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Hon. James L. Robart

**UNITED STATES DISTRICT COURT
WESTERN DISTRICT OF WASHINGTON
AT SEATTLE**

Malikie Innovations Ltd.,
Key Patent Innovations Ltd.,

Plaintiffs,

v.

Nintendo Co. Ltd.,
Nintendo of America, Inc.
Defendants.

Case. No. 2:24-cv-01490-JLR

**PLAINTIFFS' LOCAL PATENT RULE
120 DISCLOSURE OF ASSERTED
CLAIMS AND INFRINGEMENT
CONTENTIONS
(AMENDED SEPTEMBER 16, 2025)**

JURY TRIAL DEMANDED

PLAINTIFFS' LOCAL PATENT RULE 120 1
DISCLOSURE OF ASSERTED CLAIMS AND
INFRINGEMENT CONTENTIONS
(AMENDED SEPTEMBER 16, 2025)

TOWNSEND LEGAL CORP
380 Winslow Way, Suite 200
Bainbridge Island, WA 98110 Tel: 206-761-2480

Pursuant to Local Patent Rule 120, Plaintiffs Malikie Innovations Limited (“Malikie”) and Key Patent Innovations Limited (“KPI”) (collectively, “Plaintiffs” or “Malikie”) hereby disclose their asserted claims and infringement contentions. Plaintiffs’ investigation of infringement by Defendants Nintendo Co., Ltd. and Nintendo of America, Inc. (collectively, “Defendants” or “Nintendo”) is ongoing, and Plaintiffs therefore expressly reserve the right to supplement their infringement contentions if and when additional information becomes available, including but not limited to Defendants’ production of source code and other technical documents, interrogatory and discovery responses, expert reports, and other disclosures made in this case, including those made under the Federal Rules and the Local Patent Rules.

ASSERTED CLAIMS & PRIORITY DATES

1. Plaintiffs presently assert infringement by Defendants, under at least 35 U.S.C. §§ (a)-(c), of the following claims of the following patents (collectively, the “Asserted Patents”) by various instrumentalities, as identified in the appended claim chart exhibits and appendices.

2. Charts identifying where each element of each asserted claim of each asserted patent is found within the various accused instrumentalities are attached hereto as Exhibits A through F, and the accused instrumentalities are shown in the corresponding appendices. Plaintiffs’ allegations, on information and belief, are summarized below.

	Earliest Priority	Asserted Claims	271			Infringement	
			(a) Direct	(b) Induced	(c) Contributory	Literal	DOE
US 8,115,731	July 9, 2001	1-3	x	x	x	x	
		11	x	x	x	x	
		13-14	x	x	x	x	
US 8,545,247	June 30, 2011	1, 2, 6, 11	x			x	
		13	x			x	
		15, 16, 19	x			x	
US 9,313,065	October 17, 2001	1-2	x	x	x	x	x
		4-32	x	x	x	x	
		34	x	x	x	x	
		36-38	x	x	x	x	
		40-42	x	x	x	x	

1	US 7,529,305	October 27, 2000	1-3	x	x	x	x	
2			6	x	x	x	x	
3	US 8,610,397	February 11, 2004	1-22	x	x	x	x	
4	US 9,542,571	December 12, 2002	1-20	x	x	x	x	

3. Plaintiffs contend that every limitation of each asserted claim is literally present in the accused instrumentalities. Additionally, in certain instances as set forth above and in the attached Exhibits, Plaintiffs contend that the limitations are alternatively met under the doctrine of equivalents. Plaintiffs reserve all rights to amend or supplement these contentions if and when additional information becomes available.

INDIRECT INFRINGEMENT

A. U.S. 8,115,731

1. Defendants knowingly, intentionally, and actively aid, abet, and induce others to directly infringe claims 1-3, 11, and 13-14 of the '731 Patent by, for example, selling, offering for sale, and encouraging customers to use infringing Nintendo Switch with Joy-Con Controllers, Nintendo Switch OLED with Joy-Con Controllers, and Nintendo Switch Lite with built-in controllers. Defendants advertise and explain to customers and users how the Joy-Con Controllers and built-in controllers function with the Nintendo Switch devices, including how physical movement with the controllers can be tracked using the accelerometer and gyroscope and processed by the processor to cause the graphical elements on the Switch to visually move according to the displacement and movement of the Joy-Con Controllers or built-in controllers.

See, *e.g.,*

<https://www.youtube.com/watch?v=DKBK4OnvjX0&list=PL2JiZAV5BmDXx6qFj76MFxgLxEQetsWzII>. Defendants continued to so instruct and encourage customers and users even after they were specifically put on notice of the '731 Patent including the reasons for their infringement.

2. Defendants contribute to the direct infringement of at least claims 1-3, 11, and 13-14 of the '731 Patent under 35 U.S.C. § 271(c) by, for example, supplying, with knowledge of the '731 Patent, a material part of a claimed invention, where the material part is not a staple article of

1 commerce and is incapable of substantial non-infringing use. For example, Defendants provide,
2 own, operate, sell, offer to sell, lease, and/or import infringing Joy-Con Controllers that are not a
3 staple article of commerce and are incapable of substantial infringing use (for example, with any
4 other gaming console or without utilizing the claimed features). Defendants continued their
5 actions even after they were specifically put on notice of the '731 Patent, including the role that
6 the Joy-Con Controllers play in Defendants' infringement.

7 **B. U.S. 8,610,397**

8 3. Defendants knowingly, intentionally, and actively aided, abetted, and induced
9 others to directly infringe at least claims 1-22 of the '397 Patent under 35 U.S.C. § 271(b) by, for
10 example, having sold, offered for sale, and encouraged customers to use the Nintendo Switch with
11 the infringing accompanying Nintendo Switch Dock and/or the infringing accompanying Nintendo
12 Switch AC Adapter, each with a USB Type-C connector; the infringing Nintendo Joy-Con
13 Charging Grip with the accompanying USB Type-C cable connected to the infringing Nintendo
14 Switch Dock and/or the infringing Nintendo Switch AC Adapter, and the Nintendo Switch Pro
15 Controller with the accompanying USB Type-C cable connected to the infringing Nintendo Switch
16 Dock and/or the infringing Nintendo Switch AC Adapter. Defendants instructed customers and
17 users how to charge the devices using the USB connection, which infringes the '397 patent. *See,*
18 *e.g.,*
19 [https://www.nintendo.com/my/support/qa/detail/33826?srsId=AfmBOooLwnE_08e8OM_uGeQ](https://www.nintendo.com/my/support/qa/detail/33826?srsId=AfmBOooLwnE_08e8OM_uGeQfnUJsKCzjPtnG0jtAYra13eNUICSUFehz)
20 [fnUJsKCzjPtnG0jtAYra13eNUICSUFehz](https://www.nintendo.com/my/support/qa/detail/33826?srsId=AfmBOooLwnE_08e8OM_uGeQfnUJsKCzjPtnG0jtAYra13eNUICSUFehz). Defendants continued to so instruct and encourage
21 customers and users even after they were specifically put on notice of the '397 Patent including
22 the reasons for their infringement.

23 4. Defendants contributed to the direct infringement of at least claims 1-22 of the '397
24 Patent under 35 U.S.C. § 271(c) by, for example, having supplied, with knowledge of the '397
25 Patent, a material part of a claimed invention (such as the Nintendo Switch Dock or a replacement
26 Nintendo Switch Dock, the Nintendo Switch AC Adapter or replacement Nintendo Switch AC
27

1 Adapter, the Nintendo Joy-Con Charging Grip, or other accompanying USB C-type charging
2 cables), where the material part was not a staple article of commerce and was incapable of
3 substantial non-infringing use. For example, Defendants provided, owned, operated, sold, offered
4 to sell, leased, and/or imported infringing Nintendo Switches with Docks and AC Adapters,
5 Nintendo Joy-Con Charging Grips and accompanying USB C-Type charging cables, and Nintendo
6 Switch Pro Controller and accompanying USB C-Type charging cables that were not a staple
7 article of commerce and were incapable of substantial non-infringing use. Defendants continued
8 their actions even after they were specifically put on notice of the '397 Patent, including the role
9 that the Nintendo Switch Dock, Nintendo Switch AC Adapters, the Nintendo Joy-Con Charging
10 Grip, and the USB type-C charging cables accompanying the Nintendo Switch, Nintendo Joy-Con
11 Charging Grips and/or the Nintendo Switch Pro Controller played in Defendants' infringement.

