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

MAXELL, LTD., *Plaintiff*, v. SAMSUNG ELECTRONICS CO., LTD., and SAMSUNG ELECTRONICS AMERICA, INC., *Defendants*.	Case No. 5:25-cv-00052-RWS **JURY TRIAL DEMANDED**

PLAINTIFF MAXELL, LTD.'S PATENT RULE 3-1 AND 3-2 DISCLOSURE OF ASSERTED CLAIMS AND INFRINGEMENT CONTENTIONS AGAINST DEFENDANTS SAMSUNG ELECTRONICS CO., LTD. AND SAMSUNG ELECTRONICS AMERICA, INC.

Pursuant to Patent Rules ("P.R.") 3-1 and 3-2, Plaintiff Maxell, Ltd. ("Maxell") hereby serves its Disclosure of Asserted Claims and Infringement Contentions and accompanying disclosure against Defendants Samsung Electronics Co., Ltd. ("SEC") and Samsung Electronics America, Inc. ("SEA") (together, "Defendants" or "Samsung").

These contentions are based on information reasonably available to Maxell at this time. Maxell's investigation of the facts relevant to this case is ongoing, discovery has not yet begun, and the Court has not yet construed the claims. Further, important information about many or all of Samsung's products is not publicly available, including information relevant to the patents-in-suit and these Infringement Contentions. Accordingly, Maxell reserves the right to modify and/or supplement these disclosures as information becomes available, based on the Court's claim constructions, and/or based on positions taken by Samsung.

A. P.R. 3-1(a): Identification of Asserted Claims

Pursuant to P.R. 3-1(a) and based on the information presently available, Maxell incorporates herein by reference the identification of asserted claims set forth in its Complaint (*see* Dkt. No. 1) and in the attached Appendices 1-10. Maxell further discloses the following claims of each patent-in-suit that it contends are infringed (directly and/or indirectly, literally and/or under the doctrine of equivalents) by Samsung, through its manufacture, use, sale, offer for sale, and/or importation into the United States of the Accused Instrumentalities:

- U.S. Patent 11,026,088 ("the '088 Patent"): claims 1 and 14;
- U.S. Patent 11,277,650 ("the '650 Patent"): claims 1 and 4;
- U.S. Patent 7,577,417 ("the '417 Patent"): claims 1-3, and 7;
- U.S. Patent 8,180,198 ("the '198 Patent"): claims 1 and 4;
- U.S. Patent 11,812,091 ("the '091 Patent"): claims 1-3, 6, 7, 10, 13-17, and 20;
- U.S. Patent 7,952,645 ("the '645 Patent"): claims 1-8;
- U.S. Patent 8,471,950 ("the '950 Patent"): claims 1-5, 7, 8, 10, 12, and 14;
- U.S. Patent 10,783,228 ("the '228 Patent"): claims 1, 2, and 4-9;
- U.S. Patent 10,812,646 ("the '646 Patent"): claims 1-8 and 11; and
- U.S. Patent 12,160,681 ("the '681 Patent"): claims 1-5, and 7.

Maxell expressly reserves the right to modify, amend and/or supplement the foregoing in light of new information made available to Maxell, based on the Court's claim construction, or based on positions taken by Samsung.

B. P.R. 3-1(b): Identification of Accused Instrumentalities

Pursuant to P.R. 3-1(b) and based on the information presently available, Maxell incorporates herein by reference the identification of Accused Instrumentalities set forth in the

Complaint (*see* Dkt. No. 1) and in the attached Appendices 1-10. Maxell further identifies the following Accused Instrumentalities[1] of which it is currently aware:

- As to claims 1 and 14 of the '088 Patent, the accused products include Samsung's SmartThings cloud/platform, Samsung Galaxy phones, tablets, laptops, watches, SmartThings Station, SmartThings Hubs, refrigerators, ranges, washers, dryers, air dressers, dishwashers, vacuums, air purifiers, microwaves, and wall ovens, including **smartphones** including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; **laptops** including Galaxy Book2 360, 13", Intel Core i5, 256GB, Galaxy Book2 360, 13", Intel Core i7, 512GB, Galaxy Book2 Pro 360, 13", Intel Core i7, 256GB, Galaxy Book2 Pro 360, 13", Intel Core i7, 512GB, Galaxy Book2 Pro

[1] Where applicable, Maxell has included the product name followed by (if known) the corresponding model number in Appendix 11 attached hereto. The model numbers included in these disclosures are based on Maxell's information and belief, based on publicly available information, and are subject to change based on discovery in this case.

360, 15", Intel Core i7, 1TB, Galaxy Book2 Pro 360, 15", Intel Core i7, 512GB, Galaxy Book2 Pro, 13", Intel Core i5, 256GB, Galaxy Book2 Pro, 13", Intel Core i7, 512GB, Galaxy Book2 Pro, 15", Intel Core i5, 512 GB, Galaxy Book2 Pro, 15", Intel Core i7, 512GB, Galaxy Book2 Pro, 15", Intel Core i7, Intel ARC Discrete Graphics, 1TB, Galaxy Book3 360, 13", Intel Core i7, 512GB, Galaxy Book3 360, 15", Intel Core i7, 512GB, Galaxy Book3 Pro 360, 16", Intel Core i7, 1TB, Galaxy Book3 Pro, 14", Intel Core i7, 512 GB, Galaxy Book3 Pro, 16" Intel Core i7, 1TB, Galaxy Book3 Ultra, 16" Intel Core i7, 1TB, Galaxy Book3 Ultra, 16" Intel Core i9, 1TB, and Galaxy Book3, 15", Intel Core i7, 512GB, Galaxy Book4 360, Galaxy Book4 Pro, Galaxy Book4 Pro 360, Galaxy Book4 Ultra, Galaxy Book S, Galaxy Book5 360, Galaxy Book5 Pro, Galaxy Book5 Pro 360; **watches** including Galaxy Watch Ultra (2025), Galaxy Watch8 Classic, Galaxy Watch8, Galaxy Watch Ultra, Galaxy Watch 7, Galaxy Watch 6, Galaxy Watch5 Pro Golf Edition, Galaxy Watch5 Pro, Galaxy Watch5, Galaxy Watch4, Galaxy Watch4 Classic; **SmartThings Station** with Travel Adapter, SmartThings Station, SmartThings Hub, Samsung SmartThings WIFI Mesh Router with SmartThings Hub Functionality, SmartThings Hub Dongle; **refrigerators** including Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in Matte Black Steel, 25 cu. ft. 33" 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 25 cu. ft. 33" 3-Door French Door Refrigerator with Beverage Center in Stainless Steel, Bespoke Side-by-Side 28 cu. ft. Refrigerator with Beverage Center in White Glass, Bespoke Counter Depth Side-by-Side 23 cu. ft. Refrigerator with Beverage Center in Stainless Steel, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) with Family Hub™ + in Charcoal Glass Top and Stainless Steel Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with AutoFill Water Pitcher in White Glass, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) with AutoFill Water Pitcher in Stainless Steel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with AutoFill Water Pitcher in White Glass, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) – with Top Left and Family Hub™ Panel in Charcoal Glass - and Matte Black Steel Middle and Bottom Door Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with Beverage Center in Stainless Steel, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with AutoFill Water Pitcher in Stainless Steel, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) with Beverage Center in Morning Blue Glass Top Panels and White Glass Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) – with Top Left and Family Hub™ Panel in White Glass - and Matte Grey Glass Bottom Door Panel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with Beverage Center in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Beverage Center in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) – with Top Left and Family Hub™ Panel in Charcoal Glass - and Matte Black Steel Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) – with Top Left and Family Hub™ Panel in White Glass - and Matte Grey Glass Bottom Door Panel, 18 cu. ft. Smart Counter Depth 3-Door French Door Refrigerator in Black Stainless Steel, 17.3 cu. ft. Smart Kimchi & Specialty 4-

Door French Door Refrigerator in White-Navy Glass, 22 cu. ft. Smart 3-Door French Door Refrigerator in Stainless Steel, 26.5 cu. ft. Large Capacity 3-Door French Door Refrigerator with Family Hub™ and External Water & Ice Dispenser in Black Stainless Steel, 23 cu. ft. Smart Counter Depth Side-by-Side Refrigerator in Stainless Steel, 28 cu. ft. Smart Side-by-Side Refrigerator in Stainless Steel, 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with FlexZone Drawer in Black Stainless Steel, 28 cu. ft. 4-Door French Door Refrigerator with FlexZone Drawer in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ Refrigerator with Beverage Center and Dual Ice Maker in Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with Family Hub™ and Beverage Center in Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with AutoFill Water Pitcher and Dual Ice Maker in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ refrigerator with Family Hub™ and Beverage Center in Black Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with Beverage Center and Dual Ice Maker in Stainless Steel, 22 cu. ft. Counter Depth Side-by-Side Refrigerator with Touch Screen Family Hub™ in Stainless Steel, 22 cu. ft. Smart 3-Door French Door Refrigerator with External Water Dispenser in Fingerprint Resistant Stainless Steel, 22 cu. ft. Counter Depth Side-by-Side Refrigerator in Stainless Steel, 26.7 cu. ft. Large Capacity Side-by-Side Refrigerator with Touch Screen Family Hub™ in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ refrigerator with AutoFill Water Pitcher and Dual Ice Maker in Stainless Steel, 15.6 cu. ft. Top Freezer Refrigerator with All-Around Cooling in Stainless Steel, 19.5 cu. ft. Smart 3-Door French Door Refrigerator in White, 29 cu. ft. Smart BESPOKE 4-Door Flex™ Refrigerator with Customizable Panel Colors in White Glass, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) – with Family Hub™ in Charcoal Glass, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) – with Family Hub™ in Charcoal Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Rose Pink Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Morning Blue Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Charcoal Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Charcoal Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Sunrise Yellow Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Pink Glass (2022), Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Sunrise Yellow Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Clementine Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Pink Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Clementine Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Morning Blue Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Morning Blue Glass, Bespoke 3-Door French

Door Refrigerator (30 cu. ft.) - with Family Hub™ in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass Top and Grey Glass Bottom, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass Top and Matte Black Steel Bottom, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Matte Black Steel, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass Top and Grey Glass Bottom, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass Top and Matte Black Steel Bottom, 23 cu. ft. Smart Counter Depth BESPOKE 4-Door Flex™ Refrigerator with Customizable Panel Colors in White Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Matte Black Steel, 31 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 27 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 26 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 32 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in Matte Black Steel, 25 cu. ft. Mega Capacity Counter Depth 4-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 25 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Family Hub™ in Stainless Steel, 30 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Four Types of Ice in Matte Black Steel, 32 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 31 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Four Types of Ice in Matte Black Steel, 30 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, Bespoke 29 cu. ft. 4-Door Flex™ Refrigerator with Beverage Zone™ & Auto Open Door in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door Flex™ Refrigerator with Beverage Center™ & Customizable Door Panels in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door Flex™ Refrigerator with AI Family Hub™+ & AI Vision Inside™ in Stainless Steel, Bespoke 3-Door French Door Refrigerator 30 cu. ft. in Stainless Steel with AutoFill Water Pitcher, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Beverage Center™ in Morning Blue Glass Top Panels and White Glass Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with Beverage Center™ in White Glass, 27.4 cu. ft. Large Capacity Side-by-Side Refrigerator in Stainless Steel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with Beverage Center™ in Stainless Steel, 31 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 30 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Family Hub™ in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) with AI Family Hub™+ and AI Vision Inside™ in Stainless Steel, Bespoke 3-Door French Door Refrigerator 24 cu. ft. in Stainless Steel with AutoFill Water Pitcher, 11.4 cu. ft. Convertible Upright Freezer Refrigerator with Drawers in Stainless Look, 27 cu. ft. Counter Depth Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in a Stainless Look, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu.

ft.) with Beverage Zone ™ and Auto Open Door in Stainless Steel, 19.5 cu. ft. Smart 3-Door French Door Refrigerator in Black, 26 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with External Water and Ice Dispenser in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with Inner Beverage Center™ & FlexZone™ Drawer in Stainless Steel, Bespoke 29 cu. ft. 4-Door French Door Refrigerator with Inner Beverage Center™ & FlexZone™ Drawer in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Family Hub™+ AI Vision Inside™ in Charcoal Glass and Black/Charcoal, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Home & AI Vision Inside™ in Charcoal Glass and Stainless Steel, Bespoke 29 cu. ft. 4-Door French Door Refrigerator with AI Family Hub™+ & AI Vision Inside™ in Charcoal Glass and Black/Charcoal, Bespoke 29 cu. ft. 4-Door French Door Refrigerator with AI Home & AI Vision Inside™ in Charcoal Glass and Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Hybrid Cooling & Beverage Center™ in Stainless Steel, 18 cu. ft. Top Freezer Refrigerator with Ice Maker in Stainless Steel; **ranges** including 6.3 cu. ft. Smart Freestanding Electric Range with No-Preheat Air Fry & Convection in Stainless Steel, 6.3 cu. ft. Smart Slide-in Electric Range with Convection in Stainless Steel, 6.0 cu. ft. Smart Slide-in Gas Range with Air Fry in Stainless Steel, 6.0 cu. ft. Smart Freestanding Gas Range with 18K BTU Dual Power Burner & Self Clean in Stainless Steel, 6.0 cu. ft. Smart Freestanding Gas Range with No-Preheat Air Fry, Convection+ & Stainless Cooktop in Stainless Steel, 6.3 cu. ft. Smart Slide-in Electric Range with Air Fry in Stainless Steel, 6.3 cu ft. Smart Slide-in Electric Range with Smart Dial & Air Fry in Stainless Steel, 6.0 cu. ft. Smart Freestanding Gas Range with No-Preheat Air Fry & Convection in Stainless Steel, 6.3 cu. ft. Smart Freestanding Electric Range with No-Preheat Air Fry, Convection+ & Griddle in Black Stainless Steel, Bespoke Smart Slide-in Gas Range 6.0 cu. ft. with Smart Dial, Air Fry & Wi-Fi in Navy Steel, 6.3 cu. ft. Smart Slide-in Electric Range in Stainless Steel, 6.0 cu. ft. Smart Slide-in Gas Range in Stainless Steel, 6.3 cu. ft. Flex Duo™ Front Control Slide-in Dual Fuel Range with Smart Dial, Air Fry, and Wi-Fi in Black Stainless Steel, 6.0 cu ft. Smart Slide-in Gas Range with Smart Dial & Air Fry in Black Stainless Steel, 6.0 cu ft. Smart Slide-in Gas Range with Flex Duo™, Smart Dial & Air Fry in Stainless Steel, 6.3 cu. ft. Smart Slide-in Induction Range with Flex Duo™, Smart Dial & Air Fry in Stainless Steel, 6.3 cu. ft. Smart Slide-in Induction Range with Smart Dial & Air Fry in Stainless Steel, 6.0 cu. ft. Smart Slide-in Gas Range with Convection in Stainless Steel, 6.3 cu ft. Smart Slide-in Electric Range with Smart Dial, Air Fry, & Flex Duo™ in Stainless Steel, 6.3 cu. ft. Smart Freestanding Electric Range with Rapid Boil™ & Self Clean in Stainless Steel, 6.3 cu ft. Smart Slide-in Electric Range with Smart Dial & Air Fry in Stainless Steel, 6.3 cu. ft. Smart Freestanding Electric Range with Steam Clean in Stainless Steel, 6.0 cu. ft. Smart Freestanding Gas Range with Flex Duo™ & Air Fry in Black Stainless Steel, 6.0 cu. ft. Smart Freestanding Gas Range with Integrated Griddle in Stainless Steel, 6.3 cu. ft. Smart Freestanding Electric Range with Flex Duo™,

No-Preheat Air Fry & Griddle in Black Stainless Steel, 6.3 cu. ft. Smart Rapid Heat Induction Slide-in Range with Air Fry & Convection+ in Black Stainless Steel, 6.3 cu. ft. Smart Slide-in Electric Range with Air Fry & Convection in Stainless Steel, Bespoke 6.3 cu. ft. Smart Slide-in Electric Range with Air Fry & Convection in White Glass, 6.0 cu. ft. Smart Slide-in Gas Range with Air Fry & Convection in Fingerprint Resistant Stainless Steel, Bespoke 6.0 cu. ft. Smart Slide-in Gas Range with Air Fry & Convection in White Glass, Bespoke 6.3 cu. ft. Smart Front Control Slide-In Electric Range with Air Fry & Wi-Fi in White Glass, Bespoke 6.3 cu. ft. Smart Rapid Heat Induction Slide-in Range with Air Fry & Convection+ in White Glass, Bespoke 6.0 cu. ft. Smart Front Control Slide-In Gas Range with Air Fry & Wi-Fi in White Glass, Bespoke Smart Slide-in Electric Range 6.3 cu. ft. with Smart Dial & Air Fry in White Glass; **washing machines** including Bespoke 5.3 cu. ft. Ultra Capacity Front Load Washer with AI OptiWash™ and Auto Dispense in Brushed Navy, 4.5 cu. ft. Large Capacity Smart Front Load Washer with Super Speed Wash - Champagne, Bespoke 5.3 cu. ft. Ultra Capacity Front Load Washer with Super Speed Wash and AI Smart Dial in Silver Steel, 5.0 cu. ft. Extra Large Capacity Smart Front Load Washer with Super Speed Wash and Steam in Ivory, 4.6 cu. ft. Large Capacity AI Smart Dial Front Load Washer with Auto Dispense and Super Speed Wash in Brushed Black, 5.5 cu. ft. Extra-Large Capacity Smart Top Load Washer with Auto Dispense System in Brushed Black, 5.5 cu. ft. Extra-Large Capacity Smart Top Load Washer with Super Speed Wash in Ivory, 5.1 cu. ft. Smart Top Load Washer with ActiveWave™ Agitator and Super Speed Wash in Brushed Black, 5.0 cu. ft. Extra-Large Capacity Smart Dial Front Load Washer with MultiControl™ in Brushed Black, 5.0 cu. ft. Extra-Large Capacity Smart Dial Front Load Washer with OptiWash™ in Brushed Black, 4.5 cu. ft. Front Load Washer with Vibration Reduction Technology+ in White, 6.0 cu. ft. Total Capacity Smart Dial Washer with FlexWash™ and Super Speed Wash in Brushed Black, 5.0 cu. ft. Extra-Large Capacity Smart Front Load Washer with Super Speed Wash in Brushed Black, 2.5 cu. ft. Compact Front Load Washer with AI Smart Dial and Super Speed Wash in White, 5.1 cu. ft. Extra-Large Capacity Smart Front Load Washer with Vibration Reduction Technology+ in Brushed Black, 4.6 cu. ft. Large Capacity Smart Top Load Washer with ActiveWave™ Agitator and Active WaterJet in Brushed Black, 4.7 cu. ft. Large Capacity Smart Top Load Washer with Active WaterJet in Brushed Black, 5.4 cu. ft. Extra-Large Capacity Smart Top Load Washer with ActiveWave™ Agitator and Super Speed Wash in Brushed Black, 5.4 cu. ft. Smart Top Load Washer with Pet Care Solution and Super Speed Wash in Brushed Navy; **dryers** including Smart Gas Dryer with Steam Sanitize+ in Champagne, Bespoke 7.6 cu. Ft. Ultra Capacity Gas Dryer with Super Speed Dry and AI Smart Dial in Silver Steel, Bespoke 7.6 cu. Ft. Ultra Capacity Electric Dryer with AI Optimal Dry and Super Speed Dry in Silver Steel, 7.5 cu. Ft. AI Smart Dial Electric Dryer with Super Speed Dry and MultiControl™ in Brushed Black, Bespoke 7.6 cu. Ft. Ultra Capacity Gas Dryer with AI Optimal Dry and Super Speed Dry in Silver Steel, 7.5 cu. Ft. Smart Electric Dryer with Steam Sanitize+ and Sensor Dry in Ivory, Bespoke 7.6 cu. Ft. Ultra Capacity Electric Dryer with Super

