2022
ESMAEL HEJAZI DINAN	03/17/2022
YUNJUNG YI	04/22/2022
ALI CAGATAY CIRIK	03/08/2022
JONGHYUN PARK	08/17/2022
HYOUNGSUK JEON	03/07/2022
HYUKJIN CHAE	04/18/2022
KAI XU	03/05/2022
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	OFINNO, LLC
<b>Street Address:</b>	11091 SUNSET HILLS ROAD
<b>Internal Address:</b>	SUITE 510
<b>City:</b>	RESTON
<b>State/Country:</b>	VIRGINIA
<b>Postal Code:</b>	20190
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	17987314
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	5715231482
<b>Email:</b>	docket1@ofinno.com
<b>Correspondent Name:</b>	OFINNO, LLC
<b>Address Line 1:</b>	11091 SUNSET HILLS ROAD
<b>Address Line 2:</b>	SUITE 510
<b>Address Line 4:</b>	RESTON, VIRGINIA 20190
<b>ATTORNEY DOCKET NUMBER:</b>	20-1167US
<b>NAME OF SUBMITTER:</b>	KIM ASHWELL

PATENT

<b>SIGNATURE:</b>	/Kim Ashwell/
<b>DATE SIGNED:</b>	12/05/2022
<b>Total Attachments: 18</b> source=20-1167US_Assignment#page1.tif source=20-1167US_Assignment#page2.tif source=20-1167US_Assignment#page3.tif source=20-1167US_Assignment#page4.tif source=20-1167US_Assignment#page5.tif source=20-1167US_Assignment#page6.tif source=20-1167US_Assignment#page7.tif source=20-1167US_Assignment#page8.tif source=20-1167US_Assignment#page9.tif source=20-1167US_Assignment#page10.tif source=20-1167US_Assignment#page11.tif source=20-1167US_Assignment#page12.tif source=20-1167US_Assignment#page13.tif source=20-1167US_Assignment#page14.tif source=20-1167US_Assignment#page15.tif source=20-1167US_Assignment#page16.tif source=20-1167US_Assignment#page17.tif source=20-1167US_Assignment#page18.tif	

**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- \* The APPLICATION was made or authorized to be made by INVENTOR.

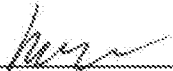
Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/0660751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou 	Date of Signature 2022-03-03
--	---------------------------------

Esmael Hejazi Dinan	Date of Signature
---------------------	-------------------

Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park	Date of Signature
---------------	-------------------

Hyoungsuk Jeon	Date of Signature
----------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu	Date of Signature
--------	-------------------

SIGNATURE of Assignee

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofinno, LLC	Date of Signature
--	-------------------

**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION");

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services  
Date Filed: 2021-11-24  
Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou	Date of Signature
----------	-------------------

Esmael Hejazi Dinan	Date of Signature
3/17/2022	<i>EsmalDinan</i>

Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park	Date of Signature
---------------	-------------------

Hyongsuk Jeon	Date of Signature
---------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu	Date of Signature
--------	-------------------

**SIGNATURE of Assignee**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofinno, LLC	Date of Signature
--	-------------------

COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION");

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou	Date of Signature
----------	-------------------

Esmael Hejazi Dinan	Date of Signature
---------------------	-------------------

Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park	Date of Signature
---------------	-------------------

Hyoongsuk Jeon	Date of Signature
----------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu	Date of Signature
--------	-------------------

**SIGNATURE of Assignee**

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofinno, LLC	Date of Signature
--	-------------------



**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Offnno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.



**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Offinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.


INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou	Date of Signature
----------	-------------------

Esmael Hejazi Dinan	Date of Signature
---------------------	-------------------

Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park 	Date of Signature <u>8/17/22</u>
---	----------------------------------

Hyongsuk Jeon	Date of Signature
---------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu	Date of Signature
--------	-------------------

SIGNATURE of Assignee

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofinno, LLC	Date of Signature
--	-------------------

**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**,

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou	Date of Signature
----------	-------------------

Esmael Hejazi Dinan	Date of Signature
---------------------	-------------------

Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park	Date of Signature
---------------	-------------------

Hyoongsok Joon	Date of Signature
----------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu	Date of Signature
--------	-------------------

SIGNATURE of Assignee

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofimo, LLC	Date of Signature
---	-------------------

**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services  
Date Filed: 2021-11-24  
Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou Date of Signature

Esmael Hejazi Dinan Date of Signature

Yunjung Yi Date of Signature

Ali Cagatay Cirik Date of Signature

Jonghyun Park Date of Signature

Hyongsuk Jeon Date of Signature

Hyukjin Chae Date of Signature 4/10/2022

Kai Xu Date of Signature

**SIGNATURE of Assignee**

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Date of Signature  
Chief Intellectual Property Officer  
Ofinno, LLC



**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Offinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou	Date of Signature
----------	-------------------

Esmael Hejazi Dinan	Date of Signature
---------------------	-------------------

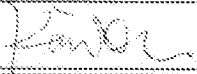
Yunjung Yi	Date of Signature
------------	-------------------