12 **C. U.S. 7,529,305**

13 5. Defendants knowingly, intentionally, and actively aided, abetted, and induced
14 others to directly infringe at least claims 1-3 and 6 of the '305 Patent by, for example, having sold,
15 offered for sale, and encouraged customers to use infringing the Nintendo Switch, Switch Lite,
16 and/or Switch OLED. Defendants, for example, instructed customers and users how to activate
17 wireless connection on the Switch devices, which infringed the '305 patent. *See, e.g.,*
18 [https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantIn](https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantInformation_UKV_01.pdf)
19 [formation_UKV_01.pdf](https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantInformation_UKV_01.pdf). Defendants so instructed and encouraged customers and users even after
20 they were specifically put on notice of the '305 patent, including the reasons for their infringement.

21 6. Defendants contributed to the direct infringement of at least claims 1-3 and 6 of the
22 '305 Patent under 35 U.S.C. § 271(c) by, for example, having supplied, with knowledge of the
23 '305 Patent, a material part of a claimed invention, where the material part was not a staple article
24 of commerce and was incapable of substantial non-infringing use. For example, Defendants
25 provided, owned, operated, sold, offered to sell, leased, and/or imported infringing wireless
26 connectivity in Nintendo Switch, Switch Lite, and/or Switch OLED devices that were not a staple

1 article of commerce and were incapable of substantial infringing use. Defendants continued their
2 actions even after they were specifically put on notice of the '305 Patent, including the role that
3 providing wireless connectivity played in Defendants' infringement.

4 **D. U.S. 9,313,065**

5 7. Defendants knowingly, intentionally, and actively aided, abetted, and induced
6 others to directly infringe at least claims 1-2, 4-32, 34, 36-38, and 40-42 of the '065 Patent by, for
7 example, having sold, offered for sale, and encouraged customers to use the infringing Nintendo
8 Switch, Switch Lite, and/or Switch OLED. Defendants, for example, instructed customers and
9 users how to activate wireless connection on the Switch devices, which when the devices utilized
10 WiFi, infringed the '065 Patent. *See, e.g.,*
11 [https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantIn](https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantInformation_UKV_01.pdf)
12 [formation_UKV_01.pdf](https://www.nintendo.com/eu/media/downloads/support_1/nintendoswitch/NSwitch_ImportantInformation_UKV_01.pdf). Defendants continued to so instruct and encourage customers and users
13 even after they were specifically put on notice of the '065 Patent, including the reasons for their
14 infringement.

15 8. Defendants contributed to the direct infringement of at least claims 1-2, 4-32, 34,
16 36-38, and 40-42 of the '065 Patent under 35 U.S.C. § 271(c) by, for example, having supplied,
17 with knowledge of the '065 Patent, a material part of a claimed invention, where the material part
18 was not a staple article of commerce and was incapable of substantial non-infringing use. For
19 example, Defendants provided, owned, operated, sold, offered to sell, leased, and/or imported
20 infringing wireless connectivity in Nintendo Switch, Switch Lite, and/or Switch OLED devices
21 that were not a staple article of commerce and were incapable of substantial infringing use.
22 Defendants continued their actions even after they were specifically put on notice of the '065
23 Patent, including the role that providing wireless connectivity plays in Defendants' infringement.

1 DATED: September 16, 2025

**REICHMAN JORGENSEN
LEHMAN & FELDBERG LLP**

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***Attorneys for Malikie Innovations Ltd.
and Key Patent Innovations Ltd.***

1 **CERTIFICATE OF SERVICE**

2 I, the undersigned, hereby certify that I caused a true and correct copy of the foregoing
3 document to be served via email to the following parties of record:

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DATED on this 16th day of September, 2025.

/s/ Michael M. Polka
Michael M. Polka

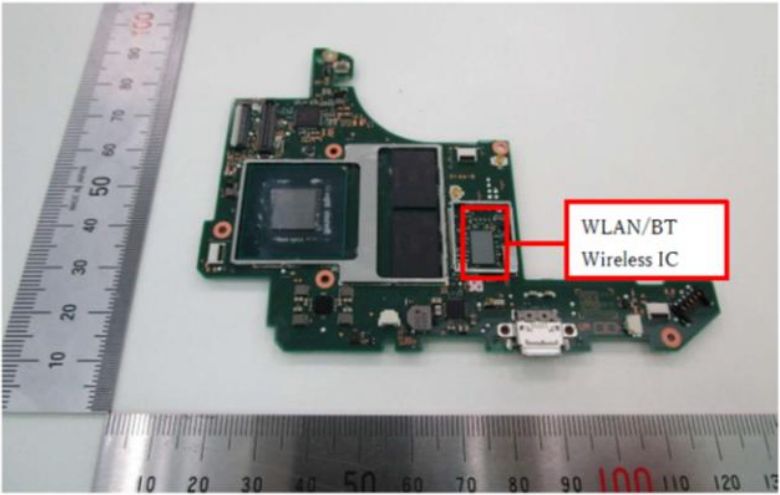
**Malikie's L.P.R. C-120 Disclosure of Asserted Claims and Infringement Contentions
Infringement of U.S. Patent No. 7,529,305**

This claim chart is based on publicly available literature. Plaintiffs Malikie Innovations Ltd. and Key Patent Innovations Ltd. (collectively, "Plaintiffs" or "Malikie") reserve the right to supplement and/or amend its positions based on discovery from Nintendo Co. Ltd. and/or Nintendo of America Inc. (collectively, "Nintendo" or "Defendants"), including technical documentation such as schematics and datasheets, and source code.

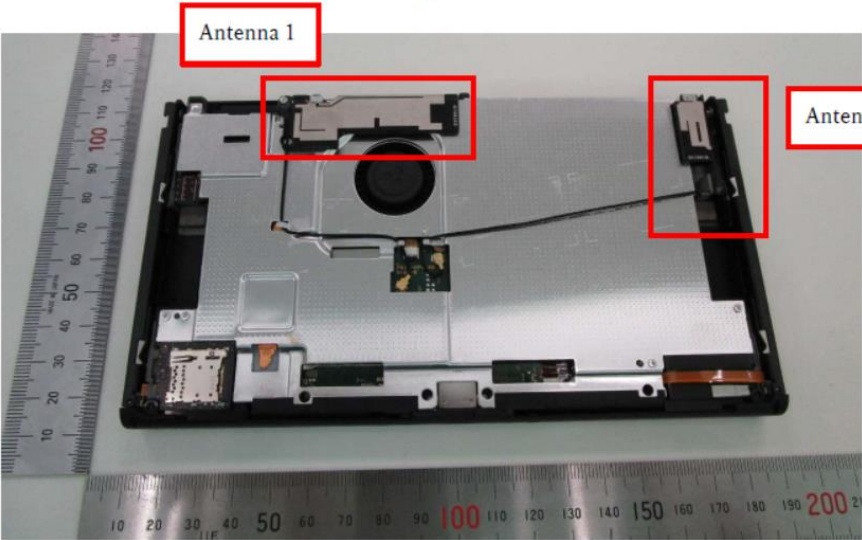
Nintendo has infringed U.S. Patent No. 7,529,305 (the "'305 patent") by making, using, selling, offering for sale, and/or importing into the United States WiFi devices with multiple antennas compliant with the IEEE 802.11n and later standards (e.g., IEEE-2016 and IEEE802.11-2020). Malikie's allegations include all such devices made, used, sold, offered for sale, and/or imported into the United States during the damages window, unless otherwise noted or prohibited by license ("Accused Products"). *See* Appendix for the currently known list of Accused Products.