Speed Dry and AI Smart Dial in Silver Steel, 7.5 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in White, 7.5 cu. Ft. AI Smart Dial Gas Dryer with Super Speed Dry and MultiControl™ in Brushed Black, 7.5 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in Platinum, 7.5 cu. Ft. Smart Gas Dryer with Steam Sanitize+ and Sensor Dry in Brushed Black, 7.5 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Champagne, 7.4 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Brushed Black, 7.5 cu. Ft. Smart Dial Electric Dryer with FlexDry™ and Super Speed Dry in Brushed Black, 7.4 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Ivory, 7.4 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in Brushed Black, 7.4 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in White, 7.4 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in Ivory, 7.5 cu. Ft. Smart Dial Gas Dryer with FlexDry™ and Super Speed Dry in Brushed Black, 7.4 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in White, 7.4 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in Champagne, 7.4 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Brushed Black, 7.4 cu. Ft. Smart Gas Dryer with Steam Sanitize+ in Brushed Black, 7.5 cu. Ft. Electric Dryer with Sensor Dry in Brushed Black, 7.5 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Brushed Black, 7.5 cu. Ft. Smart Dial Electric Dryer with Super Speed Dry in Ivory, 7.5 cu. Ft. Smart Dial Electric Dryer with Super Speed Dry in Brushed Black, 7.4 cu. Ft. Smart Electric Dryer with Steam Sanitize+ in Champagne, 7.5 cu. Ft. Smart Dial Electric Dryer with Super Speed Dry in Brushed Black, 4.0 cu. Ft. Electric Dryer with AI Smart Dial and Wi-Fi Connectivity in White, 7.5 cu. ft. Smart Electric Dryer with Sensor Dry in Brushed Black, 7.4 cu. ft. Smart Electric Dryer with Sensor Dry in Brushed Black, 7.4 cu. ft. Smart Electric Dryer with Pet Care Dry and Steam Sanitize+ in Brushed Navy, 7.4 cu. ft. Smart Gas Dryer with Sensor Dry in Brushed Black, 7.4 cu. ft. Smart Gas Dryer with Pet Care Dry and Steam Sanitize+ in Brushed Navy, Bespoke 7.8 cu. ft. Ultra Capacity Ventless Hybrid Heat Pump Dryer with AI Optimal Dry in Brushed Navy; **AirDressers** including Bespoke AirDresser Grand Clothing Care System with Steam Refresh in Crystal Mirror Finish, Bespoke AirDresser Clothing Care System with Steam Refresh in Crystal Mirror Finish; **Dishwashers** including Smart Linear Wash 39dBA Dishwasher in Stainless Steel, Bespoke Smart 39dBA Dishwasher with Linear Wash in Fingerprint Resistant Navy Steel, Smart 44dBA Dishwasher with StormWash+™ in Black Stainless Steel, Smart 44dBA Dishwasher with StormWash+™ in Stainless Steel, Smart 42dBA Dishwasher with StormWash+™ and Smart Dry in Black Stainless Steel, Smart 42dBA Dishwasher with StormWash+™ and Smart Dry in Black Stainless Steel, Smart Linear Wash 39dBA Dishwasher in Stainless Steel, Bespoke Smart 39dBA Dishwasher with Linear Wash in Fingerprint Resistant Navy Steel, Smart 44dBA Dishwasher with StormWash+™ in Black Stainless Steel, Smart 44dBA Dishwasher with StormWash+™ in Stainless Steel, Smart 42dBA Dishwasher with StormWash+™ and Smart Dry in Black Stainless Steel, Smart 42dBA Dishwasher with StormWash+™ and Smart Dry in Black Stainless Steel, Bespoke AutoRelease Smart 46dBA Dishwasher with StormWash™ in White Glass, AutoRelease Smart 46dBA Dishwasher with StormWash™ in

Fingerprint Resistant Matte Black Steel, AutoRelease Smart 42dBA Dishwasher with StormWash+™ and Smart Dry in Black Stainless Steel, Bespoke AutoRelease 39dBA Dishwasher with Linear Wash in Fingerprint Resistant Navy Steel, AutoRelease Smart 39dBA Dishwasher with Linear Wash in Black Stainless Steel; **Vacuums** including Jet Bot AI+ Robot Vacuum with Object Recognition, Jet Bot+ Robot Vacuum with Clean Station, Bespoke Jet™ AI Cordless Stick Vacuum with All-in-One Clean Station® in Satin Black; **Air Purifiers** including Bluesky Compact Air Purifier, Bespoke Cube Air Purifier, Cube Air Purifier with Wind-Free Air Purification; **Microwaves and/or Microwave combinations** including 1.1 cu. ft. Smart SLIM Over-the-Range Microwave with 400 CFM Hood Ventilation, Wi-Fi & Voice Control in Black Stainless Steel, 1.1 cu. ft. Smart SLIM Over-the-Range Microwave with 550 CFM Hood Ventilation, Wi-Fi & Voice Control in Stainless Steel, Bespoke Smart 1.9 cu. ft. Over-the-Range Microwave with Sensor Cook in White Glass, 30" Smart Single Wall Oven in Stainless Steel, 30" Smart Microwave Combination Wall Oven in Stainless Steel, 30" Smart Double Wall Oven in Black Stainless Steel, 30" Smart Double Wall Oven with Flex Duo™ in Stainless Steel, 30" Smart Microwave Combination Wall Oven with Flex Duo™ in Black Stainless Steel, 30" Smart Single Wall Oven with Steam Cook in Black Stainless Steel, 30" Smart Microwave Combination Wall Oven with Steam Cook in Black Stainless Steel, 30" Smart Single Wall Oven with Flex Duo™ in Black Stainless Steel, 30" Smart Single Wall Oven in Stainless Steel, 30" Smart Microwave Combination Wall Oven in Stainless Steel, 30" Smart Double Wall Oven in Black Stainless Steel, 30" Smart Double Wall Oven with Flex Duo™ in Stainless Steel, 30" Smart Microwave Combination Wall Oven with Flex Duo™ in Black Stainless Steel, 30" Smart Single Wall Oven with Steam Cook in Black Stainless Steel, 30" Smart Microwave Combination Wall Oven with Steam Cook in Black Stainless Steel, 30" Smart Single Wall Oven with Flex Duo™ in Black Stainless Steel,, Bespoke 30" Microwave Combination Wall Oven with Flex Duo™ in White Glass, Bespoke 30" White Glass Double Wall Oven with AI Pro Cooking™ Camera, Bespoke 30" White Glass Single Wall Oven with AI Pro Cooking™ Camera, 30" Double Wall Oven with Steam Cook in Matte Black Steel, 30" Single Wall Oven with Steam Cook in Matte Black, 24" 3.1 cu. ft. Single Electric Wall Oven with Convection and Wi-Fi in Stainless Steel, 30" Smart Electric Wall Oven with Microwave Combination in Stainless Steel, SmartThings cloud; and any yet to be released products or additional product that includes similar SmartThings functionality as identified in **Appendix 1** (collectively, "the '088 Accused Products").

- As to claims 1 and 4 of the '650 Patent, the accused products include Samsung Galaxy phones, tablets, Samsung's SmartThings cloud/platform, and refrigerators, including **smartphones** including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34,

Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and **refrigerators** including Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in Matte Black Steel, 25 cu. ft. 33" 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 25 cu. ft. 33" 3-Door French Door Refrigerator with Beverage Center in Stainless Steel, Bespoke Side-by-Side 28 cu. ft. Refrigerator with Beverage Center in White Glass, Bespoke Counter Depth Side-by-Side 23 cu. ft. Refrigerator with Beverage Center in Stainless Steel, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) with Family Hub™ + in Charcoal Glass Top and Stainless Steel Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with AutoFill Water Pitcher in White Glass, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) with AutoFill Water Pitcher in Stainless Steel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with AutoFill Water Pitcher in White Glass, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) – with Top Left and Family Hub™ Panel in Charcoal Glass - and Matte Black Steel Middle and Bottom Door Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with Beverage Center in Stainless Steel, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with AutoFill Water Pitcher in Stainless Steel, Bespoke 4-Door French Door Refrigerator (29 cu. ft.) with Beverage Center in Morning Blue Glass Top Panels and White Glass Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) – with Top Left and Family Hub™ Panel in White

Glass - and Matte Grey Glass Bottom Door Panel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with Beverage Center in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Beverage Center in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) – with Top Left and Family Hub™ Panel in Charcoal Glass - and Matte Black Steel Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) – with Top Left and Family Hub™ Panel in White Glass - and Matte Grey Glass Bottom Door Panel, 18 cu. ft. Smart Counter Depth 3-Door French Door Refrigerator in Black Stainless Steel, 17.3 cu. ft. Smart Kimchi & Specialty 4-Door French Door Refrigerator in White-Navy Glass, 22 cu. ft. Smart 3-Door French Door Refrigerator in Stainless Steel, 26.5 cu. ft. Large Capacity 3-Door French Door Refrigerator with Family Hub™ and External Water & Ice Dispenser in Black Stainless Steel, 23 cu. ft. Smart Counter Depth Side-by-Side Refrigerator in Stainless Steel, 28 cu. ft. Smart Side-by-Side Refrigerator in Stainless Steel, 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with FlexZone Drawer in Black Stainless Steel, 28 cu. ft. 4-Door French Door Refrigerator with FlexZone Drawer in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ Refrigerator with Beverage Center and Dual Ice Maker in Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with Family Hub™ and Beverage Center in Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with AutoFill Water Pitcher and Dual Ice Maker in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ refrigerator with Family Hub™ and Beverage Center in Black Stainless Steel, 29 cu. ft. Smart 4-Door Flex™ Refrigerator with Beverage Center and Dual Ice Maker in Stainless Steel, 22 cu. ft. Counter Depth Side-by-Side Refrigerator with Touch Screen Family Hub™ in Stainless Steel, 22 cu. ft. Smart 3-Door French Door Refrigerator with External Water Dispenser in Fingerprint Resistant Stainless Steel, 22 cu. ft. Counter Depth Side-by-Side Refrigerator in Stainless Steel, 26.7 cu. ft. Large Capacity Side-by-Side Refrigerator with Touch Screen Family Hub™ in Stainless Steel, 23 cu. ft. Smart Counter Depth 4-Door Flex™ refrigerator with AutoFill Water Pitcher and Dual Ice Maker in Stainless Steel, 15.6 cu. ft. Top Freezer Refrigerator with All-Around Cooling in Stainless Steel, 19.5 cu. ft. Smart 3-Door French Door Refrigerator in White, 29 cu. ft. Smart BESPOKE 4-Door Flex™ Refrigerator with Customizable Panel Colors in White Glass, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) – with Family Hub™ in Charcoal Glass, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) – with Family Hub™ in Charcoal Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Rose Pink Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Morning Blue Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Charcoal Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Charcoal Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Sunrise Yellow Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator

(23 cu. ft.) in Pink Glass (2022), Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Sunrise Yellow Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Clementine Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Pink Glass (2022), Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Clementine Glass, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Morning Blue Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Morning Blue Glass, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) - with Family Hub™ in White Glass, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Customizable Door Panel Colors and Beverage Center in Emerald Green Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass Top and Grey Glass Bottom, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in White Glass Top and Matte Black Steel Bottom, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) in Matte Black Steel, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass Top and Grey Glass Bottom, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) in White Glass Top and Matte Black Steel Bottom, 23 cu. ft. Smart Counter Depth BESPOKE 4-Door Flex™ Refrigerator with Customizable Panel Colors in White Glass, Bespoke 4-Door Flex™ Refrigerator (23 cu. ft.) in Matte Black Steel, 31 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 27 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 26 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 32 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in Matte Black Steel, 25 cu. ft. Mega Capacity Counter Depth 4-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 25 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with Family Hub™ in Stainless Steel, 30 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Four Types of Ice in Matte Black Steel, 32 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in Stainless Steel, 31 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Four Types of Ice in Matte Black Steel, 30 cu. ft. Mega Capacity 4-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, Bespoke 29 cu. ft. 4-Door Flex™ Refrigerator with Beverage Zone™ & Auto Open Door in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door Flex™ Refrigerator with Beverage Center™ & Customizable Door Panels in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door Flex™ Refrigerator with AI Family Hub™+ & AI Vision Inside™ in Stainless Steel, Bespoke 3-Door French Door Refrigerator 30 cu. ft. in Stainless Steel with AutoFill Water Pitcher, Bespoke 4-Door French Door Refrigerator (23 cu. ft.) with Beverage Center™ in Morning Blue Glass Top Panels and White Glass Middle and Bottom Panels, Bespoke 3-Door French Door Refrigerator (30 cu. ft.) with Beverage Center™ in White Glass, 27.4 cu. ft. Large Capacity Side-by-Side Refrigerator in Stainless Steel, Bespoke 3-Door French Door Refrigerator (24 cu. ft.) with Beverage Center™

in Stainless Steel, 31 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Four Types of Ice in Stainless Steel, 30 cu. ft. Mega Capacity 3-Door French Door Refrigerator with Family Hub™ in Stainless Steel, Bespoke 4-Door Flex™ Refrigerator (29 cu. ft.) with AI Family Hub™+ and AI Vision Inside™ in Stainless Steel, Bespoke 3-Door French Door Refrigerator 24 cu. ft. in Stainless Steel with AutoFill Water Pitcher, 11.4 cu. ft. Convertible Upright Freezer Refrigerator with Drawers in Stainless Look, 27 cu. ft. Counter Depth Mega Capacity 3-Door French Door Refrigerator with Dual Auto Ice Maker in a Stainless Look, Bespoke Counter Depth 4-Door Flex™ Refrigerator (23 cu. ft.) with Beverage Zone ™ and Auto Open Door in Stainless Steel, 19.5 cu. ft. Smart 3-Door French Door Refrigerator in Black, 26 cu. ft. Mega Capacity Counter Depth 3-Door French Door Refrigerator with External Water and Ice Dispenser in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with Inner Beverage Center™ & FlexZone™ Drawer in Stainless Steel, Bespoke 29 cu. ft. 4-Door French Door Refrigerator with Inner Beverage Center™ & FlexZone™ Drawer in Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Family Hub™+ AI Vision Inside™ in Charcoal Glass and Black/Charcoal, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Home & AI Vision Inside™ in Charcoal Glass and Stainless Steel Bespoke 29 cu. ft. 4-Door French Door Refrigerator with AI Family Hub™+ & AI Vision Inside™ in Charcoal Glass and Black/Charcoal, Bespoke 29 cu. ft. 4-Door French Door Refrigerator with AI Home & AI Vision Inside™ in Charcoal Glass and Stainless Steel, Bespoke 23 cu. ft. Counter Depth 4-Door French Door Refrigerator with AI Hybrid Cooling & Beverage Center™ in Stainless Steel, 18 cu. ft. Top Freezer Refrigerator with Ice Maker in Stainless Steel, and any yet to be released products or additional product that includes similar SmartThings functionality as identified in **Appendix 2** (collectively, "the '650 Accused Products").

- As to claims 1-3 of the '417 Patent, the accused products include Samsung Galaxy phones and tablets, including **smartphones** including the Galaxy A Quantum; Galaxy A03s; Galaxy A04s; Galaxy A10s; Galaxy A11; Galaxy A12; Galaxy A12s (aka Nacho); Galaxy A13; Galaxy A13 5G; Galaxy A14; Galaxy A14 5G; Galaxy A20; Galaxy A20e; Galaxy A20s; Galaxy A21; Galaxy A21s; Galaxy A22; Galaxy A22s 5G; Galaxy A23; Galaxy A23 5G; Galaxy A24 4G; Galaxy A30; Galaxy A30s; Galaxy A32; Galaxy A32 5G; Galaxy A33 5G; Galaxy A34; Galaxy A40; Galaxy A42 5G; Galaxy A50; Galaxy A50s; Galaxy A51; Galaxy A51 5G; Galaxy A51 5G UW; Galaxy A52; Galaxy A52 5G; Galaxy A53 5G; Galaxy A54 5G; Galaxy A60; Galaxy A70; Galaxy A70s; Galaxy A71; Galaxy A71 5G; Galaxy A71 5G UW; Galaxy A72; Galaxy A73 5G; Galaxy A8; Galaxy A8+; Galaxy A80; Galaxy A90 5G; Galaxy Fold; Galaxy Fold 5G; Galaxy Note10; Galaxy Note10 5G; Galaxy Note10 Lite; Galaxy Note10+; Galaxy Note10+ 5G; Galaxy Note20; Galaxy Note20 5G; Galaxy Note20 Ultra; Galaxy Note20 Ultra 5G; Galaxy Note9; Galaxy S10; Galaxy S10 5G; Galaxy S10 Lite; Galaxy S10+; Galaxy S10e; Galaxy S20; Galaxy S20 5G; Galaxy S205G UW; Galaxy S20 FE; Galaxy S20 FE 5G; Galaxy S20 Ultra; Galaxy S20 Ultra 5G; Galaxy S20+; Galaxy S20+ 5G;

Galaxy S21 5G; Galaxy S21 FE 5G; Galaxy S21 Ultra 5G; Galaxy S21+ 5G; Galaxy S22 5G; Galaxy S22 Ultra 5G; Galaxy S22+ 5G; Galaxy S23; Galaxy S23 FE; Galaxy S23 Ultra; Galaxy S23+; Galaxy S24; Galaxy S24+; Galaxy S24 Ultra; Galaxy S9; Galaxy S9+; Galaxy Xcover FieldPro; Galaxy Xcover Pro; Galaxy Xcover6 Pro; Galaxy Z Flip; Galaxy Z Flip 5G; Galaxy Z Flip3 5G; Galaxy Z Flip4; Galaxy Z Flip5; Galaxy Z Fold2 5G; Galaxy Z Fold3 5G; Galaxy Z Fold4; Galaxy Z Fold5; **tablets** including Galaxy Tab Active Pro; Galaxy Tab Active3; Galaxy Tab Active4 Pro; Galaxy Tab S5e; Galaxy Tab S6; Galaxy Tab S6 5G; Galaxy Tab S7; Galaxy Tab S7+; Galaxy Tab S8; Galaxy Tab S8 Ultra; Galaxy Tab S8+; Galaxy Tab S9; Galaxy Tab S9 FE; Galaxy Tab S9 FE+; Galaxy Tab S9 Ultra; and Galaxy Tab S9+, and any additional Samsung product with the ability to perform similar power management techniques as identified in **Appendix 3** (collectively, "the '417 Accused Products").

- As to claim 7 of the '417 Patent, the accused products in include Samsung Galaxy phones, including the Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, and Galaxy Z Fold5, and any additional Samsung product with a folded structure as identified in **Appendix 3** (collectively, "the Subset of '417 Accused Products").

- As to claims 1 and 4 of the '198 Patent, the accused products include Samsung Galaxy phones and tablets, including **smartphones** including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z

Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung product that with the ability to generate playlists and recommendations for the playlist as identified in **Appendix 4** (collectively, "the Accused Samsung '198 Products").

- As to claims 1-3, 6, 7, 10, 13-17, and 20 of the '091 Patent, the accused products include Samsung Galaxy phones and tablets, including **smartphones** including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung products with Samsung

TV and/or Netflix applications as identified in **Appendix 5** (collectively, "the Accused Samsung '091 Products").

- As to claims 1-8 of the '645 Patent, the accused include Samsung Galaxy phones and tablets, including **smartphones,** including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets,** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung product with Samsung Gallery application, including Portrait mode as identified in **Appendix 6** (collectively, "the Accused Samsung '645 Products").

- As to claims 1-5, 7, 8, 10, 12, and 14 of the '950 Patent, the accused products include Samsung Galaxy phones and tablets including **smartphones**, including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G,

Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets,** including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung product with Samsung Gallery application that, upon information and belief, implements face detection, eye detection, lip detection, pet detection, and/or Portrait mode as identified in **Appendix 7** (collectively, "the Accused Samsung '950 Products").

- As to claims 1, 2, and 4-9 of the '228 Patent, the accused products include Samsung Galaxy phones, and watches including **smartphones**, including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy

S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **watches**, including Galaxy Watch Ultra (2025), Galaxy Watch8 Classic, Galaxy Watch8, Galaxy Watch Ultra, Galaxy Watch 7, Galaxy Watch 6, Galaxy Watch5 Pro Golf Edition, Galaxy Watch5 Pro, Galaxy Watch5, Galaxy Watch4, and Galaxy Watch4 Classic; and any yet to be released products or additional Samsung systems, upon information and belief, that implement biometric tracking and emergency notification functions, such as Detect fall feature, Irregular Heart Rhythm Notification, and/or SOS requests as identified in **Appendix 8** (collectively, "the Accused Samsung '228 Products").

- As to claims 1-8 and 11 of the '646 Patent, the accused include Samsung Galaxy phones and tablets including **smartphones**, including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets**,

including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung devices with Smart View, Samsung Music application, Samsung TV application, Netflix application, and/or Casting function as identified in **Appendix 9** (collectively, "the Accused Samsung '646 Products").