Ali Cagatay Cirik	Date of Signature
-------------------	-------------------

Jonghyun Park	Date of Signature
---------------	-------------------

Hyongsuk Jeon	Date of Signature
---------------	-------------------

Hyukjin Chae	Date of Signature
--------------	-------------------

Kai Xu 	Date of Signature 3/5/2022
--	-------------------------------

**SIGNATURE of Assignee**

The Individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

Kavon Nasabzadeh Chief Intellectual Property Officer Ofinno, LLC	Date of Signature
--	-------------------

**COMBINED ASSIGNMENT/DECLARATION (37 C.F.R. § 1.63)**

For good and valuable consideration, the receipt of which is hereby acknowledged, the person(s) named below (referred to as "INVENTOR" whether singular or plural) has sold, assigned, and transferred and does hereby sell, assign, and transfer to **Ofinno, LLC**, having a place of business at 11091 Sunset Hills Road, Suite 510, Reston, Virginia 20190 ("ASSIGNEE"), for itself and its successors, transferees, and assignees, the following:

1. The entire worldwide right, title, and interest in all inventions and improvements ("SUBJECT MATTER") that are disclosed in the following provisional application filed under 35 U.S.C. § 111(b), non-provisional application filed under 35 U.S.C. § 111(a), international application filed according to the Patent Cooperation Treaty (PCT), or U.S. national phase application filed under 35 U.S.C. § 371 ("APPLICATION"):

Application No. **PCT/US2021/060751**, entitled "**Group Scheduling of Multicast and Broadcast Services**" filed on **November 24, 2021**, which claims priority from provisional application(s), **63/117,515** filed on **November 24, 2020**.

2. The entire worldwide right, title, and interest in and to: (a) the APPLICATION; (b) all applications claiming priority from the APPLICATION; (c) all provisional, utility, divisional, continuation, substitute, renewal, reissue, and other applications related thereto which have been or may be filed in the United States or elsewhere in the world; (d) all patents (including reissues and re-examinations) that may be granted on the applications set forth in (a), (b), and (c) above; and (e) all right of priority in the APPLICATION and in any underlying provisional or foreign application, together with all rights to recover damages for infringement of provisional rights.

INVENTOR agrees that ASSIGNEE may apply for and receive patents for the SUBJECT MATTER in ASSIGNEE's own name.

INVENTOR agrees to do the following, when requested, and without further consideration, in order to carry out the intent of this Assignment: (1) execute all oaths, assignments, powers of attorney, applications, and other papers necessary or desirable to fully secure to ASSIGNEE the rights, titles and interests herein conveyed; (2) communicate to ASSIGNEE all known facts relating to the SUBJECT MATTER; and (3) generally do all lawful acts that ASSIGNEE shall consider desirable for securing, maintaining, and enforcing worldwide patent protection relating to the SUBJECT MATTER and for vesting in ASSIGNEE the rights, titles, and interests herein conveyed. INVENTOR further agrees to provide any successor, assign, or legal representative of ASSIGNEE with the benefits and assistance provided to ASSIGNEE hereunder.

INVENTOR represents that INVENTOR has the rights, titles, and interests to convey as set forth herein, and covenants with ASSIGNEE that INVENTOR has not made and will not hereafter make any assignment, grant, mortgage, license, or other agreement affecting the rights, titles, and interests herein conveyed.

INVENTOR grants the attorney of record the power to insert on this Assignment any further identification that may be necessary or desirable in order to comply with the rules of the United States Patent and Trademark Office for recordation of this document.

This Assignment may be executed in one or more counterparts, each of which shall be deemed an original and all of which may be taken together as one and the same Assignment.

**DECLARATION (37 C.F.R. § 1.63) FOR UTILITY OR DESIGN APPLICATION  
USING AN APPLICATION DATA SHEET (37 C.F.R. § 1.76)**

By signing below, INVENTOR further attests to the following:

- The APPLICATION was made or authorized to be made by INVENTOR.

Title: Group Scheduling of Multicast and Broadcast Services

Date Filed: 2021-11-24

Application No.: PCT/US2021/060751

- INVENTOR believes that INVENTOR is the original inventor or an original joint inventor of a claimed invention in the APPLICATION.
- INVENTOR acknowledges the duty to disclose to the United States Patent and Trademark Office all information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56, which for a continuation-in-part includes information known to INVENTOR to be material to patentability as defined in 37 C.F.R. § 1.56 that became available between the filing date of the prior patent application and the National or PCT filing date of the continuation-in-part application.

INVENTOR hereby acknowledges that any willful false statement made in this declaration is punishable under 18 U.S.C. § 1001 by fine or imprisonment of not more than five (5) years, or both.

Hua Zhou Date of Signature

Esmael Hejazi Dinan Date of Signature

Yunjung Yi Date of Signature

Ali Cagatay Cirik Date of Signature

Jonghyun Park Date of Signature

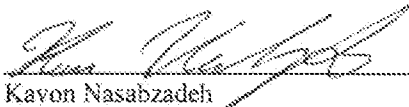
Hyongsuk Jeon Date of Signature

Hyukjin Chae Date of Signature

Kai Xu Date of Signature

**SIGNATURE of Assignee**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

  
Kavon Nasabzadeh  
Chief Intellectual Property Officer  
Ofinno, LLC

05/09/2022  
Date of Signature