Theories exemplifying how the Accused Products infringe the asserted claims of the '305 patent are detailed herein. The chart below identifies the IEEE 802.11 (2012), along with the corresponding 802.11 (2016) and 802.11 (2020) standards. The products included are representative; on information and belief, all Accused Products function in substantially the same manner as one or more of the examples provided and include generally the same components. Malikie reserves its right to amend these contentions under the requirements and procedures set forth in L.P.R. C-120 and C-124.

I. Independent claim 1 and dependent claims 2, 3, and 6

Claim	Identification
1[pre] A transmitter adapted to process a plurality M of symbol substreams, the transmitter comprising:	To the extent the preamble is limiting, the Accused Products comprise a transmitter adapted to process a plurality M of symbol substreams. For example, the Accused Products include an integrated circuit (IC) (for example, an IC such as the 4356 processor / wireless IC as exemplified below) that constitutes, includes, and/ or implements, a transmitter adapted to process a plurality M of symbol substreams. Wireless module PCB (Front, Shield removed):  https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337261

Claim	Identification															
	<u>Radio Specification</u> Wireless LAN, Bluetooth (BR / EDR / Low Energy function) part: <table><tr><td>Equipment Type</td><td>:</td><td>Transceiver</td></tr><tr><td>Frequency of Operation</td><td>:</td><td>Wireless LAN part: (2.4 GHz): 2412 MHz – 2472 MHz, (U-NII-1): 5180 MHz – 5240 MHz, (U-NII-2A): 5260 MHz – 5320 MHz, (U-NII-2C): 5500 MHz – 5700 MHz, (U-NII-3): 5745 MHz- 5825 MHz, Bluetooth (BR / EDR / Low Energy) part: 2402 MHz - 2480 MHz</td></tr><tr><td>Radio part clock frequency</td><td>:</td><td>37.4 MHz</td></tr><tr><td>Channel spacing</td><td>:</td><td>Wireless LAN part: (2.4 GHz): 5 MHz, (5 GHz): 20 MHz, Bluetooth part: (BR / EDR): 1 MHz, (Low Energy): 2 MHz</td></tr><tr><td>Type of modulation</td><td>:</td><td>Wireless LAN part: 2.4 GHz band: DBPSK, DQPSK, CCK, OFDM 5 GHz band: OFDM</td></tr></table> https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337247	Equipment Type	:	Transceiver	Frequency of Operation	:	Wireless LAN part: (2.4 GHz): 2412 MHz – 2472 MHz, (U-NII-1): 5180 MHz – 5240 MHz, (U-NII-2A): 5260 MHz – 5320 MHz, (U-NII-2C): 5500 MHz – 5700 MHz, (U-NII-3): 5745 MHz- 5825 MHz, Bluetooth (BR / EDR / Low Energy) part: 2402 MHz - 2480 MHz	Radio part clock frequency	:	37.4 MHz	Channel spacing	:	Wireless LAN part: (2.4 GHz): 5 MHz, (5 GHz): 20 MHz, Bluetooth part: (BR / EDR): 1 MHz, (Low Energy): 2 MHz	Type of modulation	:	Wireless LAN part: 2.4 GHz band: DBPSK, DQPSK, CCK, OFDM 5 GHz band: OFDM
Equipment Type	:	Transceiver														
Frequency of Operation	:	Wireless LAN part: (2.4 GHz): 2412 MHz – 2472 MHz, (U-NII-1): 5180 MHz – 5240 MHz, (U-NII-2A): 5260 MHz – 5320 MHz, (U-NII-2C): 5500 MHz – 5700 MHz, (U-NII-3): 5745 MHz- 5825 MHz, Bluetooth (BR / EDR / Low Energy) part: 2402 MHz - 2480 MHz														
Radio part clock frequency	:	37.4 MHz														
Channel spacing	:	Wireless LAN part: (2.4 GHz): 5 MHz, (5 GHz): 20 MHz, Bluetooth part: (BR / EDR): 1 MHz, (Low Energy): 2 MHz														
Type of modulation	:	Wireless LAN part: 2.4 GHz band: DBPSK, DQPSK, CCK, OFDM 5 GHz band: OFDM														

Claim	Identification				
	The Nintendo Switch/Switch Lite/Switch OLED transmits using two antennas  https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337261 Nintendo Switch™ - OLED Model <table><tr><td>Wireless</td><td>Wi-Fi (IEEE 802.11 a/b/g/n/ac compliant) / Bluetooth 4.1</td></tr></table> Nintendo Switch™ console (HAC-001(-01)) <table><tr><td>Wireless</td><td>Wi-Fi (IEEE 802.11 a/b/g/n/ac)(*) Bluetooth 4.1</td></tr></table> Nintendo Switch Lite (HDH-001)	Wireless	Wi-Fi (IEEE 802.11 a/b/g/n/ac compliant) / Bluetooth 4.1	Wireless	Wi-Fi (IEEE 802.11 a/b/g/n/ac)(*) Bluetooth 4.1
Wireless	Wi-Fi (IEEE 802.11 a/b/g/n/ac compliant) / Bluetooth 4.1				
Wireless	Wi-Fi (IEEE 802.11 a/b/g/n/ac)(*) Bluetooth 4.1				

Claim	Identification	
	Wireless	Wi-Fi (IEEE 802.11 a/b/g/n/ac
	https://www.nintendo.com/us/switch/tech-specs/?srsltid=AfmBOooOiV_z_aEcuz68X731Xcb0irpz3SNv64AmC6C4PTJtHdIYbmFb#oled-section	

Claim	Identification
	The Nintendo Switch/Switch Lite/Switch OLED transmits using two antennas Figure 1. Functional Block Diagram The diagram illustrates the functional blocks of the CYW4356 chip. It is a central vertical block with various interfaces on the left and internal components on the right. On the left, there are three main interface groups: WLAN Host I/F (with WL_REG_ON, PCIe, and SDIO), External Coexistence I/F (with COEX), and Bluetooth Host I/F (with CLK_REQ, BT_REG_ON, UART, USB 2.0, I²S, PCM, BT_DEV_WAKE, and BT_HOST_WAKE). On the right, the internal components include two T/R Switches for 5G WLAN and 2G WLAN, each connected to a Diplexer and then to an antenna (Ant1 and Ant0). A 3PST Switch is connected to the 2G WLAN Tx and BT Tx lines, and also to the 2G WL/BT Rx line. Power inputs VIO and VBAT are shown at the top. Red lines are added to the diagram, highlighting the 5G WLAN and 2G WLAN paths to the antennas. https://www.infineon.com/dgdl/Infineon-CYW4356_CG8674_Single-Chip_5G_WiFi_IEEE_802.11ac_2x2_MAC_Baseband_Radio_with_Integrated_Bluetooth_5.0-DataSheet-v03_00-EN.pdf?filed=8ac78c8c7d0d8da4017d0ee4c6ad6bfa (red lines added)