- As to claims 1-5 and 7 of the '681 Patent, the accused include Samsung Galaxy phones and tablets including **smartphones**, including the Galaxy A Quantum, Galaxy A03s, Galaxy A04s, Galaxy A10s, Galaxy A11, Galaxy A12, Galaxy A12s (aka Nacho), Galaxy A13, Galaxy A13 5G, Galaxy A14, Galaxy A14 5G, Galaxy A20, Galaxy A20e, Galaxy A20s, Galaxy A21, Galaxy A21s, Galaxy A22, Galaxy A22s 5G, Galaxy A23, Galaxy A23 5G, Galaxy A24 4G, Galaxy A30, Galaxy A30s, Galaxy A32, Galaxy A32 5G, Galaxy A33 5G, Galaxy A34, Galaxy A36 5G, Galaxy A40, Galaxy A42 5G, Galaxy A50, Galaxy A50s, Galaxy A51, Galaxy A51 5G, Galaxy A51 5G UW, Galaxy A52, Galaxy A52 5G, Galaxy A53 5G, Galaxy A54 5G, Galaxy A60, Galaxy A70, Galaxy A70s, Galaxy A71, Galaxy A71 5G, Galaxy A71 5G UW, Galaxy A72, Galaxy A73 5G, Galaxy A8, Galaxy A8+, Galaxy A80, Galaxy A90 5G, Galaxy Fold, Galaxy Fold 5G, Galaxy Note10, Galaxy Note10 5G, Galaxy Note10 Lite, Galaxy Note10+, Galaxy Note10+ 5G, Galaxy Note20, Galaxy Note20 5G, Galaxy Note20 Ultra, Galaxy Note20 Ultra 5G, Galaxy Note9, Galaxy S10, Galaxy S10 5G, Galaxy S10 Lite, Galaxy S10+, Galaxy S10e, Galaxy S20, Galaxy S20 5G, Galaxy S205G UW, Galaxy S20 FE, Galaxy S20 FE 5G, Galaxy S20 Ultra, Galaxy S20 Ultra 5G, Galaxy S20+, Galaxy S20+ 5G, Galaxy S21 5G, Galaxy S21 FE 5G, Galaxy S21 Ultra 5G, Galaxy S21+ 5G, Galaxy S22 5G, Galaxy S22 Ultra 5G, Galaxy S22+ 5G, Galaxy S23, Galaxy S23 FE, Galaxy S23 Ultra, Galaxy S23+, Galaxy S24, Galaxy S24+, Galaxy S24 Ultra, Galaxy S25, Galaxy S25+, Galaxy S25 Ultra, Galaxy S9, Galaxy S9+, Galaxy Xcover FieldPro, Galaxy Xcover Pro, Galaxy Xcover6 Pro, Galaxy Z Flip, Galaxy Z Flip 5G, Galaxy Z Flip3 5G, Galaxy Z Flip4, Galaxy Z Flip5, Galaxy Z Flip6, Galaxy Z Fold2 5G, Galaxy Z Fold3 5G, Galaxy Z Fold4, Galaxy Z Fold5, Galaxy Z Fold6, Galaxy A15 5G, Galaxy A25 5G, Galaxy A35 5G, Galaxy Z Fold7, Galaxy Z Flip7, Galaxy Z Flip7 FE; **tablets**, including Galaxy Tab Active Pro, Galaxy Tab Active3, Galaxy Tab Active4 Pro, Galaxy Tab S5e, Galaxy Tab S6, Galaxy Tab S6 5G, Galaxy Tab S7, Galaxy Tab S7+, Galaxy Tab S8, Galaxy Tab S8 Ultra, Galaxy Tab S8+, Galaxy Tab S9, Galaxy Tab S9 FE, Galaxy Tab S9 FE+, Galaxy Tab S9 Ultra, Galaxy Tab S9+, Galaxy Tab A9+ 5G, Galaxy Tab Active5 5G, Galaxy Tab S10 Ultra, Galaxy Tab S10+, Galaxy Tab S10 FE+, Galaxy Tab S10 FE; and any yet to be released products or additional Samsung devices with Smart View, Samsung TV application, Netflix application, and/or Screen Mirroring function

as identified in **Appendix 10** (collectively, "the Accused Samsung '681 Products").

Maxell's identification of the Accused Instrumentalities is based on information reasonably available to Maxell at this time. Maxell reserves the right to supplement these Infringement Contentions based on information developed in the course of this lawsuit through discovery or additional factual investigation, in view of the Court's claim construction rulings, or as other circumstances may require. Specifically, should discovery reveal that Samsung has committed acts of infringement related to any products other than those listed above, including newly released products or additional products with similar functionality identified in Appendices 1-10, Maxell reserves the right to supplement these contentions.

C. P.R. 3-1(c): Claim Charts

Pursuant to P.R. 3-1(c), and based on the information presently available, Maxell attaches hereto the following Appendices 1-10 identifying specifically where each element of each asserted claim is found within the Accused Instrumentalities: Appendix 1 (the '088 Patent), Appendix 2 (the '650 Patent), Appendix 3 (the '417 Patent), Appendix 4 (the '198 Patent), Appendix 5 (the '091 Patent), Appendix 6 (the '645 Patent), Appendix 7 (the '950 Patent), Appendix 8 (the '228 Patent), Appendix 9 (the '646 Patent), and Appendix 10 (the '681 Patent). Additionally, Appendix 11 provides evidence of infringing functionalities and components for all of the Accused Instrumentalities as addressed in Appendices 1-10. Each of these appendices identifies a claim chart for the asserted claims of the patents-in-suit and the Accused Instrumentalities. As explained below, the Samsung Accused Instrumentalities infringe based on the functionalities and infringement theories set forth in Appendices 1-10 for each of the corresponding patents-in-suit.

Further, Appendix 11 supports the contention that each of the Accused Instrumentalities infringe under the same infringement theories as shown in Appendices 1-10 at least because the

Accused Instrumentalities each have similar hardware components, similar operating system, similar Samsung applications, and/or similar accused functionalities as shown in Appendices 1-10. For example, as excerpted in Appendices 1-10, Samsung's own user manuals, web pages, and answer pages describe the Accused functionalities in the same manner across the Accused Instrumentalities providing additional basis for Maxell's contention that the Accused Instrumentalities infringe under the same infringement theories as shown in Appendices 1-10. *See e.g.*:

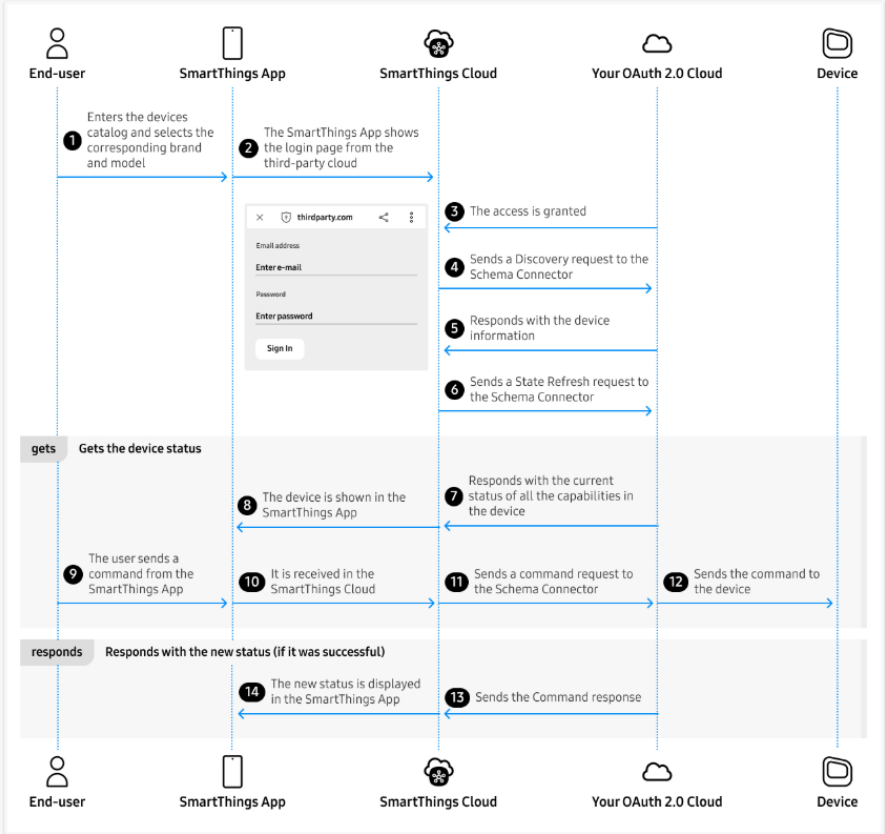
https://developer.smartthings.com/docs/getting-started/architecture-of-smartthings#the-smartthings-cloud
https://www.samsung.com/us/support/answer/ANS10001353/
https://www.samsung.com/us/support/answer/ANS00079026/
https://www.samsung.com/us/support/answer/ANS10002535/
https://techcrunch.com/2020/02/13/netflix-fends-off-new-streaming-rivals-by-way-of-samsung-partnership/?guccounter=1#:~:text=At%20Samsung's%20Unpacked%20event%20this,streaming%20service%20with%20Samsung%20device
https://www.samsungtvplus.com/
https://www.samsung.com/us/support/answer/ANS10001377/
https://www.samsung.com/us/support/answer/ANS10003225/
https://www.samsung.com/us/support/answer/ANS00092489/
https://news.samsung.com/global/new-galaxy-s22-camera-updates-let-you-capture-the-stars-like-a-pro
https://www.samsung.com/us/support/answer/ANS10001579/
https://www.samsung.com/us/support/owners/app/samsung-health
https://www.samsung.com/us/apps/samsung-health-monitor/
https://www.samsung.com/us/support/answer/ANS10003423/
https://www.samsung.com/us/support/answer/ANS10002904/
https://www.samsung.com/us/support/owners/app/samsung-music
https://www.samsung.com/us/support/answer/ANS10001896/

1. The '088 Patent and Appendix 1

With respect to the '088 Patent, Appendix 1 shows how each element of claims 1 and 14 is found in the Accused Samsung '088 Products.

As shown in Appendix 1, the Accused Samsung '088 Products have the ability to be a node in a SmartThings network. Each of the Accused Samsung '088 Products is one of a plurality of network devices connectable to a network based on being a node within the SmartThings

ecosystem. *See* https://www.smartthings.com/. Further, each of the ’088 Accused Products with a display (*e.g.*, Galaxy smartphones, tablets, laptops, hub refrigerators, and watches) are an example of a communication device that is configured to control how to display data received from a second communication terminal (*e.g.*, SmartThings appliances and/or Galaxy smartphones, tablets, laptops, and watches) providing events, notifications, Favorites modifications, health check, device status, diagnostics, and/or device on boarding information. Further, each of the ’088 Accused Products used for onboarding (*e.g.*, Galaxy smartphones, tablets, laptops, watches, SmartThings cloud, Hub refrigerator) provide an example of a first communication terminal configured to connect to a communication device via an access point device, transmit a command to remotely control a display operation on the communication device, and/or providing permission to the second communication terminal to establish a connection with the communication device as part of onboarding.



See https://developer.smartthings.com/docs/devices/cloud-connected/get-started

Further, Samsung's SmartThings requirements dictates that each of the '088 Accused Products implement certain "Interaction Types," as noted below.

Interaction Types

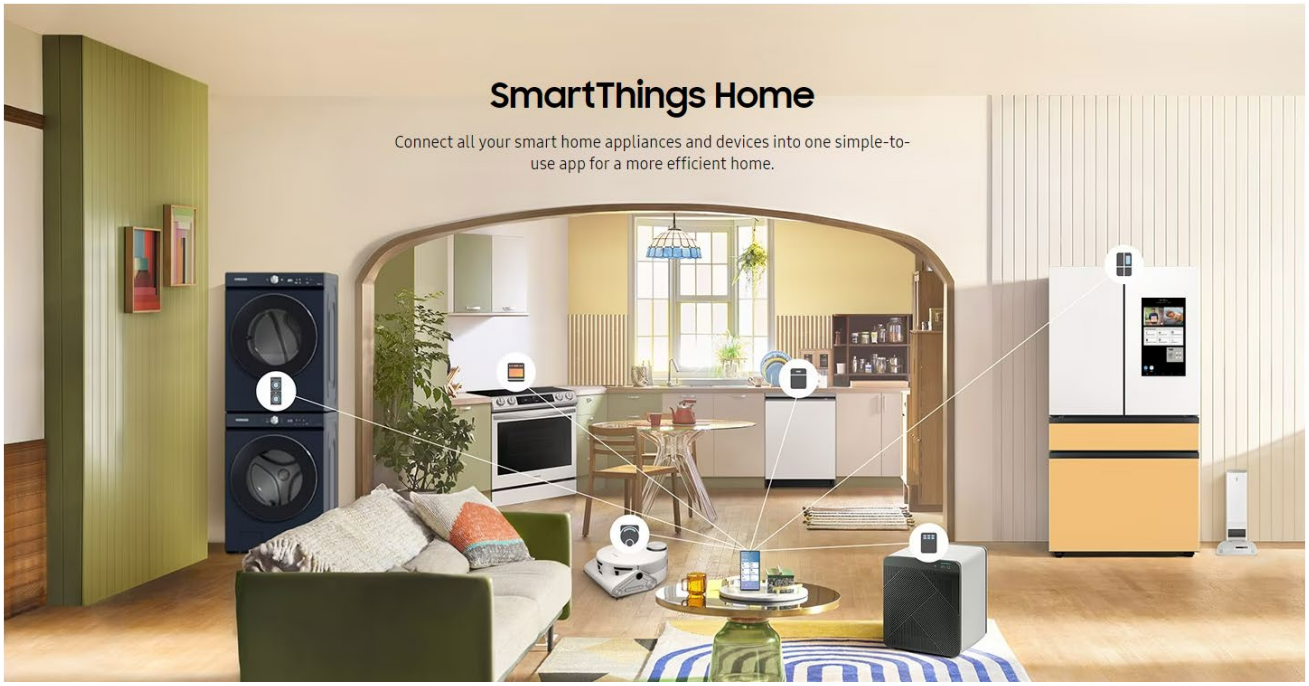
The interaction type is located in the payload `headers.interactionType`. The token context for the request is indicated in `authentication.token`.

For WWST approval, you must implement the following SmartThings interaction types:

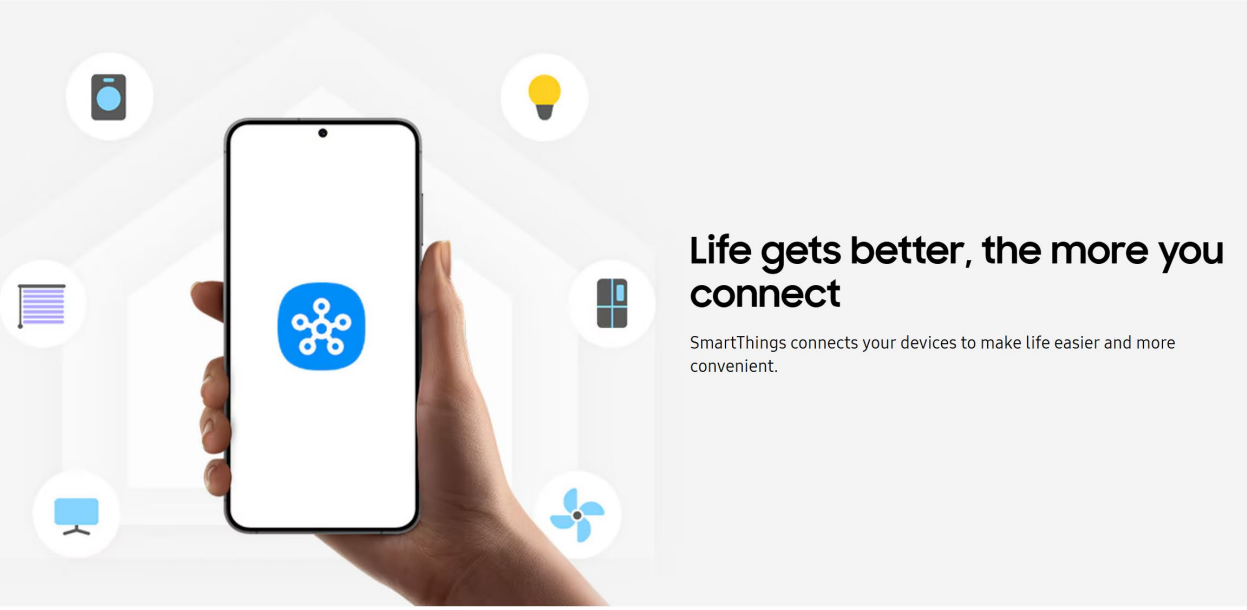
- `discoveryRequest`: SmartThings requests a list of devices. Automatic polling occurs every ~24 hours. The Discovery request is followed by the State Refresh request.
- `stateRefreshRequest`: SmartThings requests the states of the indicated devices.
- `commandRequest`: SmartThings requests that you issue commands for the indicated devices.
- **Callbacks** allow your Cloud Connector to push a device's state to SmartThings:
  - **Reciprocal Access Token Callbacks**: Receive and refresh access tokens for use with a Callback interaction. Consists of the following interaction types:
    - `grantCallbackAccess`: Originates from SmartThings. Involved in initial token exchange.
    - `accessTokenRequest`: Originates from your Cloud Connector. Involved in initial token exchange.
    - `accessTokenResponse`: Originates from SmartThings. Involved in initial token exchange + refreshing the SmartThings token.
    - `refreshAccessTokens`: Originates from your Cloud Connector. Involved in refreshing the SmartThings token.
  - `stateCallback` is used by your Cloud Connector to update the state of a device that changed as a result of an interaction that did not originate from SmartThings.
  - `discoveryCallback` allows your Cloud Connector to perform on-demand discovery.
- `interactionResult` notifies you of where issues were found in the response on a request from SmartThings Schema.
- `integrationDeleted` notifies you when a connected service is deleted.
- **Error Responses** can be appended with `globalError` or `deviceError` in your interaction type response.

See https://developer.smartthings.com/docs/devices/cloud-connected/interaction-types/.

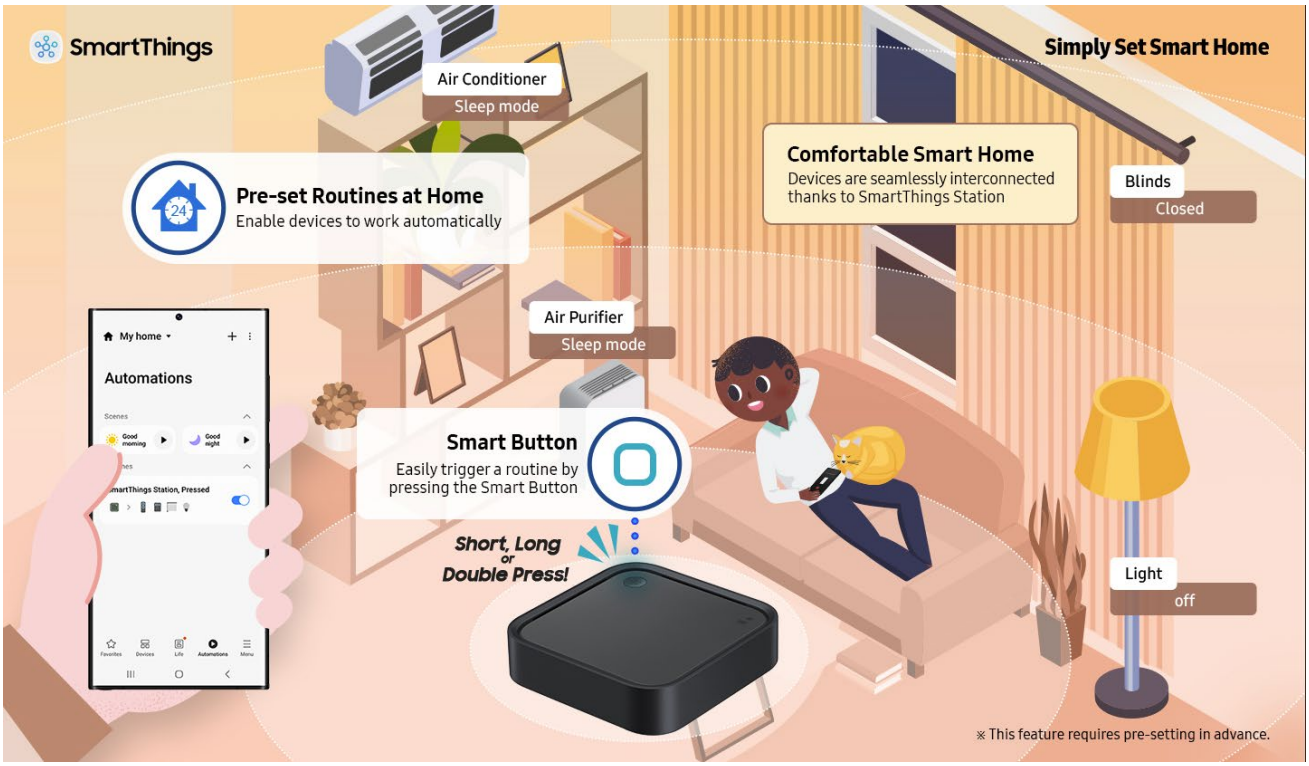
The following exemplary disclosures from webpages provided by Samsung provide evidence of SmartThings being present in each of the Accused Samsung '088 Products:



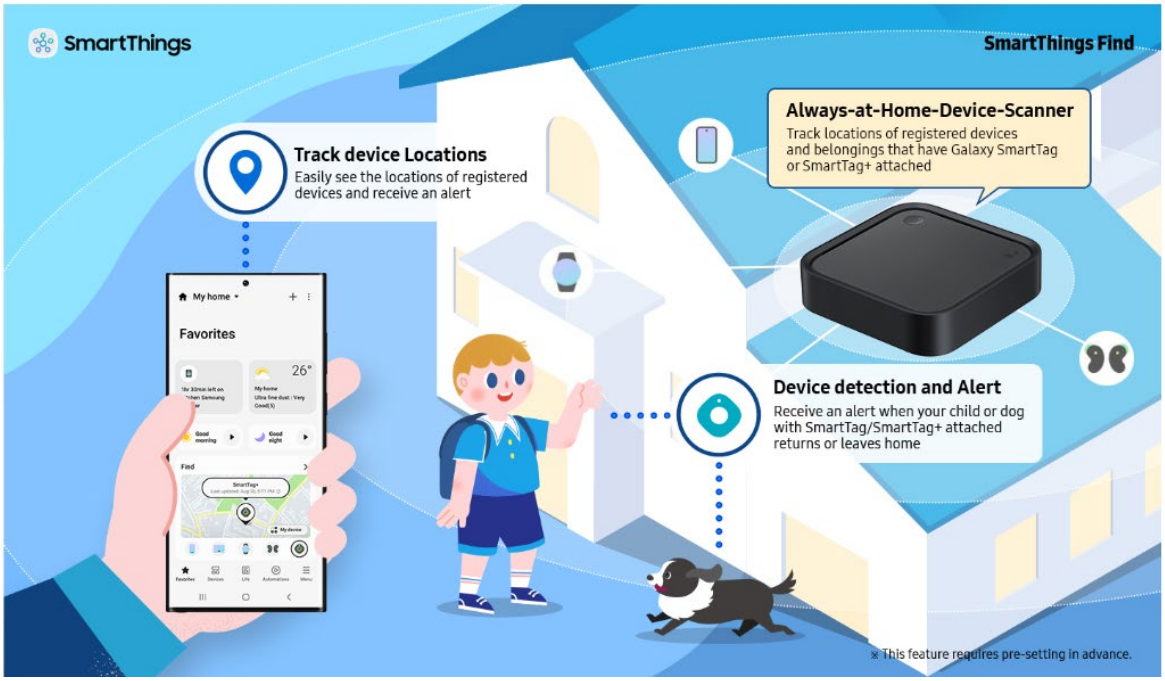
https://www.samsung.com/us/home-appliances/smartthings/



https://www.samsung.com/us/smartthings/



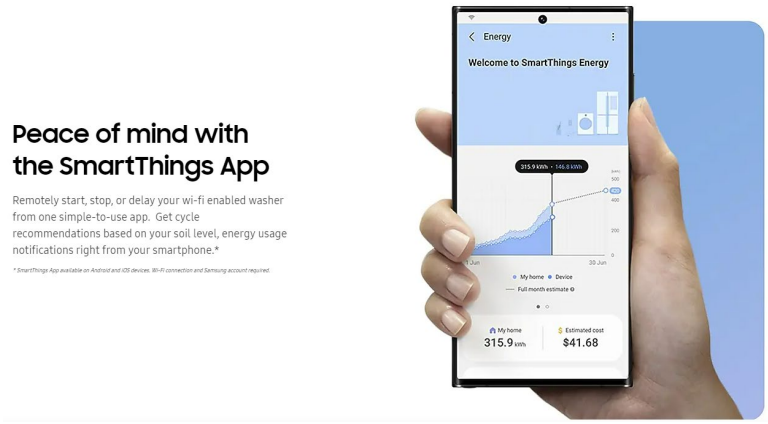
https://news.samsung.com/us/samsung-unveils-smartthings-station-making-smarter-homes-accessible-ces-2023/?utm_source=twitter&utm_medium=usnews&utm_campaign=ces



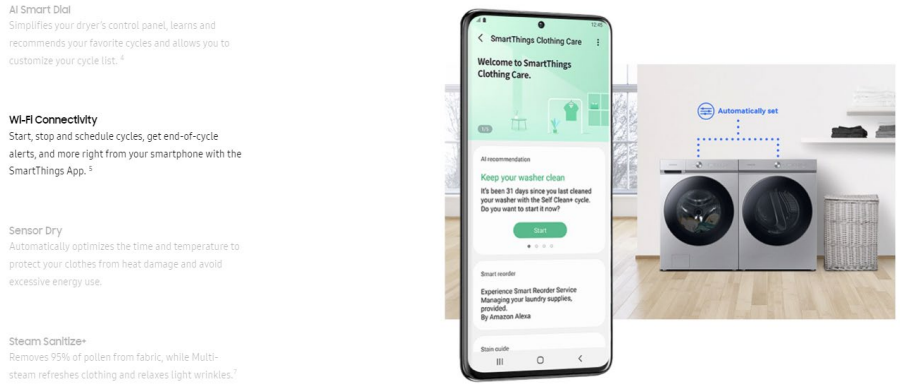
https://news.samsung.com/us/samsung-unveils-smartthings-station-making-smarter-homes-accessible-ces-2023/?utm_source=twitter&utm_medium=usnews&utm_campaign=ces

https://www.samsung.com/us/home-appliances/refrigerators/bespoke/bespoke-3-door-french-door-refrigerator-24-cu-ft-with-top-left-and-family-hub-panel-in-white-glass-and-matte-grey-glass-bottom-door-panel-rf24bb69006maa/

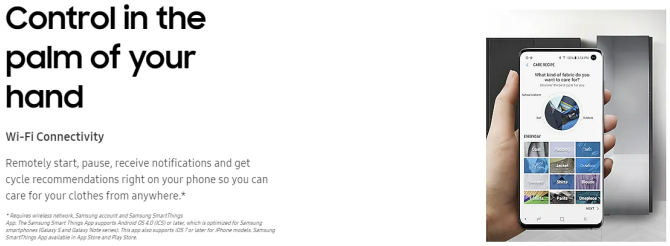
https://www.samsung.com/us/home-appliances/ranges/gas/6-0-cu-ft-front-control-slide-in-gas-range-with-smart-dial-air-fry-wi-fi-in-tuscan-stainless-steel-nx60t8711st-aa/



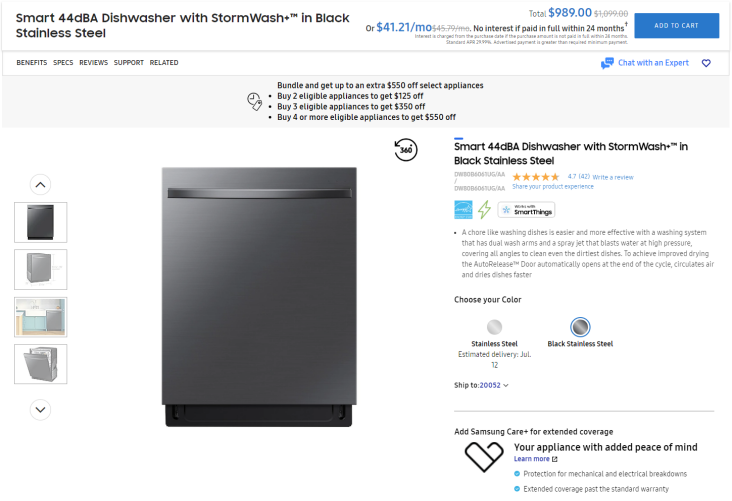
https://www.samsung.com/us/home-appliances/washers/bespoke/bespoke-5-3-cu-ft-ultra-capacity-front-load-washer-with-ai-optiwash-and-auto-dispense-in-brushed-navy-wf53bb8900adus/

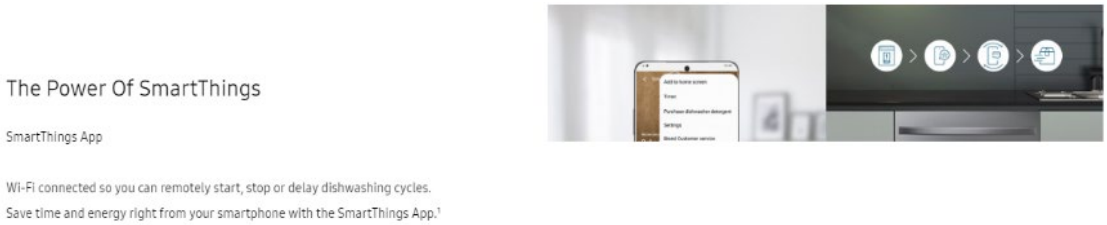


https://www.samsung.com/us/home-appliances/dryers/gas/bespoke-7-6-cu-ft-ultra-capacity-gas-dryer-with-super-speed-dry-and-ai-smart-dial-in-silver-steel-dvg53bb8700ta3/

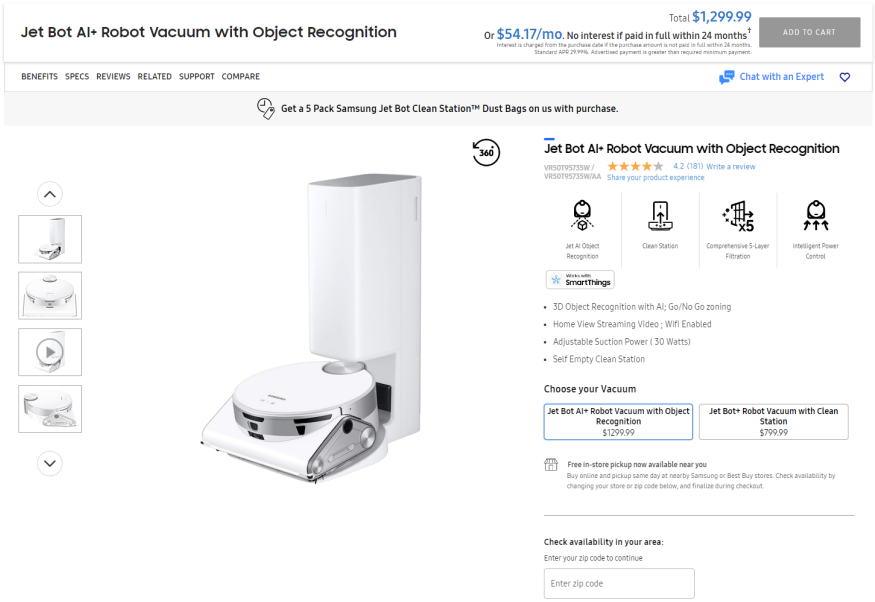


https://www.samsung.com/us/home-appliances/air-dresser/air-dresser/airdresser-grand-clothing-care-system-with-steam-refresh-and-sanitize-in-mirror-finish-df10a9500cg-a1/





https://www.samsung.com/us/home-appliances/dishwashers/rotary/smart-44dba-dishwasher-with-stormwash-in-black-stainless-steel-dw80b6061ug-aa/



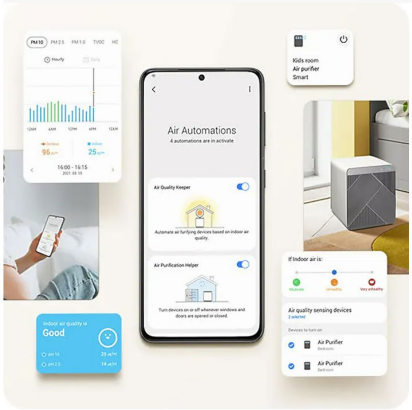
Monitor your home

Jet Live Home Monitoring

Monitor the status of your home. Jet Bot AI+'s front camera can live stream real time video images using the SmartThings App.*

** Available on Android and iOS devices. A Wi-Fi connection and a Samsung account are required.*

https://www.samsung.com/us/home-appliances/vacuums/jet-bot-robot/jet-bot-ai-plus-robot-vacuum-with-object-recognition-vr50t95735w-aa/



Peace of mind with the SmartThings App

Remotely start, stop, or check the air quality with the SmartThings App.[1] The app alerts you when it is time to buy a replacement filter and notifies you of your energy usage.

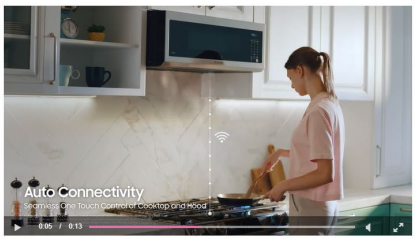
https://www.samsung.com/us/home-appliances/air-purifiers/cube-air-purifier/bespoke-air-purifier-in-grey-ax350a9350g-aa/

Seamless Control

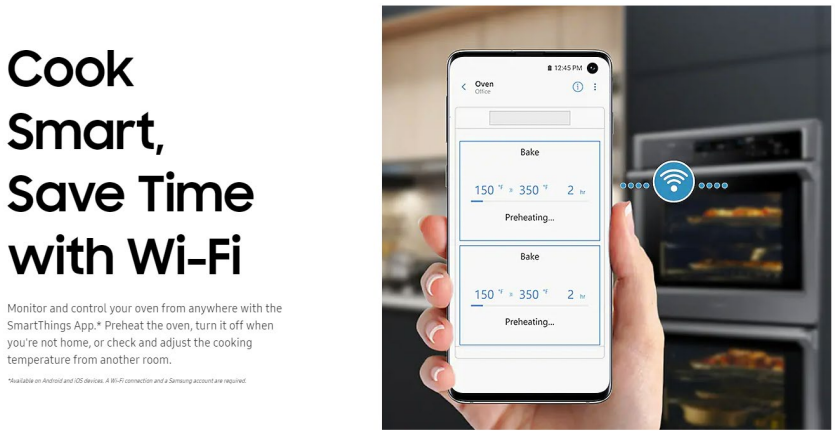
Auto Connectivity

Conveniently sync your Samsung compatible microwave hood and cooktop through Auto Connectivity by using the SmartThings App. The hood fan and LED lighting will automatically turn on and off, when you turn your cooktop on or off, saving you time and extra effort while cooking.*

** With these select Samsung Wi-Fi compatible range models only: Model numbers beginning with NE63A, NX60A, NE63T, NX60T, and NY60T. Wi-Fi connection and a Samsung SmartThings account are required.*



https://www.samsung.com/us/home-appliances/microwaves/over-the-range/1-1-cu--ft--smart-slim-over-the-range-microwave-with-550-cfm-hood-ventilation--wi-fi---voice-control-in-stainless-steel-me11a7710ds-aa/



https://www.samsung.com/us/home-appliances/wall-ovens/microwave-combination-oven/30-microwave-combination-wall-oven-in-stainless-steel-nq70t5511ds-aa/

Further, as shown in Appendices 1 and 11, technical specifications show that each of the Accused Samsung ’088 Products include all necessary hardware, operating systems, and software required by each of claims 1 and 14. For example, each of the Accused Samsung ’088 Products has the ability to be a node in a SmartThings network. Thus, each of the Accused Samsung ’088 Products infringes based on the same theories as shown in Appendix 1 because they include the same components and implement the same functionalities of SmartThings as shown in Appendix 1.

Samsung has indirectly infringed at least claims 1 and 14 of the ’088 Patent, by, among other things, contributing to the direct infringement of others, including customers of the ’088 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in

practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’088 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the ’088 Accused Products include hardware and software for implementing SmartThings functionality. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’088 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’088 Patent since, at least, December 29, 2021, based on correspondence directed to Mr. Daejin Jeon of SEC’s IP Center from Mr. T. Yamamoto of Maxell. That correspondence set forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’088 Patent as well as exemplary claims and exemplary accused products for that patent including SmartThings network. By the time of trial, Samsung will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 1 and 14 of the ’088 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’088 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least December 29, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’088 Patent, and that the ’088 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’088 Patent,

nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’088 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (e.g., a communication device, terminal, controller, or access point) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

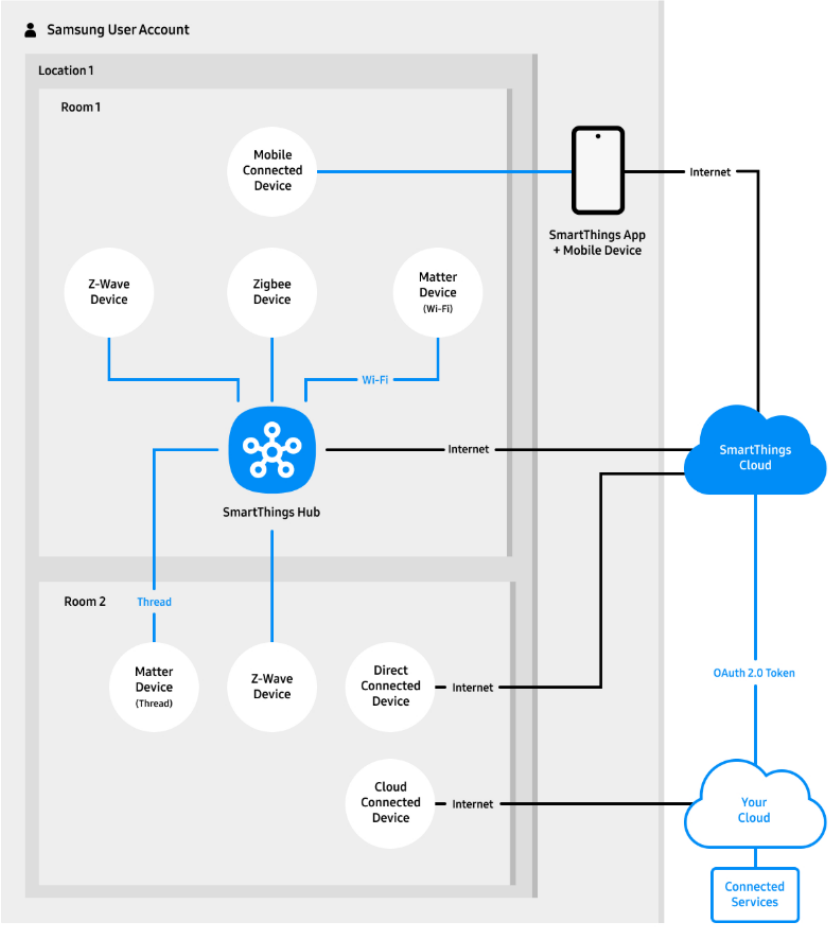
Further, while consumer use of the Accused Samsung ’088 Products necessarily implicates SmartThings, physical control over SmartThings elements is not necessary for direct infringement. Nevertheless, Samsung alternatively contributes to the divided direct infringement by end consumers and SmartThings as consumers have paid Samsung for the ability to use SmartThings functionality with the Accused Samsung ’088 Products at their direction by consumers’ purchase of the Accused Samsung ’088 Products, SmartThings is operated under the control and direction of Samsung, and the manner and timing of consumers’ use of the onboarding and/or syncing functions of the SmartThings functionality of the Accused Samsung ’088 Products is established by consumers.

2. The ’650 Patent and Appendix 2

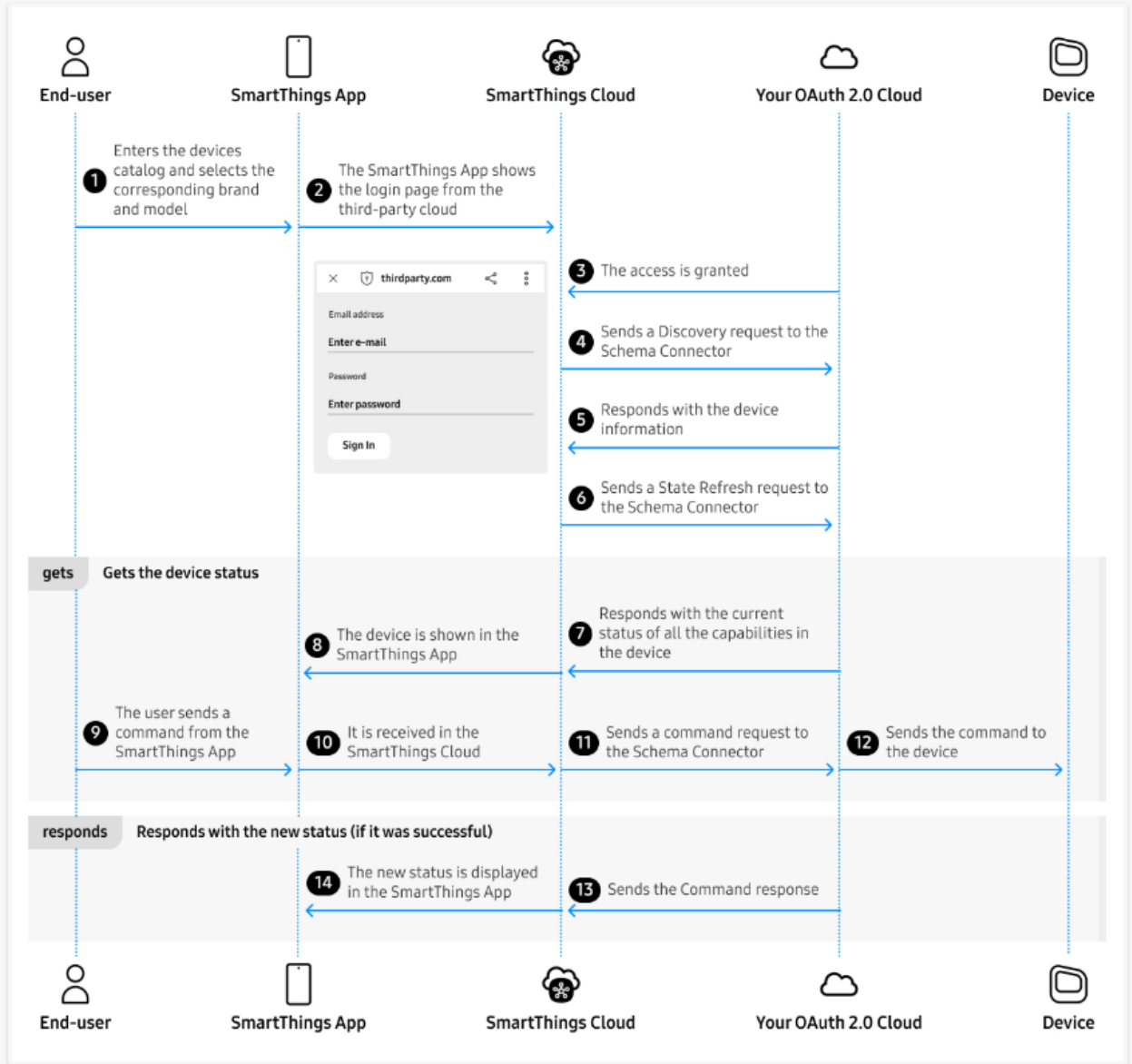
With respect to the ’650 Patent, Appendix 2 shows how each element of claims 1 and 4 is found in the Accused Samsung ’650 Products.