Claim	Identification
	The Nintendo Switch/Switch Lite/Switch OLED uses the 4356 chip compliant with the following 802.11 standards 1.3 Standards Compliance The CYW4356/CG8674 supports the following standards: ■ Bluetooth 5.0 with Basic Rate (BR), Enhanced Data Rate (EDR) and Bluetooth Low Energy (BLE) ■ IEEE802.11ac mandatory and optional requirements for 20 MHz, 40 MHz, and 80 MHz channels ■ IEEE 802.11n—Handheld Device Class (Section 11) ■ IEEE 802.11a ■ IEEE 802.11b ■ IEEE 802.11g ■ IEEE 802.11d ■ IEEE 802.11h ■ IEEE 802.11i ■ Security: □ WEP □ WPA Personal □ WPA2 Personal □ WMM □ WMM-PS (U-APSD) □ WMM-SA □ AES (Hardware Accelerator) □ TKIP (HW Accelerator) □ CKIP (SW Support) ■ Proprietary Protocols: □ CCXv2 □ CCXv3 □ CCXv4 □ CCXv5 ■ IEEE 802.15.2 Coexistence Compliance—on silicon solution compliant with IEEE 3 wire requirements The CYW4356/CG8674 will support the following future drafts/standards: ■ IEEE 802.11w—Secure Management Frames ■ A4WP Wireless Power Transfer System Baseline System Specification V1.0 ■ IEEE 802.11 Extensions: □ IEEE 802.11e QoS Enhancements (In accordance with the WMM specification, QoS is already supported.) □ IEEE 802.11h 5 GHz Extensions □ IEEE 802.11i MAC Enhancements □ IEEE 802.11k Radio Resource Measurement https://www.infineon.com/dgdl/Infineon-CYW4356_CG8674_Single_Chip_5G_WiFi_IEEE_802.11ac_2x2_MAC_Baseband_Radio_with_Integrated_Bluetooth_5.0-DataSheet-v03_00-EN.pdf?fileId=8ac78c8c7d0d8da4017d0ee4c6ad6bfa