As shown in Appendix 2, the Accused Samsung ’650 Products function as main and subsidiary terminals that exchange personalized content within a network. *See*

https://www.smartthings.com/. Further, each of the ’650 Accused Products include a storage (*e.g.*, memory), a display, and a controller (*e.g.*, CPU executing an operating system) that store content, *e.g.*, “Events,” “Favorites list,” “Notifications,” or “My Devices,” such that, upon information and belief, the main terminal in the SmartThings network stores device identification information and association information for subsidiary terminals (*e.g.*, identifiers and/or descriptive information associated with “Events,” “Favorites list,” “Notifications,” or “My Devices”) such that information is transmitted/received between the main and subsidiary terminals (*e.g.*, providing events, notifications, Favorites modifications, health check, device status, diagnostics, and/or device on boarding information) and displayed on the subsidiary terminals. Further, the ’650 Accused Products determine whether it is possible to connect to the subsidiary terminal as part of onboarding and/or as part of determining the status of the subsidiary terminal in the SmartThings network (*e.g.*, online/offline).



See, e.g., https://developer.smartthings.com/docs/getting-started/architecture-of-smartthings#the-smartthings-cloud.



See https://developer.smartthings.com/docs/devices/cloud-connected/get-started

Further, Samsung's SmartThings requirements dictates that each of the '650 Accused Products implement certain "Interaction Types," as noted below.

Interaction Types

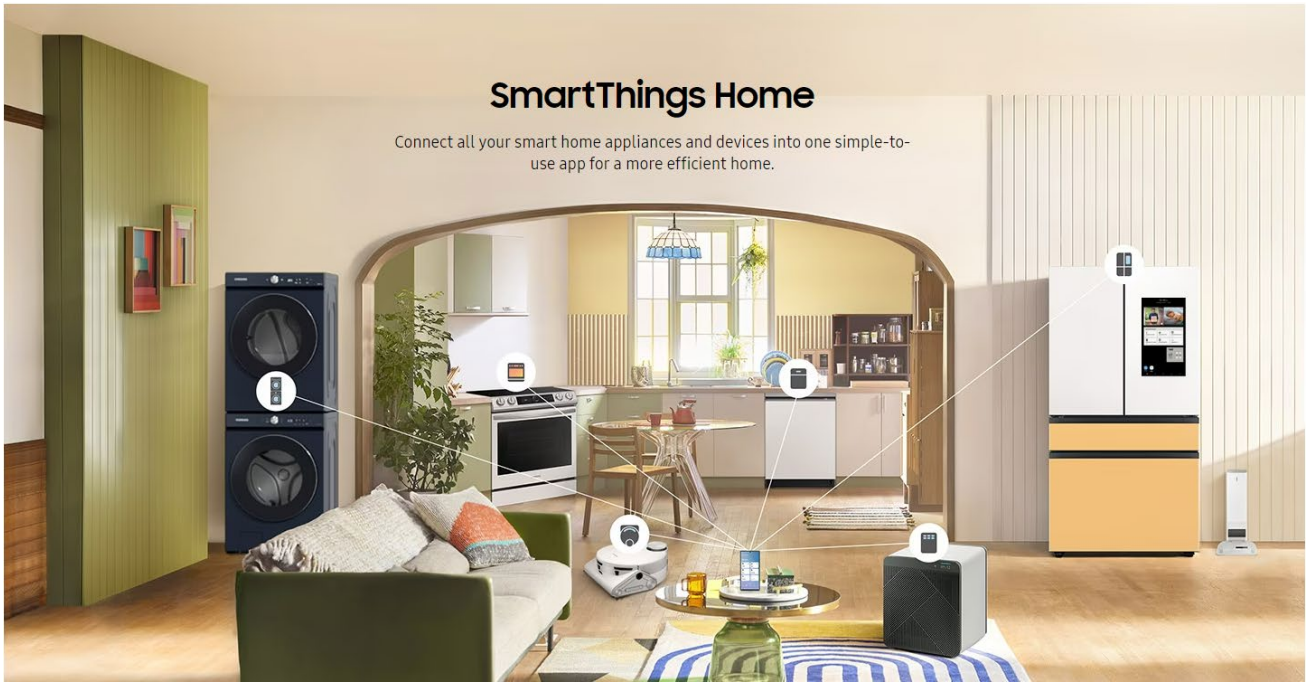
The interaction type is located in the payload `headers.interactionType`. The token context for the request is indicated in `authentication.token`.

For WWST approval, you must implement the following SmartThings interaction types:

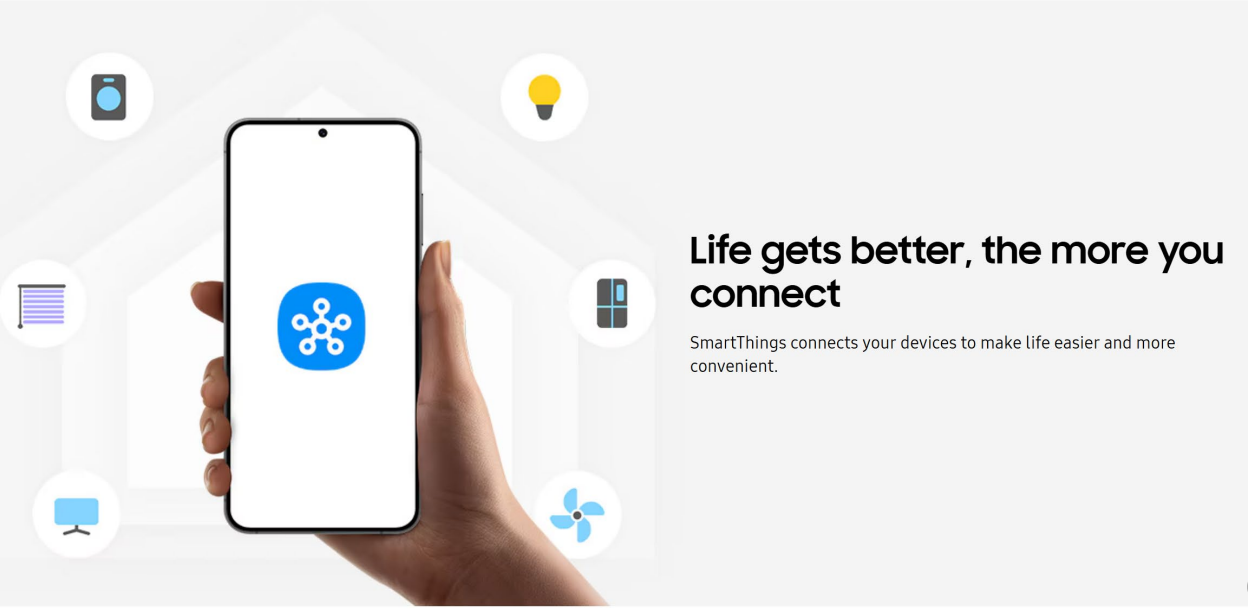
- `discoveryRequest`: SmartThings requests a list of devices. Automatic polling occurs every ~24 hours. The Discovery request is followed by the State Refresh request.
- `stateRefreshRequest`: SmartThings requests the states of the indicated devices.
- `commandRequest`: SmartThings requests that you issue commands for the indicated devices.
- Callbacks allow your Cloud Connector to push a device's state to SmartThings:
  - Reciprocal Access Token Callbacks: Receive and refresh access tokens for use with a Callback interaction. Consists of the following interaction types:
    - `grantCallbackAccess`: Originates from SmartThings. Involved in initial token exchange.
    - `accessTokenRequest`: Originates from your Cloud Connector. Involved in initial token exchange.
    - `accessTokenResponse`: Originates from SmartThings. Involved in initial token exchange + refreshing the SmartThings token.
    - `refreshAccessTokens`: Originates from your Cloud Connector. Involved in refreshing the SmartThings token.
  - `stateCallback` is used by your Cloud Connector to update the state of a device that changed as a result of an interaction that did not originate from SmartThings.
  - `discoveryCallback` allows your Cloud Connector to perform on-demand discovery.
- `interactionResult` notifies you of where issues were found in the response on a request from SmartThings Schema.
- `integrationDeleted` notifies you when a connected service is deleted.
- Error Responses can be appended with `globalError` or `deviceError` in your interaction type response.

See https://developer.smartthings.com/docs/devices/cloud-connected/interaction-types/

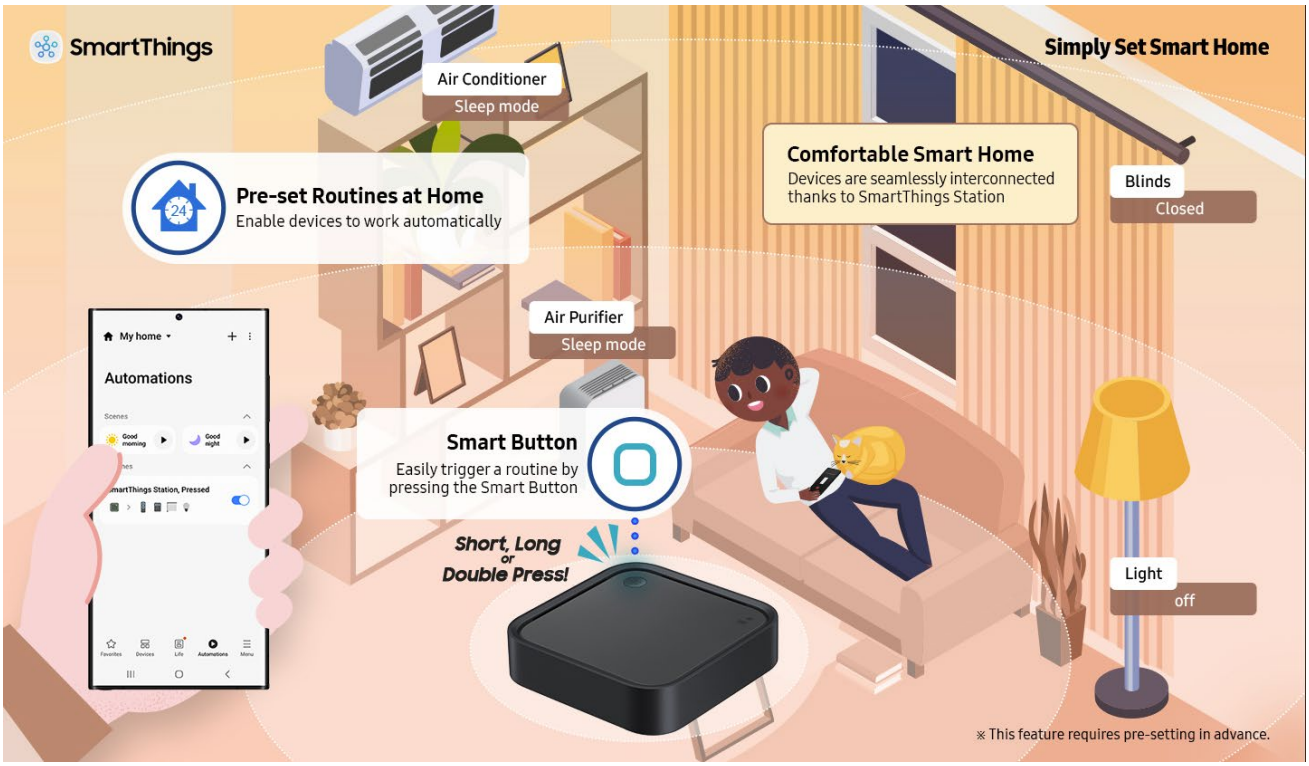
The following exemplary disclosures from webpages provided by Samsung provide evidence of the '650 Accused Products infringing at least claims 1 and 4 of the '650 Patent:



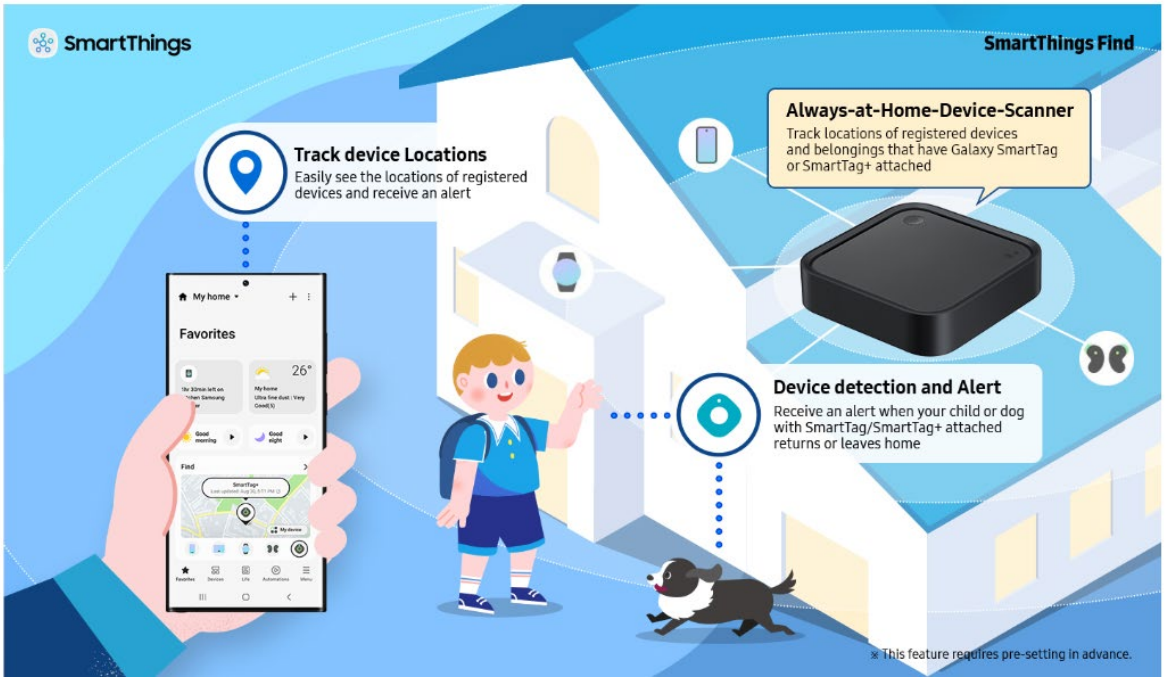
https://www.samsung.com/us/home-appliances/smartthings/



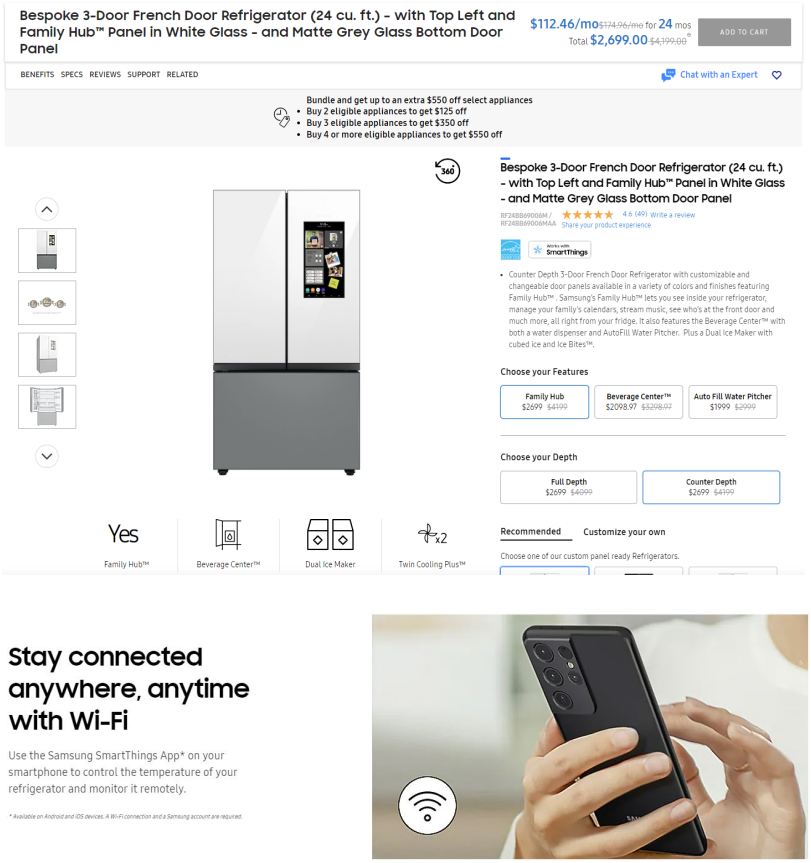
https://www.samsung.com/us/smartthings/



https://news.samsung.com/us/samsung-unveils-smartthings-station-making-smarter-homes-accessible-ces-2023/?utm_source=twitter&utm_medium=usnews&utm_campaign=ces



https://news.samsung.com/us/samsung-unveils-smartthings-station-making-smarter-homes-accessible-ces-2023/?utm_source=twitter&utm_medium=usnews&utm_campaign=ces



https://www.samsung.com/us/home-appliances/refrigerators/bespoke/bespoke-3-door-french-door-refrigerator-24-cu-ft-with-top-left-and-family-hub-panel-in-white-glass-and-matte-grey-glass-bottom-door-panel-rf24bb69006maa/

Further, as shown in Appendices 2 and 11, technical specifications show that each of the Accused Samsung ’650 Products include all necessary hardware, operating systems, and software required by each of claims 1 and 4 of the ’650 Patent. For example, each of the Accused Samsung ’650 Products include a main terminal (*e.g.*, a Galaxy smartphone or Family Hub refrigerator) with

a storage, a display, and a first controller, and a plurality of subsidiary terminals (*e.g.*, a Galaxy watch or another smart appliance) with a second display and a second controller, where the main terminal stores device specific ID information and association information to transmit specific content to a specific subsidiary terminal that has been connected and authenticated. *See, e.g.*, Appendices 2 and 11 (identifying the technical specifications of the Accused Samsung '650 Products confirming the same). Thus, each of the Accused Samsung '650 Products infringes based on the same theories as shown in Appendix 2 because they include the same components and implement the same functionalities when transmitting personalized content or device notifications from a main terminal to a subsidiary terminal within the SmartThings ecosystem as shown in Appendix 2.

Samsung has indirectly infringed at least claims 1 and 4 of the '650 Patent by, among other things, contributing to the direct infringement of others, including customers of the '650 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '650 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '650 Accused Products include hardware and software for implementing SmartThings functionality. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the '650 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’650 Patent since, at least, December 29, 2021, based on correspondence directed to Mr. Daejin Jeon of SEC’s IP Center from Mr. T. Yamamoto of Maxell. That correspondence set forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’650 Patent as well as exemplary claims and exemplary accused products for that patent including SmartThings network. By the time of trial, Samsung will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’650 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’650 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least December 29, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’650 Patent, and that the ’650 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’650 Patent, nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’650 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a main terminal, subsidiary terminal, controller, or storage) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in

substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

Further, while consumer use of the Accused Samsung ’650 Products necessarily implicates SmartThings, physical control over SmartThings elements is not necessary for direct infringement. Nevertheless, Samsung alternatively contributes to the divided direct infringement by end consumers and SmartThings as consumers have paid Samsung for the ability to use SmartThings functionality with the Accused Samsung ’650 Products at their direction by consumers’ purchase of the Accused Samsung ’650 Products, SmartThings is operated under the control and direction of Samsung, and the manner and timing of consumers’ use of the onboarding and/or syncing functions of the SmartThings functionality of the Accused Samsung ’650 Products is established by consumers.

3. The ’417 Patent and Appendix 3

With respect to the ’417 Patent, Appendix 3 shows how each element of claims 1-3, and 7 is found in the Accused Samsung ’417 Products.

As shown in Appendix 3, the Accused Samsung ’417 Products change their processor clock speeds to manage power consumption based on the device's operational state. As further shown in Appendix 3, each of the ’417 Accused Products is a mobile terminal capable of being changed from an open condition to a closed condition and include a processor (*e.g.*, CPU or Application Processor) which executes program processing and operates at different frequencies based on a variable clock signal. Further, each of the ’417 Accused Products includes a clock controller capable of changing a frequency of a clock signal to be fed to the processor (*e.g.*, clock circuitry external or internal to the CPU). Further, the clock circuitry in each of the ’417 Accused Products controls the frequency of the clock signal so as to become a first frequency when the mobile terminal is in the open condition, and controls the frequency of the clock signal so as to become a

second frequency lower than the first frequency when the mobile terminal is in the closed condition. Further, the clock circuitry in each of the ’417 Accused Product controls the frequency of the clock signal so as to become a frequency higher than the second frequency when a specific processing is executed even if the mobile terminal is in the closed condition, and controls the frequency of the clock signal so as to become the second frequency after the execution of the specific processing is completed. For example, each of the ’417 Accused Products include a camera to execute a specific processing of image decoding while in closed condition.

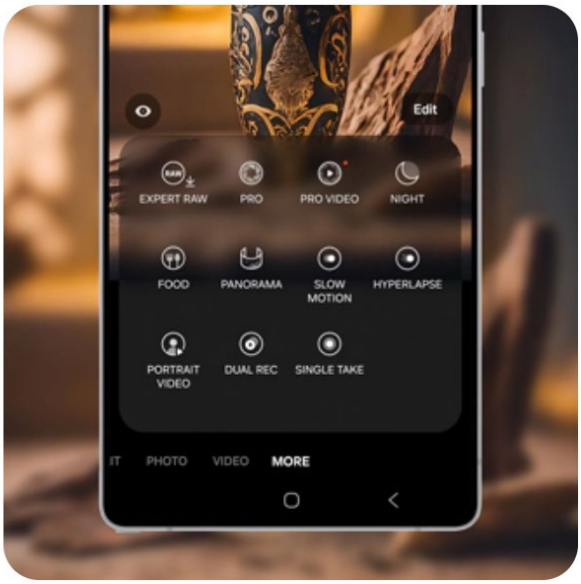
The following exemplary disclosure from webpages provided by Samsung provide evidence that each of the Accused Samsung ’417 Products can be used to perform specific processing of imaging decoding using the Camera application in each of the Accused Samsung ’417 Products:

Camera modes and settings on Galaxy phones and tablets

The cameras on Galaxy **phones** and **tablets** come with a variety of shooting modes and camera settings that make it easy to capture and add flair to your pictures and videos. AR Doodle, Super slow-mo, Director’s view, and Portrait mode are just a few of the options the camera has to offer. You can take things a step further by adjusting the camera’s available settings, such as changing the video size or adding grid lines.

Selfies

- **Use wide angle for group selfies:** Automatically switches to wide-angle when there are two or more people in the selfie.
- **Save selfies as previewed:** Save selfies as they appear in the preview without flipping them.
- **Selfie color tone:** Set the color tone for your selfies to Natural or Bright.



https://www.samsung.com/us/support/answer/ANS10001353/

Further, as shown in Appendices 3 and 11, technical specifications show that each of the Accused Samsung ’417 Products include all necessary hardware, operating systems, and software required by each of claims 1-3 and 7 of the ’417 Patent. For example, each of the Accused Samsung ’417 Products include a processor (*e.g.*, an Application Processor), and a clock controller that changes the frequency of a clock signal fed to the processor to a first frequency in an open condition, a lower second frequency in a closed condition, and a frequency higher than the second frequency when a specific processing (*e.g.*, image decoding) is executed while the terminal is in the closed condition. *See*, e.g., Appendices 3 and 11 (identifying the technical specifications of the Accused Samsung ’417 Products confirming the same). Thus, each of the Accused Samsung ’417 Products infringes based on the same theories as shown in Appendix 3 because they include the same components and implement the same functionalities when performing processor-intensive tasks like using the camera while the device is in a standby or closed state as shown in Appendix 3.

Samsung has indirectly infringed at least claims 1-3 and 7 of the ’417 Patent by, among other things, contributing to the direct infringement of others, including customers of the ’417 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’417 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the ’417 Accused Products include hardware and software for implementing one or more clock controllers capable of changing a frequency for specific processes. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’417 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’417 Patent since, at least, July 7, 2021, based on correspondence directed to Mr. I. Lee of SEC from Mr. T. Yamamoto of Maxell. *See* Letter from T. Yamamoto to I. Lee dated July 7, 2021. That correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’417 Patent as well as exemplary claims and exemplary accused products for that patent including SmartThings network. By the time of trial, Samsung will thus have known and intended (since receiving such notice) that its continued actions would actively induce and contribute to actual infringement of at least claims 1-3 and 7 of the ’417 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’417 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 7, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’417 Patent, and that the ’417 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’417 Patent, nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’417 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a processor or clock controller) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

4. The ’198 Patent and Appendix 4

With respect to the ’198 Patent, Appendix 4 shows how each element of claims 1 and 4 are found in the in the Accused Samsung ’198 Products.

As shown in Appendix 4, the Accused Samsung ’198 Products automatically create playlists and albums by grouping digital images based on shared characteristics. Products each include a display, processor, and various programs including applications that infringe at least claims 1 and 4 of the ’198 Patent. For example, upon information and belief, each of the ’198 Accused Products are sold with Netflix and Gallery applications. *See*

https://techcrunch.com/2020/02/13/netflix-fends-off-new-streaming-rivals-by-way-of-samsung-partnership/?guccounter=1#:~:text=At%20Samsung's%20Unpacked%20event%20this,streaming%20service%20with%20Samsung%20devices; *see also* https://www.samsung.com/us/support/answer/ANS00079026/. Each of the '198 Accused Products includes a playlist generation function with a recommendation engine that provides an enhanced playlist generation function. *See* https://help.netflix.com/en/node/100639. Similarly, each of the '198 Accused Products executes a face-recognition process and includes a Samsung Gallery application that registers albums for specific person based on the face-recognition and generates an "Auto-updating albums" to generate an enhanced playlist. *See* https://www.samsung.com/us/support/answer/ANS10002535/.

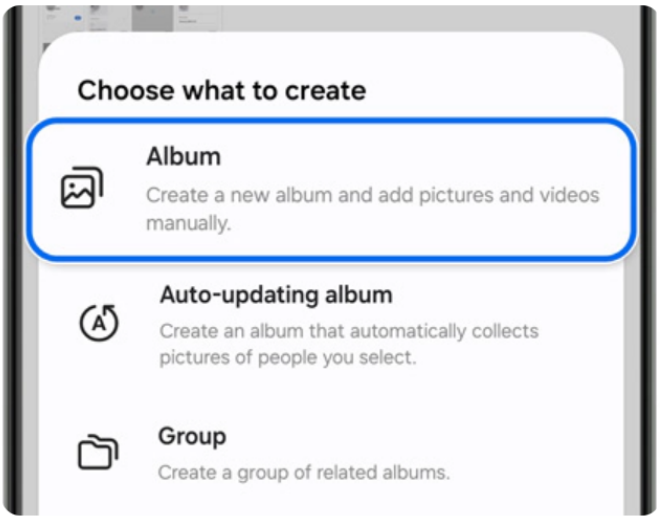
The following exemplary disclosures from webpages provided by Samsung provide evidence of the '198 Accused Products infringing at least claims 1 and 4 of the '198 Patent:

Use the Gallery app on your Galaxy phone or tablet

Leave that bulky photo album at home and use your Galaxy **phone** or **tablet** instead to relive all those precious memories. With the Gallery app, you can view, edit, and manage your pictures, videos, and albums right on your Galaxy device.

https://www.samsung.com/us/support/answer/ANS00079026/

1 From **Gallery**, tap the **Albums** tab, and then tap **Add** (the plus sign). You can select from the following album types:



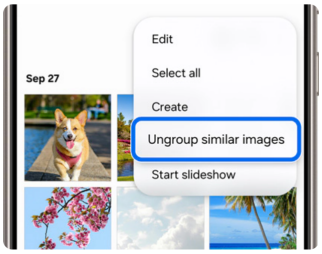
- **Album**: Create a standard album.
- **Auto-updating album**: Create an album that will automatically update to include pictures of people that you select.
- **Group**: Create a group, and then add albums to the group. You can view the next section for more information.

https://www.samsung.com/us/support/answer/ANS00079026/

You can prevent the Gallery app from automatically organizing your photos into new albums and stories. Although this option can be helpful if you have a lot of similar photos, you can still turn it off if you'd rather not use it.

1 Navigate to and open the **Gallery** app, and then make sure you are on the **Pictures** tab.

2 Tap **More options** (the three vertical dots), and then tap **Ungroup similar images**. This will prevent the Gallery app from automatically organizing your pictures.



3 If available, you can also tap the **Similar images** icon (the square in the top right corner) to disable image grouping. The icon will be black when disabled. However, this icon may not be available on certain models.

https://www.samsung.com/us/support/answer/ANS00079026/

Further, as shown in Appendices 4 and 11, technical specifications show that each of the Accused Samsung '198 Products include all necessary hardware, operating systems, and software required by each of claims 1 and 4 of the '198 Patent. For example, each of the Accused Samsung '198 Products include an output module (a display) and a control module which selects a digital image to add to a playlist based on related information (*e.g.*, a recognized face) and automatically identifies and retrieves additional digital images whose related information is the same as the selected digital image to be output in the playlist. *See, e.g.*, Appendices 4 and 11 (identifying the technical specifications of the Accused Samsung '198 Products confirming the same). Thus, each of the Accused Samsung '198 Products infringes based on the same theories as shown in Appendix 4 because they include the same components and implement the same functionalities when using the Gallery application to create auto-updating albums based on face recognition as shown in Appendix 4.

Samsung has indirectly infringed at least claims 1 and 4 of the '198 Patent, by, among other things, contributing to the direct infringement of others, including customers of the '198 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '198 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '198 Accused Products each include hardware and software for implementing playlist generation, recommendation engine, and dubbing functions by Samsung Gallery and/or Netflix application. These are components of a patented machine, manufacture, or

combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’198 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’198 Patent since, at least, July 7, 2021, based on correspondence directed to Mr. I. Lee of SEC from Mr. T. Yamamoto of Maxell. *See* Letter from T. Yamamoto to I. Lee dated July 7, 2021. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the ’198 Patent as well as exemplary claims and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving such notice), that its continued actions would actively induce and contribute to actual infringement of at least claims 1 and 4 of the ’198 Patent by preinstalling Netflix application on the Accused Samsung ’198 Products and/or by contributing or inducing users to download Netflix application at setup.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’198 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least July 7, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’198 Patent, and that the ’198 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’198 Patent, nor could it reasonably, subjectively believe that the ’198 Patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that its actions constitute infringement,

Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’198 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, an output module or control module) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

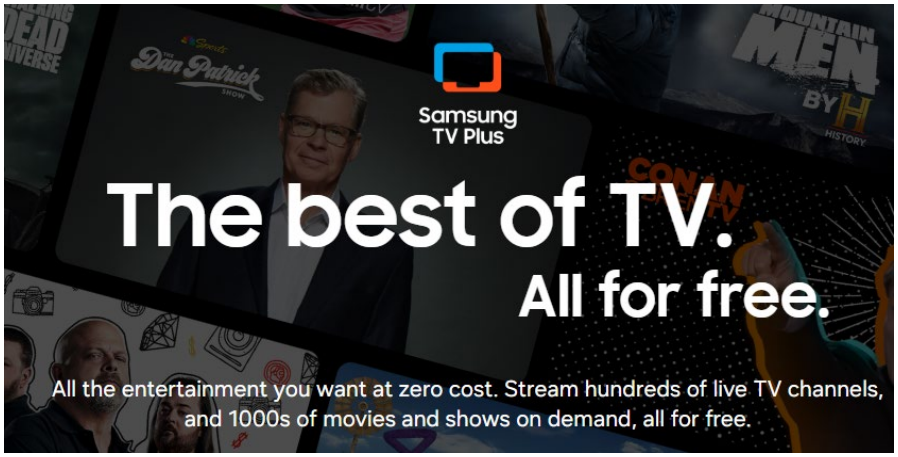
5. The ’091 Patent and Appendix 5

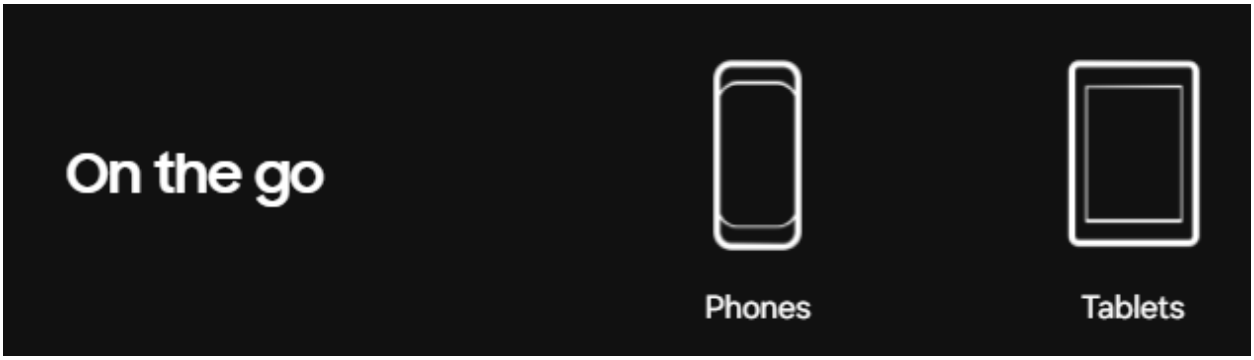
With respect to the ’091 Patent, Appendix 5 shows how each element of claims 1-3, 6, 7, 10, 13-17, and 20 is found in the in the Accused Samsung ’091 Products.

As shown in Appendix 5, As shown in Appendix 5, the Accused Samsung ’091 Products display different user operation panels depending on the type of content being played. Each of the ’091 Accused Products includes network communication circuitry (*e.g.*, Wi-Fi chipset and cellular modem) that received digital content from a server (*e.g.*, Samsung TV server and/or Netflix server). Further, each of the ’091 Accused Products includes a decoder (*e.g.*, video decoder and/or codecs) to decode digital content, a display, and a controller that work in conjunction with various programs including applications that infringe at least claim 1 of the ’091 Patent. For example, upon information and belief, each of the ’091 Accused Products is sold with Samsung TV and Netflix application. *See* https://techcrunch.com/2020/02/13/netflix-fends-off-new-streaming-rivals-by-way-of-samsung-partnership/?guccounter=1#:~:text=At%20Samsung's%20Unpacked%20event%20this,streaming%20service%20with%20Samsung%20devices; *see also* https://www.samsungtvplus.com/. Each of the ’091 Accused Products includes a controller that displays digital contents while generating

specific user interfaces with interactive operation buttons during the time represented by the time related information, receiving user-instructions of interactive functions to the outside server (*e.g.*, next episode function or functions to connect to Netflix or Samsung TV server for different language settings and/or to obtain additional information about the content being displayed). Further, each of the ’091 Accused Products includes a controller that displays digital contents while generating specific user interfaces with linear operation buttons (*e.g.*, fast forward, rewind, skip content etc.).

The following exemplary disclosures from webpages provided by Samsung provide evidence of the ’091 Accused Products infringing at least claims 1-3, 6, 7, 10, 13-17, and 20 of the ’091 Patent:





https://www.samsungtvplus.com/

TV

Enjoy free news, entertainment, and more on your Samsung TV and mobile devices.

https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf

Further, as shown in Appendices 5 and 11, technical specifications show that each of the Accused Samsung '091 Products include all necessary hardware, operating systems, and software required by each of claims 1-3, 6, 7, 10, 13-17, and 20 of the '091 Patent. For example, each of the Accused Samsung '091 Products include network communication circuitry, a decoder, a display, and a controller that alternatively displays either a first operation panel with linear operation buttons (*e.g.*, play/pause) or a second operation panel with interactive operation buttons (*e.g.,* next episode) based on time-related information received with the digital content from an external server. *See*, *e.g.,* Appendices 5 and 11 (identifying the technical specifications of the Accused Samsung '091 Products confirming the same). Thus, each of the Accused Samsung '091 Products infringes based on the same theories as shown in Appendix 5 because they include the same components and implement the same functionalities when streaming content via the Netflix or Samsung TV Plus applications as shown in Appendix 5.

Samsung has indirectly infringed at least claims 1-3, 6, 7, 10, 13-17, and 20 of the '091 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '091 Accused Products. Samsung's customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung's instructions directly infringe one or more claims of the '091 Patent in violation of 35 U.S.C. § 271. Samsung instructs its customers through at least user guides or websites, such as those located at:

https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf, https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsungtvplus.com/.

For example, as shown above Samsung instructs its customers to "Enjoy free news, entertainment, and more on your Samsung TV an mobile devices." *See* https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf, https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsungtvplus.com/.

Samsung is thereby liable for infringement of the '091 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claims 1-3, 6, 7, 10, 13-17, and 20 of the '091 Patent by, among other things, contributing to the direct infringement of others, including customers of the '091 Accused Products by making, offering to sell, or selling, in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '091 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '091 Accused Products each include hardware and software for implementing Samsung TV and/or Netflix application for receiving digital content, decoding digital content, displaying digital content, and rendering specific user interfaces with the digital

content. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’091 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’091 Patent since, at least, September 8, 2023, based on correspondence directed to Mr. D. Jeon from Mr. J. Beaber. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents, and specifically identified the allowed patent application that issued as the ’091 Patent as well as exemplary allowed claims and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’091 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’091 Patent, which has been duly issued by the USPTO, and is presumed valid. For example, since at least September 8, 2023, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’091 Patent, and that the ’091 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’091 Patent, nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief, and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’091 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a controller, decoder, or operation panel) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

6. The ’645 Patent and Appendix 6

With respect to the ’645 Patent, Appendix 6 shows how each element of claims 1-8 are found in the Accused Samsung ’645 Products.

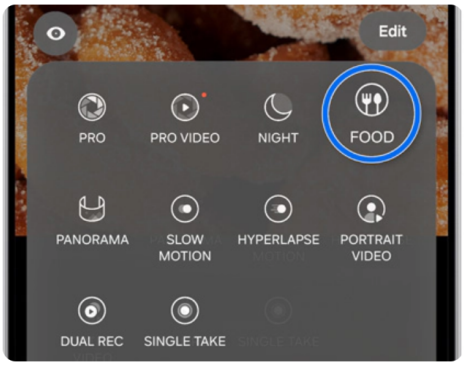
As shown in Appendix 6, the Accused Samsung ’645 Products distinguish between a subject and its background to selectively apply video signal correction, including Portrait mode. As further shown in Appendix 6, each of the ’645 Accused Products is observed to include an input unit to which a video signal is input. For example, each of the ’645 Accused Products includes an image sensor and/or a cellular or Wi-Fi circuit for receiving a video signal. Further, each of the ’645 Accused Products is observed to include a detector which detects whether pattern portions other than contents are contained in the video signal input to the input unit. For example, the ’645 Accused Products include an image signal processor (ISP) and/or a CPU. The ’645 Accused Products are further observed to include a corrector which corrects the video signal input to the input unit and a controller which controls the corrector to cause the corrector to correct the video signal input to the input unit when the pattern portions are not contained and which controls the corrector to cause the corrector not to correct the video signal when the pattern portions are contained. For example, in Portrait Mode, the ’645 Accused Products do not perform certain color corrections to the pattern portions in Portrait mode, Motion photo (*e.g.*, fireworks), Food mode, and Portrait video. Similarly, the ’645 Accused Products do not perform certain corrections to the

pattern portions when performing the scanning of documents, Portrait mode, Motion photo (*e.g.*, fireworks), Food mode, and Portrait video. *See*, *e.g.*, https://www.samsung.com/us/support/answer/ANS10001377/; *see also* https://www.samsung.com/us/support/answer/ANS10003225/; https://www.samsung.com/us/support/answer/ANS00092489/.

The following exemplary disclosures from webpages provided by Samsung provide evidence of the Accused Samsung '645 Products infringing at least claims 1-8 of the '645 Patent by implementing Food mode, Portrait Mode, Motion photo, and/or document scanning via the camera:

Capture the flavor with Food mode on your Galaxy phone or tablet

Foodies and aspiring food photographers, rejoice. **Galaxy phones** and **tablets** now have Food mode! Take pictures of your favorite dishes and put them in the spotlight. Food mode will automatically adjust the coloring to make your dishes look even more delicious. Bon appétit!



Don't hide a stunning dish from the camera. Give it the photographic justice it deserves!

1. Navigate to and open the **Camera** app, then tap **MORE**, and then tap **FOOD**. Make sure your dish is in the highlighted area.
2. To adjust the color temperature, tap the **Quick controls** icon (the four dots), then tap the **Thermometer** icon, and then adjust the **slider** at the bottom of the screen.
3. You can also tap the **Blur effect** icon (the teardrop) to blur the sides and background of your dish.
4. Then, tap **Capture**.

https://www.samsung.com/us/support/answer/ANS10001377/

Use Portrait mode or Live Focus on your Galaxy phone

You know that Samsung's innovative cameras are fun to use and always include multiple options for getting your shots just right. The Live Focus feature has been a part of **Galaxy phone** cameras for a while and is known for its iconic filters. The original Live Focus is still great, but it has been added to Portrait mode on phones with One UI 4 and later software. With Portrait mode, you can use brand-new filters and effects to truly transform your selfies.

Portrait mode includes Live Focus and many additional effects and filters to take your pictures to the next level. Your selfies will look better than ever before!

Open the **Camera** app, then tap **PORTRAIT**, and then tap the **circle** in the bottom right of the viewfinder. The options can be altered using the **slider**. On some devices, PORTRAIT will be available at the bottom of the screen after opening the Camera app.

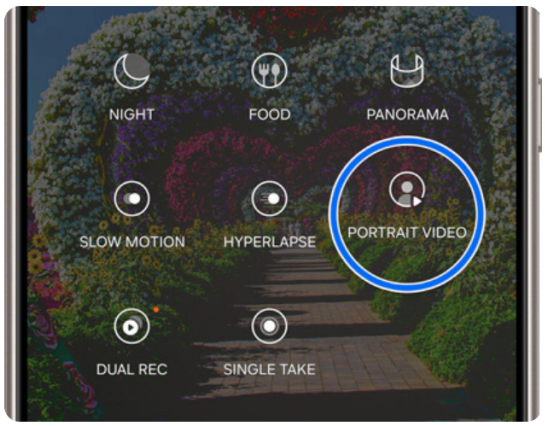
https://www.samsung.com/us/support/answer/ANS10003225/

- **Blur**: This will blur the background around the subject, like Live Focus on previous devices.
- **Studio**: This applies a brightening effect to the subject but does not brighten the background, making the subject the main focal point.
- **High-key mono**: Creates a monochromatic effect with a high brightness level. The entire picture and subject will appear in black and white.
- **Low-key mono**: Similar to High-key mono where the picture appears in black and white. However, it uses low brightness instead.
- **Backdrop**: Grays out the background around the subject with a gradient effect, while the subject itself still has color.
- **Color point**: Changes the sharpness of the colors directly around your subject, so everything else looks darker and the subject stands out.

https://www.samsung.com/us/support/answer/ANS10003225/

Although their names are different, Live focus video and Portrait video use the same options, whether you have a slightly older phone or a brand new Galaxy S24. Just like their picture alternatives, these modes add an effect to whatever you're recording using either the rear or front cameras.