Claim	Identification																																			
	The Switch passed testing by the FCC for transmission on two antennas 4.1 Operating Mode(s) *1) Test operating mode was determined as follows according to "Section 1 of 6 802.11 a/b/g/n testing - Managing Complex Regulatory Approvals - " of TCB Council Workshop October 2009 and also was judged the necessity of 802.11ac mode by the pre-test. <table><tr><th>Test item</th><th>Mode</th><th>Tested frequency</th><th>Worst data rate *2)</th><th>Antenna *2)</th></tr><tr><td>Conducted emission, Radiated emission (below 1 GHz), Out of band emissions (Conducted) *1)</td><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO</td><td>5260 MHz</td><td>MCS 3, PN9</td><td>0</td></tr><tr><td rowspan="6">26 dB Emission Bandwidth, 20 dB Bandwidth, Occupied Bandwidth (99%), Maximum Conducted Output Power, Maximum Power Spectral Density</td><td>Transmitting (Tx), IEEE 802.11a (11a)</td><td>(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz</td><td>48 Mbps, PN9</td><td>0</td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO</td><td>(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz</td><td>MCS 3, PN9</td><td>0</td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO</td><td>(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz</td><td>MCS11, PN9</td><td>0 & 1</td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO</td><td>(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz</td><td>MCS 3, PN9</td><td>0</td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), MIMO</td><td>(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz</td><td>MCS 3, PN9</td><td>0 & 1</td></tr><tr><td></td><td></td><td></td><td></td></tr></table> https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337247 (blue and red lines added)	Test item	Mode	Tested frequency	Worst data rate *2)	Antenna *2)	Conducted emission, Radiated emission (below 1 GHz), Out of band emissions (Conducted) *1)	Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO	5260 MHz	MCS 3, PN9	0	26 dB Emission Bandwidth, 20 dB Bandwidth, Occupied Bandwidth (99%), Maximum Conducted Output Power, Maximum Power Spectral Density	Transmitting (Tx), IEEE 802.11a (11a)	(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz	48 Mbps, PN9	0	Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO	(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz	MCS 3, PN9	0	Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO	(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz	MCS11, PN9	0 & 1	Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO	(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz	MCS 3, PN9	0	Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), MIMO	(Low bands): 5180 MHz, 5220 MHz, 5240 MHz, (Middle bands): 5260 MHz, 5300 MHz, 5320 MHz (Additional bands): 5500 MHz, 5580 MHz, 5700 MHz, (Upper bands): 5745 MHz, 5785 MHz, 5825 MHz	MCS 3, PN9	0 & 1				
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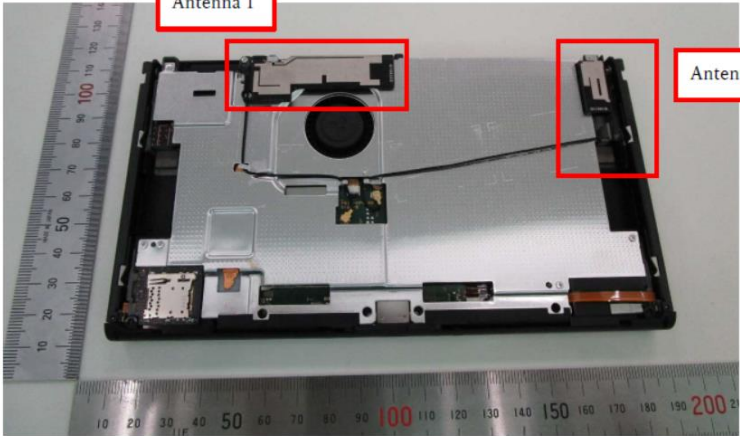
Claim	Identification																																																																																					
	The Switch Lite passed testing by the FCC for transmission on two antennas Test report No. : 12656071S-J-R1 Page : 10 of 316 Issued date : July 26, 2019 FCC ID : BKEHDH001 *The details of Operation mode(s) <table><tr><th rowspan="2">Test Item</th><th rowspan="2">Operating Mode</th><th rowspan="2">Tested Antenna *2)</th><th colspan="4">Tested Frequency</th></tr><tr><th>U-NII-1 Band</th><th>U-NII-2A Band</th><th>U-NII-2C Band</th><th>U-NII-3 Band</th></tr><tr><td>Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission *1)</td><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO</td><td>0</td><td>-</td><td>5320 MHz</td><td>-</td><td>-</td></tr><tr><td rowspan="11">26 dB Emission Bandwidth</td><td>Transmitting (Tx), IEEE 802.11a (11a)</td><td>0</td><td>-</td><td>5260 MHz</td><td>5500 MHz</td><td>-</td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO</td><td></td><td></td><td>5300 MHz</td><td>5580 MHz</td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO</td><td></td><td></td><td>5320 MHz</td><td>5700 MHz</td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO</td><td>0 & 1</td><td></td><td></td><td></td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), MIMO</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO</td><td>0</td><td>-</td><td>5270 MHz</td><td>5510 MHz</td><td>-</td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT40 (11ac-40), SISO</td><td></td><td></td><td>5310 MHz</td><td>5550 MHz</td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11n HT40 (11n-40), MIMO</td><td>0 & 1</td><td></td><td></td><td></td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT40 (11ac-40), MIMO</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT80 (11ac-80), SISO</td><td>1</td><td>-</td><td>5290 MHz</td><td>5530 MHz</td><td>-</td></tr><tr><td>Transmitting (Tx), IEEE 802.11ac VHT80 (11ac-80), MIMO</td><td>0 & 1</td><td></td><td></td><td></td><td></td></tr></table> https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337247 (blue and red lines added)	Test Item	Operating Mode	Tested Antenna *2)	Tested Frequency				U-NII-1 Band	U-NII-2A Band	U-NII-2C Band	U-NII-3 Band	Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission *1)	Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO	0	-	5320 MHz	-	-	26 dB Emission Bandwidth	Transmitting (Tx), IEEE 802.11a (11a)	0	-	5260 MHz	5500 MHz	-	Transmitting (Tx), IEEE 802.11n HT20 (11n-20), SISO			5300 MHz	5580 MHz		Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO			5320 MHz	5700 MHz		Transmitting (Tx), IEEE 802.11n HT20 (11n-20), MIMO	0 & 1					Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), MIMO						Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO	0	-	5270 MHz	5510 MHz	-	Transmitting (Tx), IEEE 802.11ac VHT40 (11ac-40), SISO			5310 MHz	5550 MHz		Transmitting (Tx), IEEE 802.11n HT40 (11n-40), MIMO	0 & 1					Transmitting (Tx), IEEE 802.11ac VHT40 (11ac-40), MIMO						Transmitting (Tx), IEEE 802.11ac VHT80 (11ac-80), SISO	1	-	5290 MHz	5530 MHz	-	Transmitting (Tx), IEEE 802.11ac VHT80 (11ac-80), MIMO	0 & 1				
Test Item	Operating Mode				Tested Antenna *2)	Tested Frequency																																																																																
		U-NII-1 Band	U-NII-2A Band	U-NII-2C Band		U-NII-3 Band																																																																																
Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission *1)	Transmitting (Tx), IEEE 802.11ac VHT20 (11ac-20), SISO	0	-	5320 MHz	-	-																																																																																
26 dB Emission Bandwidth	Transmitting (Tx), IEEE 802.11a (11a)	0	-	5260 MHz	5500 MHz	-																																																																																
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	Transmitting (Tx), IEEE 802.11n HT40 (11n-40), SISO	0	-	5270 MHz	5510 MHz	-																																																																																
	Transmitting (Tx), IEEE 802.11ac VHT40 (11ac-40), SISO			5310 MHz	5550 MHz																																																																																	
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	Transmitting (Tx), IEEE 802.11ac VHT80 (11ac-80), SISO	1	-	5290 MHz	5530 MHz	-																																																																																
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Claim	Identification																																																																																								
	The Switch OLED passed testing by the FCC for transmission on two antennas Test report No. : 13456926S-I-R2 Page : 12 of 292 Issued date : July 6, 2021 FCC ID : BKEHEG001 *The details of Operation mode(s) <table><tr><th rowspan="2">Test Item</th><th rowspan="2">Operating Mode</th><th rowspan="2">Tested Antenna *2)</th><th colspan="4">Tested Frequency</th></tr><tr><th>Lower Band</th><th>Middle Band</th><th>Additional Band</th><th>Upper Band</th></tr><tr><td>Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission</td><td>Tx 11n-20 (MIMO) *1)</td><td>0 & 1</td><td>-</td><td>5320 MHz</td><td>-</td><td>-</td></tr><tr><td>26.4B Emission Bandwidth</td><td>Tx 11a</td><td>1</td><td></td><td>5260 MHz</td><td>5500 MHz</td><td></td></tr></table> <table><tr><td rowspan="8">Maximum Conducted Output Power, Maximum Power Spectral Density</td><td>Tx 11a</td><td rowspan="8">0 & 1</td><td>5180 MHz</td><td>5260 MHz</td><td>5500 MHz</td><td>5745 MHz</td></tr><tr><td>Tx 11n-20 (SISO)</td><td>5220 MHz</td><td>5300 MHz</td><td>5580 MHz</td><td>5785 MHz</td></tr><tr><td>Tx 11ac-20 (SISO)</td><td>5240 MHz</td><td>5320 MHz</td><td>5700 MHz</td><td>5825 MHz</td></tr><tr><td>Tx 11n-20 (MIMO)</td><td></td><td></td><td></td><td></td></tr><tr><td>Tx 11ac-20 (MIMO)</td><td></td><td></td><td></td><td></td></tr><tr><td>Tx 11n-40 (SISO)</td><td>5190 MHz</td><td>5270 MHz</td><td>5510 MHz</td><td>5755 MHz</td></tr><tr><td>Tx 11ac-40 (SISO)</td><td>5230 MHz</td><td>5310 MHz</td><td>5550 MHz</td><td>5795 MHz</td></tr><tr><td>Tx 11n-40 (MIMO)</td><td></td><td></td><td>5670 MHz</td><td></td></tr><tr><td></td><td>Tx 11ac-40 (MIMO)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Tx 11ac-80 (SISO)</td><td></td><td>5210 MHz</td><td>5290 MHz</td><td>5530 MHz</td><td>5775 MHz</td></tr><tr><td></td><td>Tx 11ac-80 (MIMO)</td><td></td><td></td><td></td><td></td><td></td></tr></table> https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337247 (blue and red lines added)	Test Item	Operating Mode	Tested Antenna *2)	Tested Frequency				Lower Band	Middle Band	Additional Band	Upper Band	Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission	Tx 11n-20 (MIMO) *1)	0 & 1	-	5320 MHz	-	-	26.4B Emission Bandwidth	Tx 11a	1		5260 MHz	5500 MHz		Maximum Conducted Output Power, Maximum Power Spectral Density	Tx 11a	0 & 1	5180 MHz	5260 MHz	5500 MHz	5745 MHz	Tx 11n-20 (SISO)	5220 MHz	5300 MHz	5580 MHz	5785 MHz	Tx 11ac-20 (SISO)	5240 MHz	5320 MHz	5700 MHz	5825 MHz	Tx 11n-20 (MIMO)					Tx 11ac-20 (MIMO)					Tx 11n-40 (SISO)	5190 MHz	5270 MHz	5510 MHz	5755 MHz	Tx 11ac-40 (SISO)	5230 MHz	5310 MHz	5550 MHz	5795 MHz	Tx 11n-40 (MIMO)			5670 MHz			Tx 11ac-40 (MIMO)							Tx 11ac-80 (SISO)		5210 MHz	5290 MHz	5530 MHz	5775 MHz		Tx 11ac-80 (MIMO)					
Test Item	Operating Mode				Tested Antenna *2)	Tested Frequency																																																																																			
		Lower Band	Middle Band	Additional Band		Upper Band																																																																																			
Conducted emission, Radiated Spurious Emission (Below 1 GHz), Conducted Spurious Emission	Tx 11n-20 (MIMO) *1)	0 & 1	-	5320 MHz	-	-																																																																																			
26.4B Emission Bandwidth	Tx 11a	1		5260 MHz	5500 MHz																																																																																				
Maximum Conducted Output Power, Maximum Power Spectral Density	Tx 11a	0 & 1	5180 MHz	5260 MHz	5500 MHz	5745 MHz																																																																																			
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Claim	Identification
	20. High Throughput (HT) PHY specification 20.1 Introduction 20.1.1 Introduction to the HT PHY Clause 20 specifies the PHY entity for a high throughput (HT) orthogonal frequency division multiplexing (OFDM) system. In addition to the requirements found in Clause 20, an HT STA shall be capable of transmitting and receiving frames that are compliant with the mandatory PHY specifications defined as follows: — In Clause 18 when the HT STA is operating in a 20 MHz channel width in the 5 GHz band — In Clause 17 and Clause 19 when the HT STA is operating in a 20 MHz channel width in the 2.4 GHz band The HT PHY is based on the OFDM PHY defined in Clause 18, with extensibility up to four spatial streams, operating in 20 MHz bandwidth. Additionally, transmission using one to four spatial streams is defined for operation in 40 MHz bandwidth. These features are capable of supporting data rates up to 600 Mb/s (four spatial streams, 40 MHz bandwidth). The HT PHY data subcarriers are modulated using binary phase shift keying (BPSK), quadrature phase shift keying (QPSK), 16-quadrature amplitude modulation (16-QAM), or 64-QAM. Forward error correction (FEC) coding (convolutional coding) is used with a coding rate of 1/2, 2/3, 3/4, or 5/6. LDPC codes are added as an optional feature. Other optional features at both transmit and receive sides are 400 ns short guard interval (GI), transmit beamforming, HT-greenfield format, and STBC. An HT non-AP STA shall support all equal modulation (EQM) rates for one spatial stream (MCSs 0 to 7) using 20 MHz channel width. An HT AP shall support all EQM rates for one and two spatial streams (MCSs 0 to 15) using 20 MHz channel width. The maximum HT PSDU length is 65 535 octets. 802.11 (2012) at 20.1.1; <i>see also</i> 802.11 (2016) at 19.1.1 (same); 802.11 (2020) at 19.1.1 (same).