Open the **Camera** app, and then tap **MORE**. Tap **PORTRAIT VIDEO**, and then tap the **circle** in the bottom right of the viewfinder. There are four options to choose from, and each can be altered using the **slider**.



- **Blur**: This will blur the background around the subject that you're filming.
- **Big circle**: Creates a focused circle around your subject while severely blurring the background.
- **Color point**: Changes the sharpness of the colors directly around your subject, so everything else becomes black and white.

https://www.samsung.com/us/support/answer/ANS10003225/

Scan and edit documents on your Galaxy phone or tablet

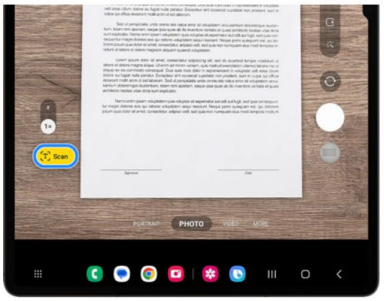
If you need to bring an important document with you but don't want to carry a heavy book or stack of files, you can scan and save the document using your Galaxy phone or tablet. Your device will create an exact replica of the document, so you'll always have access to it in your Gallery app when you need to view it. Your document can also be edited using the Samsung Notes app and exported as a PDF.

https://www.samsung.com/us/support/answer/ANS10003225/

Use the Gallery app to scan documents

Scanning a document, whether you're using a book or a piece of paper, will automatically remove unwanted shadows, hands, and other items that may be on the document itself. Scanning will also align rectangular shapes so your document will appear perfectly straight and legible. Once you're finished scanning, you can edit the document in the Samsung Notes app.

1. To begin, navigate to and open the **Camera** app on your phone or tablet, and then line up the viewfinder with the document.
2. Tap **Scan** when it appears. Your device will begin scanning the document.



https://www.samsung.com/us/support/answer/ANS00092489/

Further, as shown in Appendices 6 and 11, technical specifications show that each of the Accused Samsung '645 Products include all necessary hardware, operating systems, and software required by each of claims 1-8 of the '645 Patent. For example, each of the Accused Samsung '645 Products include an input unit for a video signal, a detector (*e.g.,* an ISP) which detects pattern portions other than contents (*e.g.,* the background of a portrait), a corrector which corrects the video signal, and a controller which controls the corrector to not correct the video signal when the pattern portions are detected. *See, e.g.*, Appendices 6 and 11 (identifying the technical specifications of the Accused Samsung '645 Products confirming the same). Thus, each of the Accused Samsung '645 Products infringes based on the same theories as shown in Appendix 6 because they include the same components and implement the same functionalities when using camera features like Portrait Mode as shown in Appendix 6.

Samsung has indirectly infringed at least claims 1-8 of the '645 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale,

selling, or importation of at least the ’645 Accused Products. Samsung’s customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung’s instructions directly infringe one or more claims of the ’645 Patent in violation of 35 U.S.C. § 271. Samsung instructs its customers through at least user guides or websites, such as those located at:

https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf;https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsungtvplus.com/; https://www.samsung.com/us/support/answer/ANS10001377/; https://www.samsung.com/us/support/answer/ANS10003225/; and https://www.samsung.com/us/support/answer/ANS00092489/.

For example, as shown above, Samsung instructs its customers to “Capture the flavor with Food mode on your Galaxy phone or tablet,” “Use Portrait mode or Live Focus on your Galaxy phone,” and “Scan and edit documents on your Galaxy phone or tablet.” *See* https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf; https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsung.com/us/support/answer/ANS10001377/; https://www.samsung.com/us/support/answer/ANS10003225/; and https://www.samsung.com/us/support/answer/ANS00092489/.

Samsung is thereby liable for infringement of the ’645 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claim 1 of the ’645 Patent by, among other things, contributing to the direct infringement of others, including customers of the ’645 Accused Products by making, offering to sell, or selling in the United States, or by importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’645 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the ’645 Accused Products each include hardware and software for implementing various image capture and correction processes. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and upon information and belief are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’645 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’645 Patent since at least July 7, 2021, based on correspondence directed to Mr. I. Lee of SEC from Mr. T. Yamamoto of Maxell. *See* Letter from T. Yamamoto to I. Lee dated July 7, 2021. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents and specifically identified the claims of the ’645 Patent and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’645 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’645 Patent, which has been duly issued by the USPTO and is presumed valid. For example, since at least July 7, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’645 Patent and that the ’645 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’645 Patent nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’645 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a detector, corrector, or controller) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

7. The ’950 Patent and Appendix 7

With respect to the ’950 Patent, Appendix 7 shows how each element of claims 1-5, 7, 8, 10, 12, and 14 is found in the Accused Samsung ’950 Products.

As shown in Appendix 7, the Accused Samsung ’950 Products detect specific features within an image to guide image quality adjustments. As further shown in Appendix 7, each of the ’950 Accused Products is observed to include a feature detection unit which detects a position where features of each pixel of an input picture signal have changed by, for example, implementing image sensors, camera application, image signal processor, and/or additional hardware and

software to implement face detection, eye detection, lip detection, pet detection, and/or Portrait mode. Further, each of the ’950 Accused Products is observed to include a region creation unit which creates a region by removing pixels with the features from an evaluated value extraction region, an evaluated value extraction unit, and a processing unit by, for example, implementing image sensors, camera application, image signal processor, and/or additional hardware and software to implement face detection, eye detection, lip detection, pet detection, and/or Portrait mode that includes removing pixels from specific regions to perform a value extraction and predetermined processing (*e.g.*, specific processing based on the detected feature in the image). Further, each of the ’950 Accused Products is observed to include a control unit which controls the processing unit in accordance with the evaluated value and controls the processing unit by using an evaluated value of a region from which pixels having an extracted predetermined feature are removed by, for example, implementing image sensors, camera application, image signal processor, and/or additional hardware and software to implement face detection, eye detection, lip detection, pet detection, and/or Portrait mode that includes the control unit controlling processing of the processing unit based on the evaluated value and a region from which pixels are extracted. *See*, *e.g.*, https://www.samsung.com/us/support/answer/ANS10003225/; *see also* https://r2.community.samsung.com/t5/CamCyclopedia/ISP-Image-Signal-Processor/ba-p/13485145; https://news.samsung.com/global/new-galaxy-s22-camera-updates-let-you-capture-the-stars-like-a-pro.

The following exemplary disclosures from webpages provided by Samsung provide evidence of the Accused Samsung ’950 Products infringing at least claims 1-5, 7, 8, 10, 12, and 14 of the ’950 Patent by implementing Portrait Mode and/or additional ISP detections and correction:

Use Portrait mode or Live Focus on your Galaxy phone

You know that Samsung's innovative cameras are fun to use and always include multiple options for getting your shots just right. The Live Focus feature has been a part of **Galaxy phone** cameras for a while and is known for its iconic filters. The original Live Focus is still great, but it has been added to Portrait mode on phones with One UI 4 and later software. With Portrait mode, you can use brand-new filters and effects to truly transform your selfies.

Portrait mode includes Live Focus and many additional effects and filters to take your pictures to the next level. Your selfies will look better than ever before!

Open the **Camera** app, then tap **PORTRAIT**, and then tap the **circle** in the bottom right of the viewfinder. The options can be altered using the **slider**. On some devices, PORTRAIT will be available at the bottom of the screen after opening the Camera app.

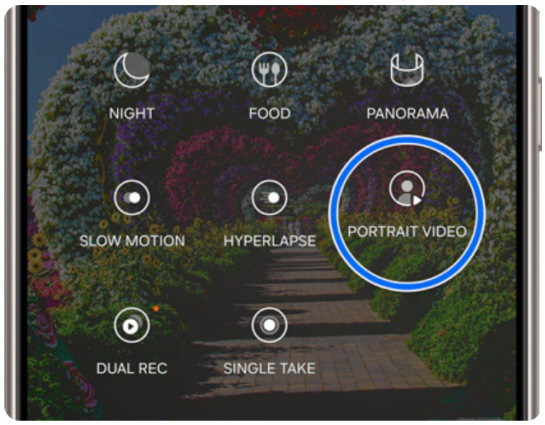
https://www.samsung.com/us/support/answer/ANS10003225/

- **Blur**: This will blur the background around the subject, like Live Focus on previous devices.
- **Studio**: This applies a brightening effect to the subject but does not brighten the background, making the subject the main focal point.
- **High-key mono**: Creates a monochromatic effect with a high brightness level. The entire picture and subject will appear in black and white.
- **Low-key mono**: Similar to High-key mono where the picture appears in black and white. However, it uses low brightness instead.
- **Backdrop**: Grays out the background around the subject with a gradient effect, while the subject itself still has color.
- **Color point**: Changes the sharpness of the colors directly around your subject, so everything else looks darker and the subject stands out.

https://www.samsung.com/us/support/answer/ANS10003225/

Although their names are different, Live focus video and Portrait video use the same options, whether you have a slightly older phone or a brand new Galaxy S24. Just like their picture alternatives, these modes add an effect to whatever you're recording using either the rear or front cameras.

Open the **Camera** app, and then tap **MORE**. Tap **PORTRAIT VIDEO**, and then tap the **circle** in the bottom right of the viewfinder. There are four options to choose from, and each can be altered using the **slider**.



- **Blur**: This will blur the background around the subject that you're filming.
- **Big circle**: Creates a focused circle around your subject while severely blurring the background.
- **Color point**: Changes the sharpness of the colors directly around your subject, so everything else becomes black and white.

https://www.samsung.com/us/support/answer/ANS10003225/

Face recognition management

Customize how face recognition works.

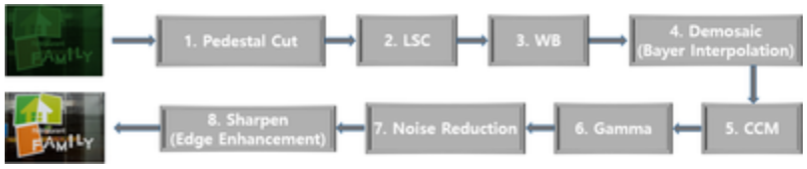
- From Settings, tap **Security and privacy** > **Screen lock and biometrics** > **Face recognition**.
  - **Remove face data:** Delete existing faces.
  - **Add alternative appearance to enhance recognition:** Enhance face recognition by adding an alternative appearance.
  - **Face unlock:** Enable or disable face recognition security.
  - **Stay on Lock screen until swipe:** When you unlock your device with face recognition, stay on the Lock screen until you swipe the screen.
  - **Require open eyes:** Facial recognition will only recognize your face when your eyes are open.
  - **Brighten screen:** Increase the screen brightness temporarily so that your face can be recognized in dark conditions.
  - **About face recognition:** Learn additional information about securing your device with face recognition.

https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf

Default structure of ISP

Every AP Chip manufacturer has their unique ISP structure. We will introduce the most basic structure here.

- Basic ISP block diagram



https://r2.community.samsung.com/t5/CamCyclopedia/ISP-Image-Signal-Processor/ba-p/13485145

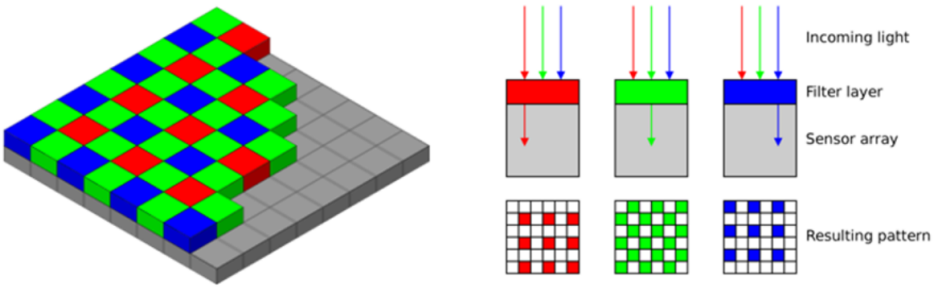
3. WB (White Balance)[3]

This block helps the camera adjust the color balance and render them accurately. It ensures that an image has a uniform WB Gain and that the RGB of the grey (achromatic) areas are adjusted to the same value (to depict the grey as grey).

The sensor output fed to ISP has twice as many green channels as any other. This is the reason why the raw image before the application of WB Gain looks green overall. (Refer to 'De-mosaic' below)

4. De-mosaic (= Bayer Interpolation, Color Interpolation)

Most smartphone cameras use the Bayer type (or pattern) sensor. The Bayer sensor, as illustrated below [2] is 3 color filter combination sensor mounted on top of a photodiode array.



https://r2.community.samsung.com/t5/CamCyclopedia/ISP-Image-Signal-Processor/ba-p/13485145

FD (Face Detection)

This block detects faces in an image/video and passes their coordinates to the next block. The face coordinates can be used in other algorithms or solutions to implement different features.

[Example of application] Using FD information in AWB (Auto White Balance) and AE (Auto Exposure) algorithm blocks

1. When a face is detected, it compares and corrects the difference between the face brightness and the targeted brightness of the whole image. It utilizes the face coordinates received, to adjust the face brightness, etc.
2. When multiple sources are detected illuminating a face and the face is overly affected by these lights, this FD data can be used to correct the color on it. For example, if a face is detected in a low-color temperature light setup giving off a slightly reddish glow, the face coordinates are used to adjust the color of the face.

https://r2.community.samsung.com/t5/CamCyclopedia/ISP-Image-Signal-Processor/ba-p/13485145

Further, as shown in Appendices 7 and 11, technical specifications show that each of the Accused Samsung ’950 Products include all necessary hardware, operating systems, and software required by each of claims 1-5, 7, 8, 10, 12, and 14 of the ’950 Patent. For example, each of the Accused Samsung ’950 Products include a feature detection unit which detects features of pixels *(e.g.,* a face or lips), a region creation unit which creates a region by removing pixels with the detected features from an evaluated value extraction region, a processing unit, and a control unit which controls the processing unit using an evaluated value from the region from which the pixels were removed. *See, e.g.,* Appendices 7 and 11 (identifying the technical specifications of the Accused Samsung ’950 Products confirming the same). Thus, each of the Accused Samsung ’950 Products infringes based on the same theories as shown in Appendix 7 because they include the same components and implement the same functionalities when performing image processing in Portrait Mode or using other facial recognition features as shown in Appendix 7.

Samsung has indirectly infringed at least claims 1-5, 7, 8, 10, 12, and 14 of the ’950 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’950 Accused Products. Samsung’s customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung’s instructions directly infringe one or more claims of the ’950 Patent in violation of 35 U.S.C. § 271. Samsung instructs its customers through at least user guides or websites, such as those located at:

https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf;

https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S9

36_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsung.com/us/support/answer/ANS10003225/.

For example, as shown above Samsung instructs its customers to "Use Portrait mode or Live Focus on your Galaxy phone" and "Customize how face recognition works." *See* https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf; https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsung.com/us/support/answer/ANS10003225/.

Samsung is thereby liable for infringement of the '950 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claims 1-5, 7, 8, 10, 12, and 14 of the '950 Patent by, among other things, contributing to the direct infringement of others, including customers of the '950 Accused Products by making, offering to sell, or selling in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '950 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '950 Accused Products each include hardware and software for implementing various image capture, feature detection, and image processing functions. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and, upon information and belief, are not a staple article or commodity of commerce suitable for

substantial non-infringing use. Thus, Samsung is liable for infringement of the ’950 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’950 Patent since at least December 29, 2021, based on correspondence directed to Mr. Daejin Jeon of SEC’s IP Center from Mr. T. Yamamoto of Maxell. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents and specifically identified the claims of the ’950 Patent and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claim 1 of the ’950 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’950 Patent, which has been duly issued by the USPTO and is presumed valid. For example, since at least December 29, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’950 Patent and that the ’950 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’950 Patent nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’950 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a feature detection unit, region creation unit, or control unit) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in

substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

8. The ’228 Patent and Appendix 8

With respect to the ’228 Patent, Appendix 8 shows how each element of claims 1, 2, and 4-9 is found in the Accused Samsung Smartwatch ’228 Products and the Accused Samsung Smartphone ’228 Products (collectively, the Accused Samsung ’228 Products).

As shown in Appendix 8, the Accused Samsung ’228 Products form a system where biometric information from one device, like a watch, controls information displayed on a second authenticated device, like a phone. As further shown in Appendix 8, each of the ’228 Accused Products is observed to form a system with a first information processing device (*e.g.*, Samsung Galaxy Watch or Samsung Galaxy Ring), including one or more dynamic sensors (*e.g.*, heart rate sensors) and a communication interface (*e.g.*, Bluetooth and/or Wi-Fi circuit), and a second information processing device, including one or more static biometric information acquisition sensors (*e.g.*, Face detection sensor or fingerprint detection sensor), a processor (*e.g.*, CPU), and a second communication interface (*e.g.*, Bluetooth circuit and/or Wi-Fi circuit) that work in conjunction to perform various communications and implement functions such as authentication, biometric tracking, and emergency notification/display (*e.g.*, Detect fall feature, Irregular Heart Rhythm Notification, SOS notification). *See, e.g.*, https://www.samsung.com/us/support/answer/ANS10001579/; https://www.samsung.com/us/support/owners/app/samsung-health; *see also* https://www.samsung.com/us/apps/samsung-health-monitor/; https://www.samsung.com/us/support/answer/ANS10003423/; https://www.samsung.com/us/support/answer/ANS10002904/.

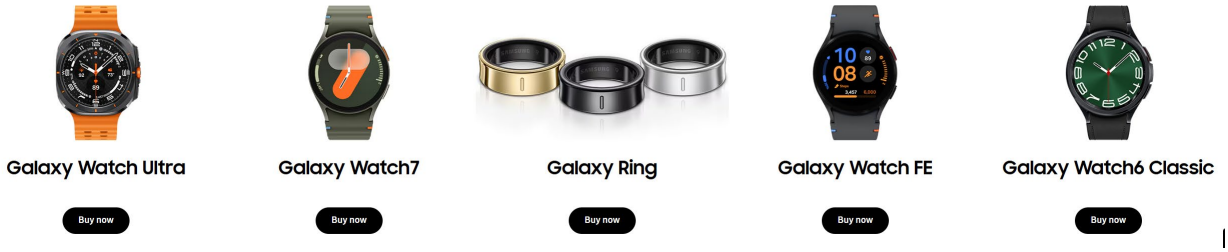
The following exemplary disclosures from webpages provided by Samsung provide evidence of the Accused Samsung ’228 Products infringing at least claim 1 of the ’228 Patent by implementing biometric tracking and emergency notification functions, such as Detect fall feature, Irregular Heart Rhythm Notification, and/or SOS requests:

Irregular heart rhythm notifications

Proactively monitor for irregular heart rhythms suggestive of atrial fibrillation (AFib).[1,2]

Find a Galaxy Device that fits your needs

https://www.samsung.com/us/apps/samsung-health-monitor/



https://www.samsung.com/us/apps/samsung-health-monitor/

How do I use ECG with Irregular Heart Rhythm Notification?

https://www.samsung.com/us/apps/samsung-health-monitor/

Samsung Health

PRIVACY NOTICE
Visit the app store for more information

Google Play Store ↗ Apple App Store ↗

About Samsung Health

Samsung Health supports over 70 languages, including English, French, and Chinese. An English language version is available for the rest of the world. Please note that Samsung Health is intended for fitness and wellness purposes only and is not intended for use in the diagnosis of disease or other conditions, or in the cure, mitigation, treatment, or prevention of disease. Samsung Health protects your private health data securely and requires all users to to set up 2-step verification process with a password and phone number.

https://www.samsung.com/us/support/owners/app/samsung-health

Use the Detect fall feature on your Samsung smart watch

Whether you're adventurous and accident-prone or just cautious and safety-conscious, you can get some peace of mind with a **Samsung Galaxy watch**. The Galaxy Watch Active2, Galaxy Watch3, and all Wear OS models include a hard fall detection feature that will send out an SOS if it ever detects a hard fall. With this setting enabled, your emergency contacts can be notified immediately if you fall and need a little help.

https://www.samsung.com/us/support/answer/ANS10003423/

The fall detection feature is not turned on by default on the watch; therefore, you'll need to turn it on manually if you want to use it. It can only be enabled through the Galaxy Wearable app, so make sure the watch is connected first.