Claim	Identification																		
	IEEE 11n/ac Spec. <table><thead><tr><th>Protocol</th><th>Number of Transmit Chains (NTX)</th><th>Data Rate / MCS</th></tr></thead><tbody><tr><td>802.11n (HT20)</td><td>3</td><td>MCS 0-23</td></tr><tr><td>802.11n (HT40)</td><td>3</td><td>MCS 0-23</td></tr><tr><td>802.11ac (VHT20)</td><td>3</td><td>MCS 0-9/Nss1-3</td></tr><tr><td>802.11ac (VHT40)</td><td>3</td><td>MCS 0-9/Nss1-3</td></tr><tr><td>802.11ac (VHT80)</td><td>3</td><td>MCS 0-9/Nss1-3</td></tr></tbody></table> Note 1: IEEE Std. 802.11n modulation consists of HT20 and HT40 (HT: High Throughput). Then EUT support HT20 and HT40. Note 2: IEEE Std. 802.11ac modulation consists of VHT20, VHT40, VHT80 and VHT160 (VHT: Very High Throughput). Then EUT support VHT20, VHT40 and VHT80. Note 3: Modulation modes consist of below configuration: HT20/HT40: IEEE 802.11n, VHT20/VHT40/VHT80: IEEE 802.11ac https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337247 FCC testing confirms the Accused Products practice 802.11ac. STBC is mandatory for 802.11ac certified devices. VHTM15.1 STBC operation 9.4.2.158, 10.17 VHTP9:M 802.11(2016) at B.4.25.1 page 2764; <i>see also</i> 802.11 (2020) at B.4.25.1	Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS	802.11n (HT20)	3	MCS 0-23	802.11n (HT40)	3	MCS 0-23	802.11ac (VHT20)	3	MCS 0-9/Nss1-3	802.11ac (VHT40)	3	MCS 0-9/Nss1-3	802.11ac (VHT80)	3	MCS 0-9/Nss1-3
Protocol	Number of Transmit Chains (NTX)	Data Rate / MCS																	
802.11n (HT20)	3	MCS 0-23																	
802.11n (HT40)	3	MCS 0-23																	
802.11ac (VHT20)	3	MCS 0-9/Nss1-3																	
802.11ac (VHT40)	3	MCS 0-9/Nss1-3																	
802.11ac (VHT80)	3	MCS 0-9/Nss1-3																	

Claim	Identification
	How to Connect to a Wireless Network Support Nintendo Switch Description: Information on connecting a Nintendo Switch console to a wireless home network Additional Information: Before continuing, it is recommended that you verify the following information for the wireless network: • The SSID (network's name) • The wireless password, if a password is required Complete These Steps: 1. Place the Nintendo Switch console within 3 metres (10 feet) of the wireless router to ensure a strong wireless signal. 2. On the Nintendo Switch console, select "System Settings" from the HOME Menu 3. Select "Internet", and then "Internet Settings". 4. The Nintendo Switch console will automatically search for nearby Wi-Fi signals. 5. Select the appropriate network name (SSID) from the list. 6. If you are unable to find your network's name, stand closer to the wireless router and press the Y Button to search again. 7. If the network name is greyed out, this indicates the wireless security type being used is not supported by the Nintendo Switch console. 8. If you are still unable to find your network, this may indicate an issue with the wireless network environment. 9. If prompted, use the on-screen keyboard to enter the network's wireless password. https://www.nintendo.com/en-gb/Support/Nintendo-Switch/FAQ/How-to-Connect-to-a-Wireless-Network-1228927.html (red line added) See also 1[a]-1[f], below.
1[a] a space-time coding block adapted to produce M space time coded symbols per input set of M symbols, each input set of M symbols comprising one symbol per symbol substream, each of the M space-time coded symbols being included in a respective one of M space-time coded streams,	The Accused Products comprise a space-time coding block adapted to produce M space time coded symbols per input set of M symbols, each input set of M symbols comprising one symbol per symbol substream, each of the M space-time coded symbols being included in a respective one of M space-time coded streams, as exemplified below.

Claim	Identification
	The Nintendo Switch/Switch Lite/Switch OLED transmits using two antennas  https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337261

Claim	Identification
	The Nintendo Switch/Switch Lite/Switch OLED transmits M space-time coded streams using two antennas Figure 1. Functional Block Diagram https://www.infineon.com/dgdl/Infineon-CYW4356_CG8674_Single-Chip_5G_WiFi_IEEE_802.11ac_2x2_MAC_Baseband_Radio_with_Integrated_Bluetooth_5.0-DataSheet-v03_00-EN.pdf?fileId=8ac78c8c7d0d8da4017d0ee4c6ad6bfa (red lines added).

Claim	Identification
	20.3.4 Overview of the PPDU encoding process The encoding process is composed of the steps described below. The following overview is intended to facilitate an understanding of the details of the convergence procedure: p) Map each of the complex numbers in each of the N_{ST} subcarriers in each of the OFDM symbols in each of the N_{STS} space-time streams to the N_{TX} transmit chain inputs. For direct-mapped operation, $N_{TX} = N_{STS}$, and there is a one-to-one correspondence between space-time streams and transmit chains. In this case, the OFDM symbols associated with each space-time stream are also associated with the corresponding transmit chain. Otherwise, a spatial mapping matrix associated with each OFDM subcarrier, as indicated by the EXPANSION_MAT parameter of the TXVECTOR, is used to perform a linear transformation on the vector of N_{STS} complex numbers associated with each subcarrier in each OFDM symbol. This spatial mapping matrix maps the vector of N_{STS} complex numbers in each subcarrier into a vector of N_{TX} complex numbers in each subcarrier. The sequence of N_{ST} complex numbers associated with each transmit chain (where each of the N_{ST} complex numbers is taken from the same position in the N_{TX} vector of complex numbers across the N_{ST} subcarriers associated with an OFDM symbol) constitutes an OFDM symbol associated with the corresponding transmit chain. For details, see 20.3.11.11. Spatial mapping matrices may include cyclic shifts, as described in 20.3.11.11.2. 802.11 (2012) at 20.3.4; <i>see also</i> 802.11 (2016) at 19.3.4 (same); 802.11 (2020) at 19.3.4 (same). <i>See also</i> 1[pre], above.

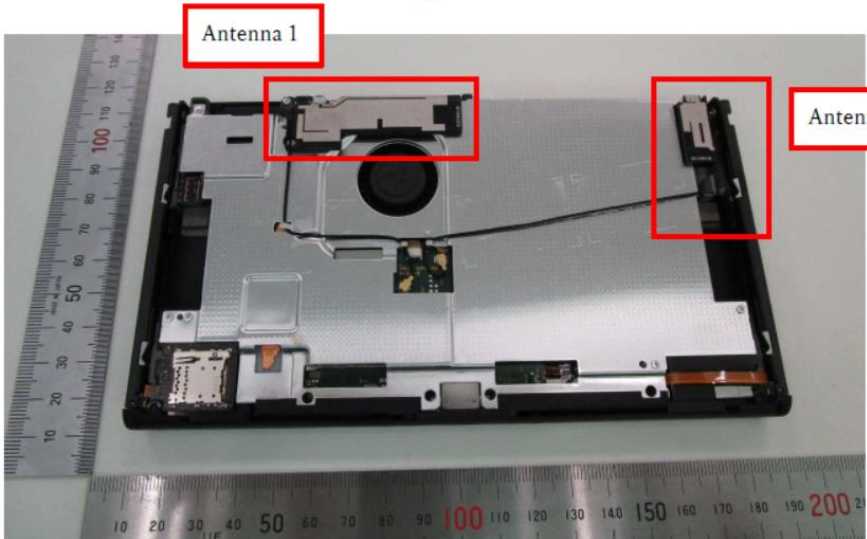
Claim	Identification
1[b] wherein each symbol of the M symbol substreams is represented in all M space-time coded streams,	The Accused Products include wherein each symbol of the M symbol substreams is represented in all M space-time coded streams, as exemplified below. 20.3.11.11.2 Spatial mapping If the data to be transmitted on subcarrier k on space-time stream i_{STS} are $X_k^{(i_{STS})}$, the transmitted data on the transmit chain i_{TX} shall be as shown in Equation (20-57). $r_{Field}^{(i_{TX})} = \frac{1}{\sqrt{N_{STS} \cdot N_{Field}}} w_{T_{Field}}(t) \sum_{k=-N_{SR}}^{N_{SR}} \sum_{i_{STS}=1}^{N_{STS}} [Q_k]_{i_{TX}, i_{STS}} X_k^{(i_{STS})} \exp(j2\pi k \Delta_F (t - T_{CS}^{i_{STS}})) \quad (20-57)$ where $[Q_k]_{i_{TX}, i_{STS}}$ is the element in row i_{TX} and column i_{STS} in a matrix Q_k with N_{TX} rows and N_{STS} columns; Q_k may be frequency dependent $Field$ is any field, as defined in 20.3.7, excluding L-STF, L-LTF, L-SIG, and HT-SIG in HT_MF format PPDU Below are examples of spatial mapping matrices that might be used. There exist many other alternatives; implementation is not restricted to the spatial mapping matrices shown. The examples are: <i>Direct mapping:</i> Q_k is a diagonal matrix of unit magnitude complex values that takes one of two forms: $Q_k = \mathbf{I}$, the identity matrix - A CSD matrix in which the diagonal elements represent cyclic shifts in the time domain: $[Q_k]_{i,i} = \exp(-j2\pi k \Delta_F \tau_{CS}^i)$, where τ_{CS}^i, $i = 1, \dots, N_{TX}$ represents the CSD applied. <i>Indirect mapping:</i> Q_k may be the product of a CSD matrix and a unitary matrix such as the Hadamard matrix or the Fourier matrix. <i>Spatial expansion:</i> Q_k is the product of a CSD matrix and a square matrix formed of orthogonal columns. As an illustration: 802.11 (2012) at 20.3.11.11.12; <i>see also</i> 802.11 (2016) at 19.3.11.11.2 (same); 802.11 (2020) at 19.3.11.11.2 (same).
1[c] wherein the transmitter comprises a delay arrangement, arranged such that for each symbol of the M symbol substreams a time of representation of the symbol in the M space-time coded streams is different for each of the M space-time coded streams,	The transmitter of the Accused Products comprises a delay arrangement, arranged such that for each symbol of the M symbol substreams a time of representation of the symbol in the M space-time coded streams is different for each of the M space-time coded streams, as exemplified below.

Claim	Identification
	20.3.3 Transmitter block diagram HT-mixed format and HT-greenfield format transmissions can be generated using a transmitter consisting of the following blocks: j) <i>Cyclic shift (CSD) insertion</i> is where the insertion of the cyclic shifts prevents unintentional beamforming. CSD insertion may occur before or after the IDFT. There are three cyclic shift types as follows: 1) A cyclic shift specified per transmitter chain with the values defined in Table 20-9 (a possible implementation is shown in Figure 20-2). 2) A cyclic shift specified per space-time stream with the values defined in Table 20-10 (a possible implementation is shown in Figure 20-3). 3) A cyclic shift $M_{CSD}(k)$ that may be applied as a part of the spatial mapper; see 20.3.11.11.2. 802.11 (2012) at 20.3.3; <i>see also</i> 802.11 (2016) at 19.3.3 (same); 802.11 (2020) at 19.3.3 (same). <i>See also</i> 1[b], above (regarding spatial mapping).
1[d] each space time coded symbol comprising a representation of a symbol of each of the M symbol substreams;	The Accused Products include that each space time coded symbol comprises a representation of a symbol of each of the M symbol substreams.

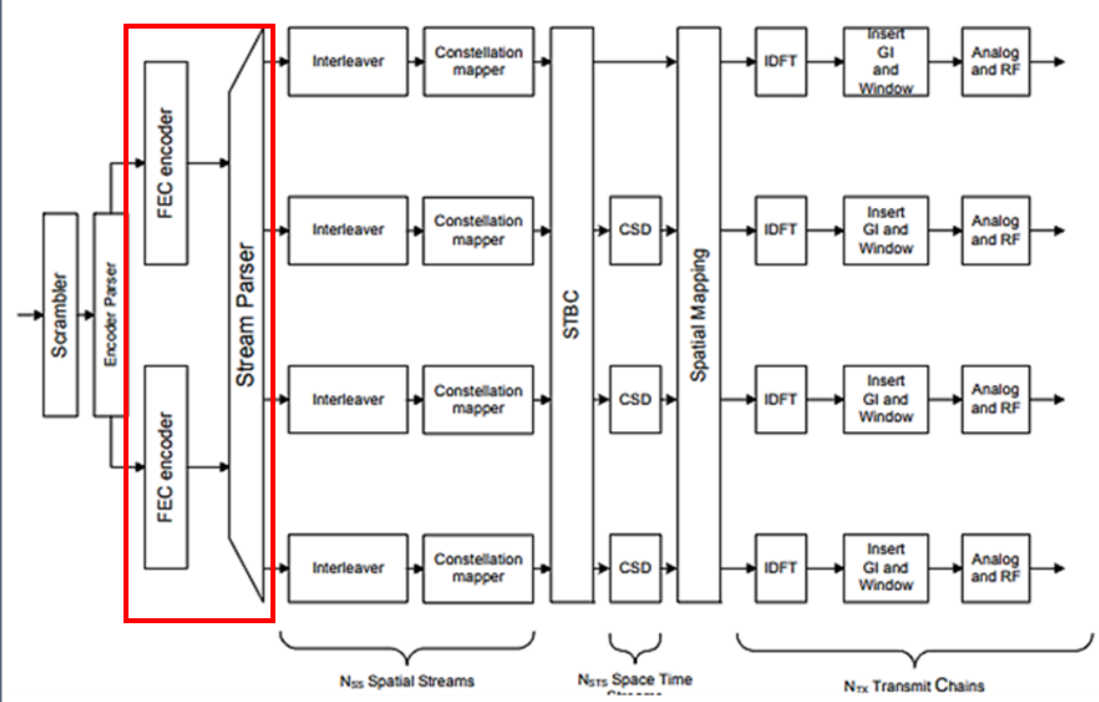
Claim	Identification
	20.3.11.11.2 Spatial mapping Below are examples of spatial mapping matrices that might be used. There exist many other alternatives; implementation is not restricted to the spatial mapping matrices shown. The examples are: a) <i>Direct mapping</i>: Q_k is a diagonal matrix of unit magnitude complex values that takes one of two forms: 1) $Q_k = \mathbf{I}$, the identity matrix 2) A CSD matrix in which the diagonal elements represent cyclic shifts in the time domain: $[Q_k]_{i,i} = \exp(-j2\pi k \Delta_F \tau_{CS}^i)$, where $\tau_{CS}^i, i = 1, \dots, N_{TX}$ represents the CSD applied. b) <i>Indirect mapping</i>: Q_k may be the product of a CSD matrix and a unitary matrix such as the Hadamard matrix or the Fourier matrix. c) <i>Spatial expansion</i>: Q_k is the product of a CSD matrix and a square matrix formed of orthogonal columns. 802.11 (2012) at 20.3.11.11.2; <i>see also</i> 802.11 (2016) at 19.3.11.11.2 (same); 802.11 (2020) at 19.3.11.11.2 (same).
1[e] a plurality M of transmit antennas each adapted to transmit a respective one of the M space-time coded streams,	The Accused Products include a plurality M of transmit antennas each adapted to transmit a respective one of the M space-time coded streams, as exemplified below.

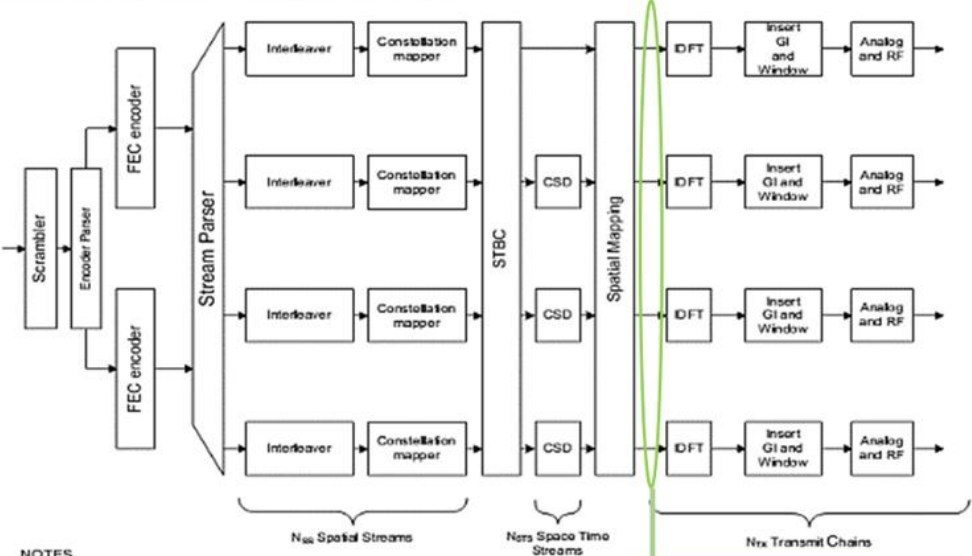
Claim	Identification
	20.3.4 Overview of the PPDU encoding process The encoding process is composed of the steps described below. The following overview is intended to facilitate an understanding of the details of the convergence procedure: NOTES —There might be 1 or 2 FEC encoders when BCC encoding is used. —The stream parser might have 1, 2, 3 or 4 outputs. —When LDPC encoding is used, the interleavers are not used —When STBC is used, the STBC block has more outputs than inputs. —When spatial mapping is used, there might be more transmit chains than space time streams —The number of inputs to the spatial mapper might be 1, 2, 3, or 4. Figure 20-3—Transmitter block diagram 2

802.11 (2012) at 20.3.4 (green and yellow and labels lines added showing streams and antennas); see also 802.11 (2016) at 19.3.4 (same); 802.11 (2020) at 19.3.4 (same).

Claim	Identification
	The Nintendo Switch/Switch Lite/Switch OLED transmits using two antennas  https://apps.fcc.gov/eas/GetApplicationAttachment.html?id=5337261
1[f] such that for each symbol of each input set of M symbols, the M space-time coded symbols that contain a	The Accused Products include such that for each symbol of each input set of M symbols, the M space-time coded symbols that contain a representation of the symbol are transmitted at different times, as exemplified below.

Claim	Identification
representation of the symbol are transmitted at different times.	20.3.11.11.2 Spatial mapping If the data to be transmitted on subcarrier k on space-time stream i_{STS} are $X_k^{(i_{STS})}$, the transmitted data on the transmit chain i_{TX} shall be as shown in Equation (20-57). $r_{Field}^{(i_{TX})} = \frac{1}{\sqrt{N_{STS} \cdot N_{Field}^{Tone}}} w_{T_{Field}}(t) \sum_{k=-N_{SR}}^{N_{SR}} \sum_{i_{STS}=1}^{N_{STS}} [Q_k]_{i_{TX}, i_{STS}} X_k^{(i_{STS})} \exp(j2\pi k \Delta_F(t - T_{CS}^{i_{STS}})) \quad (20-57)$ Below are examples of spatial mapping matrices that might be used. There exist many other alternatives; implementation is not restricted to the spatial mapping matrices shown. The examples are: a) <i>Direct mapping</i>: Q_k is a diagonal matrix of unit magnitude complex values that takes one of two forms: 1) $Q_k = \mathbf{I}$, the identity matrix 2) A CSD matrix in which the diagonal elements represent cyclic shifts in the time domain: $[Q_k]_{i,i} = \exp(-j2\pi k \Delta_F \tau_{CS}^i)$, where $\tau_{CS}^i, i = 1, \dots, N_{TX}$ represents the CSD applied. b) <i>Indirect mapping</i>: Q_k may be the product of a CSD matrix and a unitary matrix such as the Hadamard matrix or the Fourier matrix. c) <i>Spatial expansion</i>: Q_k is the product of a CSD matrix and a square matrix formed of orthogonal columns. As an illustration: 802.11 (2012) at 20.3.11.11.2; <i>see also</i> 802.11 (2016) at 19.3.11.11.2 (same); 802.11 (2020) at 19.3.11.11.2 (same).
2. A transmitter according to claim 1 further comprising a demultiplexing and encoding block comprising a demultiplexer having M outputs, and M encoder/modulators each producing a respective one of the M symbol substreams, with each of the M encoder/modulators connected to receive a respective one of the demultiplexer outputs.	The Accused Products further comprise a demultiplexing and encoding block comprising a demultiplexer having M outputs, and M encoder/modulators each producing a respective one of the M symbol, substreams, with each of the M encoder/modulators connected to receive a respective one of the demultiplexer outputs, as exemplified below.

Claim	Identification
	 Figure 20-3—Transmitter block diagram 2 Demultiplexing and encoding block 802.11 (2012) at Figure 20-3; <i>see also</i> 802.11 (2016) at Figure 19.3(same); 802.11 (2020) at Figure 19-3 (same).
3. A transmitter according to claim 2 wherein the demultiplexing and encoding block is adapted to produce the M symbol substreams from an input stream.	The Accused Products further include wherein the demultiplexing and encoding block is adapted to produce the M symbol substreams from an input stream, as exemplified below.

Claim	Identification
	20.3.4 Overview of the PPDU encoding process The encoding process is composed of the steps described below. The following overview is intended to facilitate an understanding of the details of the convergence procedure:  NOTES —There might be 1 or 2 FEC encoders when BCC encoding is used. —The stream parser might have 1, 2, 3 or 4 outputs. —When LDPC encoding is used, the interleavers are not used. —When STBC is used, the STBC block has more outputs than inputs. —When spatial mapping is used, there might be more transmit chains than space time streams. —The number of inputs to the spatial mapper might be 1, 2, 3, or 4. Figure 20-3—Transmitter block diagram 2 802.11 (2012) at 20.3.4 (green lines and label added); <i>see also</i> 802.11 (2016) at 19.3.4 (same); 802.11 (2020) at 19.3.4 (same).
6. A transmitter according to claim 1 wherein the delay arrangement comprises: delay elements adapted to insert a delay in at least one of the M substreams; and the space-time coding function further comprises an orthogonal transform	The Accused Products further include wherein the delay arrangement comprises delay elements adapted to insert a delay in at least one of the M substreams; and the space-time coding function further comprises an orthogonal transform adapted to produce M orthogonal outputs, with the mth orthogonal output being a function of the M substreams delayed in said delay elements by m-1 symbol periods, as exemplified below.

Claim	Identification
adapted to produce M orthogonal outputs, with the mth orthogonal output being a function of the M substreams delayed in said delay elements by $m-1$ symbol periods.	20.3.3 Transmitter block diagram HT-mixed format and HT-greenfield format transmissions can be generated using a transmitter consisting of the following blocks: j) <i>Cyclic shift (CSD) insertion</i> is where the insertion of the cyclic shifts prevents unintentional beamforming. CSD insertion may occur before or after the IDFT. There are three cyclic shift types as follows: 1) A cyclic shift specified per transmitter chain with the values defined in Table 20-9 (a possible implementation is shown in Figure 20-2). 2) A cyclic shift specified per space-time stream with the values defined in Table 20-10 (a possible implementation is shown in Figure 20-3). 3) A cyclic shift $M_{CSD}(k)$ that may be applied as a part of the spatial mapper; see 20.3.11.11.2. 802.11 (2012) at 20.3.3; <i>see also</i> 802.11 (2016) at 19.3.3 (same); 802.11 (2020) at 19.3.3 (same).

II. Appendix: Accused Products

All WiFi devices with multiple antennas compliant with the IEEE 802.11-2012 and later standards (e.g., IEEE802.11-2016 and IEEE802.11-2020) made, used, sold, offered for sale, or imported into the United States during the damages window including Nintendo Switch devices, for example, the following:

Product Name	Release Date
Nintendo Switch Model Number HAC-001	March 3, 2017
Nintendo Switch Lite Model Number HDH-001	September 20, 2019
Nintendo Switch OLED Model Number HEG-001	Friday, October 8, 2021