1. When you're ready, open the **Galaxy Wearable** app.
2. Next, tap **Watch settings** or **Band settings**, and then tap **Safety and emergency**.
3. Tap the **switch** next to Hard fall detection. If you don't have any emergency contacts listed, you will need to add them for this feature to work.
4. To select what to do when a fall is detected, tap **Hard fall detection**. Tap the **switch** next to Share info with emergency contacts if you want your watch to automatically text your loved ones your location information after a fall. You can also select an emergency call option if you would like.

https://www.samsung.com/us/support/answer/ANS10003423/

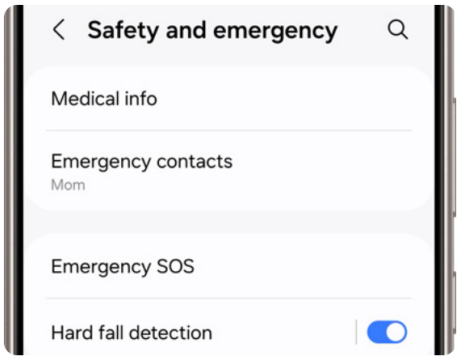
Use your Samsung smart watch in an emergency situation

It's best to always be prepared. If you ever need emergency assistance, your Samsung smart watch has features capable of helping, such as fall detection and SOS messages. Hopefully, you'll never find yourself in a real crisis, but if you do, you can send SOS messages to assigned contacts to let them know where you are and how to track you down. In the event you need medical assistance, your medical information can be quickly accessed to help first responders. Review the information below to learn about using your Samsung smart watch in emergency situations.

https://www.samsung.com/us/support/answer/ANS10002904/

You can easily enable SOS features on your Galaxy Watch7, Watch Ultra, or Fit3.

Navigate to and open the **Galaxy Wearable** app on your connected phone, and tap **Watch settings** or **Band settings**. Swipe to and tap **Safety and emergency**. From here you can add your Medical info, select Emergency contacts, adjust Emergency SOS settings, and enable Hard fall detection.



- **Medical info**: This is where you can enter your name and any conditions or allergies you may have, what medications you're taking, your blood type, notes, and more.
- **Emergency contacts**: You can select your closest contacts here. These are the people who will be contacted if you begin emergency sharing.
- **Emergency SOS**: Tap this to adjust your emergency settings. You can enable the swipe to call option, select which emergency number to contact, and turn on info sharing with emergency contacts.
- **Hard fall detection**: From here you can enable hard fall detection, turn on the option to require a swipe before calling an emergency number, select when to detect falls, what emergency number to contact, whether to play a warning sound, and share info with emergency contacts.

https://www.samsung.com/us/support/answer/ANS10002904/

Use your Galaxy phone or tablet in emergency situations

In a critical situation, your **Galaxy phone** or **tablet** can make all the difference. You can use it to make emergency calls or contact loved ones in a time of need. And if you have to act quickly, you can dial right from the Lock screen. Even your medical information can be righ at your fingertips. Plus, your device can help keep you safe by silencing notifications while you're driving and alerting you to potentially dangerous situations, such as earthquakes and unknown Bluetooth trackers.

https://www.samsung.com/us/support/answer/ANS10001579/

Further, as shown in Appendices 8 and 11, technical specifications show that each of the Accused Samsung '228 Products include all necessary hardware, operating systems, and software required by each of claims 1, 2, and 4-9. For example, each of the Accused Samsung '228 Products

form a system with a first information processing device (*e.g.*, a Galaxy Watch) having a dynamic biometric acquisition sensor (*e.g.*, heart rate or fall detection sensor), and a second information processing device (*e.g.*, a Galaxy smartphone) having a static biometric information acquisition sensor (*e.g.,* fingerprint sensor) for user authentication and a display screen for displaying information based on the dynamic biometric information received from the first device. *See*, *e.g.*, Appendices 8 and 11 (identifying the technical specifications of the Accused Samsung '228 Products confirming the same). Thus, each of the Accused Samsung '228 Products infringes based on the same theories as shown in Appendix 8 because they include the same components and implement the same functionalities when using features like Fall Detection or Irregular Heart Rhythm Notification as shown in Appendix 8.

Samsung has indirectly infringed at least claims 1, 2, and 4-9 of the '228 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '228 Accused Products. Samsung's customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung's instructions directly infringe one or more claims of the '228 Patent in violation of 35 U.S.C. § 271. Samsung instructs its customers through at least user guides or websites, such as those located at:

https://www.samsung.com/us/support/answer/ANS10001579/; https://www.samsung.com/us/support/owners/app/samsung-health; *see also* https://www.samsung.com/us/apps/samsung-health-monitor/; https://www.samsung.com/us/support/answer/ANS10003423/; https://www.samsung.com/us/support/answer/ANS10002904/.

For example, as shown above, Samsung instructs its customers to "Set up and record an ECG with your Galaxy Watch," "Use the Detect fall feature on your Samsung smart watch," "Use your Samsung smart watch in an emergency situation," and "Use your Galaxy phone or tablet in emergency situations." *See* https://www.samsung.com/us/support/answer/ANS10001579/; *see also* https://www.samsung.com/us/apps/samsung-health-monitor/; https://www.samsung.com/us/support/answer/ANS10003423/; https://www.samsung.com/us/support/answer/ANS10002904/.

Samsung is thereby liable for infringement of the '228 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claims 1, 2, and 4-9 of the '228 Patent by, among other things, contributing to the direct infringement of others, including customers of the '228 Accused Products by making, offering to sell, or selling in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '228 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '228 Accused Products each include hardware and software for implementing various biometric tracking and emergency notification functions, such as Detect fall feature, Irregular Heart Rhythm Notification, and/or SOS requests. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and, upon information and belief, are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the '228 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’228 Patent since at least, July 7, 2021, based on correspondence directed to Mr. I. Lee of SEC from Mr. T. Yamamoto of Maxell. *See* Letter from T. Yamamoto to I. Lee dated July 7, 2021. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents and specifically identified the claims of the ’228 Patent and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claims 1, 2, and 4-9 of the ’228 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’228 Patent, which has been duly issued by the USPTO and is presumed valid. For example, since at least July 7, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’228 Patent and that the ’228 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’228 Patent nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’228 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (e.g., a dynamic or static biometric sensor, processor, or communication interface) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same

function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

9. The ’646 Patent and Appendix 9

With respect to the ’646 Patent, Appendix 9 shows how each element of claims 1-8 and 11 is found in the Accused Samsung ’646 Products.

As shown in Appendix 9, the Accused Samsung ’646 Products display controls for an external device on the lock screen, allowing for remote operation without unlocking the terminal. As further shown in Appendix 9, each of the ’646 Accused Products includes a display, an operating input interface (*e.g.*, touch screen), a wireless communication interface (*e.g.*, Wi-Fi circuit), and a processor (*e.g.*, CPU) that work in conjunction to implement a first, second, and third display modes when executing one or more applications or functions, such as Samsung Music application, Samsung TV application, Netflix application, and Casting functions. For example, upon information and belief, each of the ’646 Accused Products are sold with Netflix application that implements the claimed display modes. *See* https://techcrunch.com/2020/02/13/netflix-fends-off-new-streaming-rivals-by-way-of-samsung-partnership/?guccounter=1#:~:text=At%20Samsung's%20Unpacked%20event%20this,streaming%20service%20with%20Samsung%20devices.

Further, as shown in Appendices 9 and 11, technical specifications show that each of the Accused Samsung ’646 Products include all necessary hardware, operating systems, and software required by each of claims 1-8 and 11 of the ’646 Patent. For example, each of the Accused Samsung ’646 Products include a display, a wireless communication interface, and a processor that, when waking from sleep, displays a control icon on the authentication screen to remotely control an external device (*e.g.*, a TV) without unlocking, if the device was communicating with the external device prior to entering the sleep state. *See, e.g.*, Appendices 9 and 11 (identifying the

technical specifications of the Accused Samsung ’646 Products confirming the same). Thus, each of the Accused Samsung ’646 Products infringes based on the same theories as shown in Appendix 9 because they include the same components and implement the same functionalities when displaying lock screen controls for media being cast to an external device as shown in Appendix 9.

Samsung has indirectly infringed at least claims 1-8 and 11 of the ’646 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the ’646 Accused Products. Samsung’s customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung’s instructions directly infringe one or more claims of the ’646 Patent in violation of 35 U.S.C. § 271. Samsung induces or contributes to infringement by preinstalling and/or instructing customers to install the Netflix app at setup.

Samsung is thereby liable for infringement of the ’646 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claims 1-8 and 11 of the ’646 Patent by, among other things, contributing to the direct infringement of others, including customers of the ’646 Accused Products by making, offering to sell, or selling in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the ’646 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the ’646 Accused Products each include hardware and software for having Smart View, Netflix application, and Casting functions for implementing three display modes. These are components of a patented machine, manufacture, or combination, or an apparatus for

use in practicing a patented process. Furthermore, these components are a material part of the invention and, upon information and belief, are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the ’646 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the ’646 Patent since at least, July 7, 2021 based on correspondence directed to Mr. I. Lee of SEC from Mr. T. Yamamoto of Maxell. *See* Letter from T. Yamamoto to I. Lee dated July 7, 2021. This correspondence sets forth Maxell’s belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell’s patents and specifically identified the allowed patent application that issued as the ’646 Patent, as well as exemplary allowed claims and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claims 1-8 and 11 of the ’646 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the ’646 Patent, which has been duly issued by the USPTO and is presumed valid. For example, since at least July 7, 2021, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the ’646 Patent and that the ’646 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the ’646 Patent nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the ’646 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, a processor, display, or wireless interface) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

10. The '681 Patent and Appendix 10

With respect to the '681 Patent, Appendix 10 shows how each element of claims 1-5 and 7 is found in the Accused Samsung '681 Products.

As shown in Appendix 10, the Accused Samsung '681 Products transmit video to a receiver apparatus by first exchanging capability information to determine the transmission parameters. As further shown in Appendix 10, each of the '681 Accused Products includes a wireless communication circuity (*e.g.*, Wi-Fi circuit), audio/video signal generation circuits (*e.g.*, display signal processor and/or image signal processer), memory (*e.g.*, storage), and control circuitry (*e.g.*, CPU) that work in conjunction to use Wi-Fi Direct communications and perform screen mirroring. *See* https://www.samsung.com/us/support/answer/ANS10001896/; *see also* https://www.samsung.com/latin_en/support/tv-audio-video/how-to-connect-mobile-device-and-tv-with-smart-view/; https://techcrunch.com/2020/02/13/netflix-fends-off-new-streaming-rivals-by-way-of-samsung-partnership/?guccounter=1#:~:text=At%20Samsung's%20Unpacked%20event%20this,streaming%20service%20with%20Samsung%20devices; and/or https://www.samsungtvplus.com/.

The following exemplary disclosures from webpages provided by Samsung provide evidence of the Accused Samsung ’681 Products infringing at least claims 1-5, and 7 of the ’681 Patent:

Screen mirroring to your Samsung TV

With compatible Samsung devices, you can share your content on the big screen! Rather than sending a stunning photo you recently took to a house full of people, just put it up on the TV and show everyone at once. The possibilities don’t end there. You can also cast videos, presentations, and even games onto a larger screen. View our website to see which compatible **Samsung TVs** and **Smart Monitors** are available.

https://www.samsung.com/us/support/answer/ANS10001896/

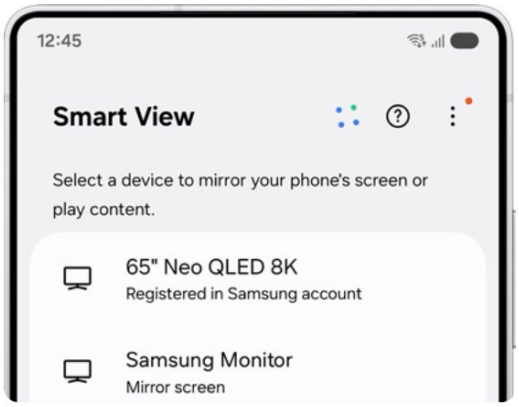
What is screen mirroring?

Screen mirroring lets you mirror your phone’s screen to a bigger screen, like a Smart TV. Exactly what’s showing on your phone will appear on the TV, whether it’s an app, a photo, or a video. Whenever you do something on your phone (like navigating to a different app), that action will also be shown on the other screen as well.

On Galaxy devices the screen mirroring feature is called **Smart View**. You can easily mirror your screen with Smart View by just tapping the Smart View icon and performing a few simple steps.

For iPhones, the screen mirroring feature is called AirPlay, and it does the same exact thing - mirror images, videos, or other media. **Using AirPlay** is similar, but a little different from using Smart View.

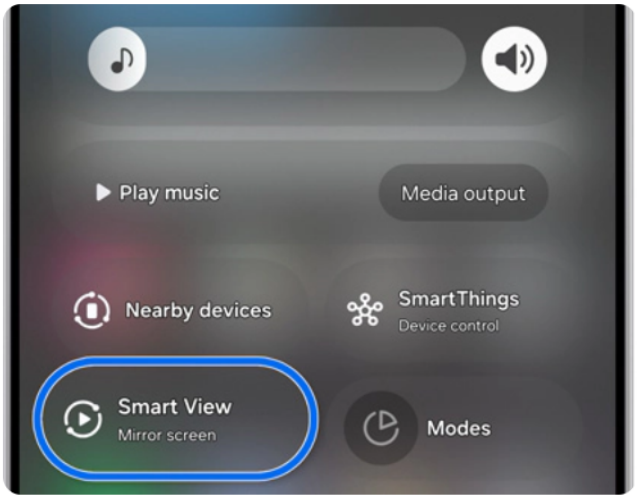
No matter which one you have, it's a great way to share videos, photos, or other things on your phone right on your Smart TV.



https://www.samsung.com/us/support/answer/ANS10001896/

Make a big statement by projecting photos or videos from your phone or tablet onto your TV. You can also do the opposite and stream your TV to your phone or tablet's screen!

1 Open the Quick settings panel by swiping down from the top right of the screen. Tap **Smart View**.



2 Select your TV from the list of Available devices, and then tap **Start now**. If prompted, enter a PIN or allow access to complete the connection.

3 Your device's screen will now appear on the TV.

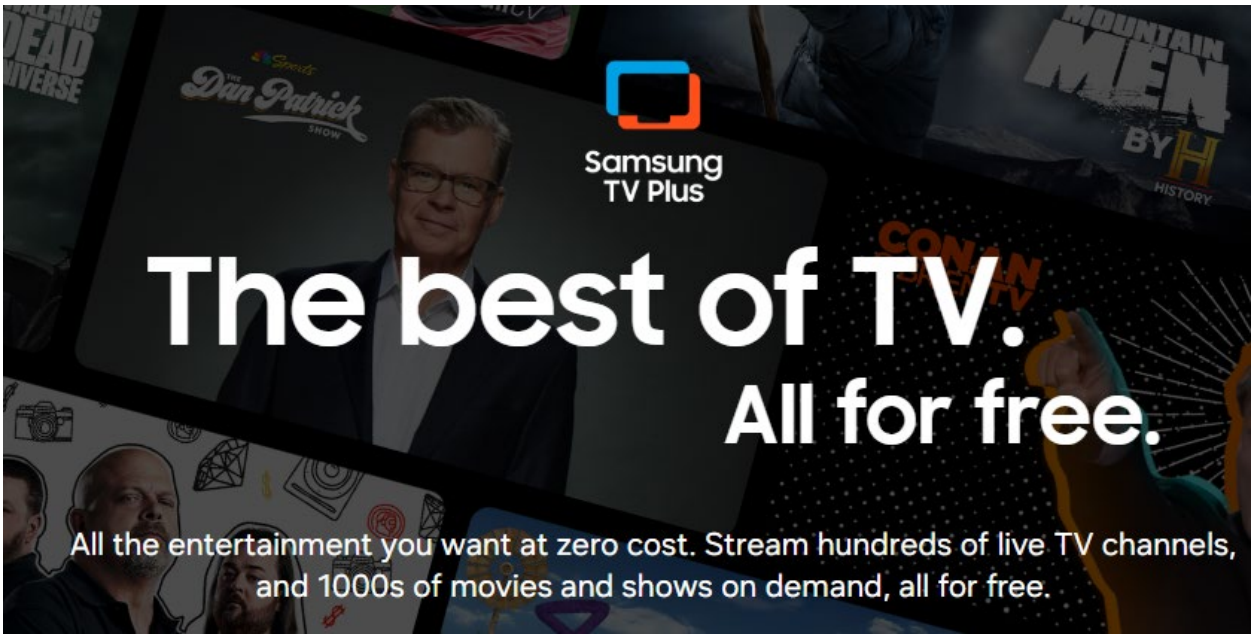
https://www.samsung.com/us/support/answer/ANS10001896/

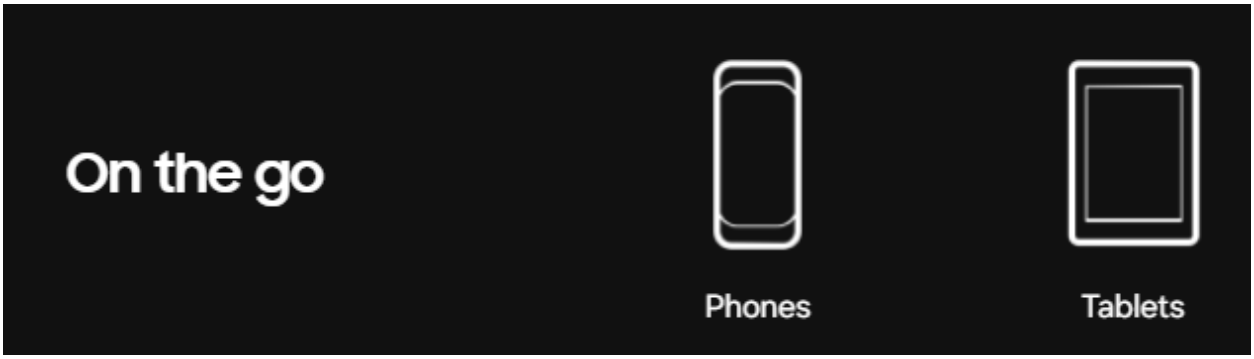
4 If you want to stream the TV's screen to your phone or tablet, you can do just that if the TV supports it. Navigate back to the Smart View main page, tap **Other device** → **Phone**, and then select your TV.

5 To switch back, tap **Phone** → **Other device**.

When you are done using Smart View, tap the **Smart View** icon on your phone, and then tap **Disconnect**. If you need help editing the icons in the Quick settings panel, check out our **guide**.

https://www.samsung.com/us/support/answer/ANS10001896/





https://www.samsungtvplus.com/

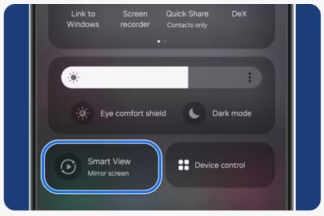
TV

Enjoy free news, entertainment, and more on your Samsung TV and mobile devices.

https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf

How to connect mobile device and TV with Smart View

Last Update date : Sep 28. 2024



Troubleshooting

If your Galaxy device displays a message that the S Pen is disconnected, you need to check some external factors that may be interfering with the function of the S Pen. Magnetic phone cases or covers, old software versions, or Air Action settings could be the cause of the disruption. Follow the guide below to troubleshoot the S Pen connection issues you are experiencing.

https://www.samsung.com/latin_en/support/tv-audio-video/how-to-connect-mobile-device-and-tv-with-smart-view/

Make a big statement by projecting photos or videos from your phone or tablet onto your TV. You can also do the opposite and stream your TV to your phone's or tablet's screen!

1. Open the Quick settings panel by swiping down from the top of the screen using two fingers. Tap Smart View.
2. Tap your TV from the list of Available devices, and then tap Start now. If prompted, enter a PIN or allow access to complete the connectior
3. Your device's screen will now appear on the TV.
4. If you want to stream the TV's screen to your phone or tablet, you can do just that if the TV supports it. Navigate back to the Smart View main page, tap Other device → Phone, and then select your TV.
5. To switch back, tap Phone → Other device.

https://www.samsung.com/latin_en/support/tv-audio-video/how-to-connect-mobile-device-and-tv-with-smart-view/

Further, as shown in Appendices 10 and 11, technical specifications show that each of the Accused Samsung ’681 Products include all necessary hardware, operating systems, and software required by each of claims 1-5 and 7 of the ’681 Patent. For example, each of the Accused Samsung ’681 Products include wireless communication circuitry, audio/video signal generation circuitry,

memory, and control circuitry that, upon connecting to a display apparatus, sends a request message with a first number, receives capability information from the display to determine parameters for the audio/video stream, and sends a second request message with a different, second number when a predetermined condition is met. *See, e.g.*, Appendices 10 and 11 (identifying the technical specifications of the Accused Samsung '681 Products confirming the same). Thus, each of the Accused Samsung '681 Products infringes based on the same theories as shown in Appendix 10 because they include the same components and implement the same functionalities when performing screen mirroring using Wi-Fi Direct protocols like Smart View as shown in Appendix 10.

Samsung has indirectly infringed at least claims 1-5 and 7 of the '681 Patent in this District and elsewhere in the United States by, among other things, actively inducing the use, offering for sale, selling, or importation of at least the '681 Accused Products. Samsung's customers who purchase devices and components thereof and operate such devices and components in accordance with Samsung's instructions directly infringe one or more claims of the '681 Patent in violation of 35 U.S.C. § 271. Samsung instructs its customers through at least user guides or websites, such as those located at:

https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf;

https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsung.com/us/support/answer/ANS10001896/.

For example, as shown above, Samsung instructs its customers that "Rather than sending a stunning photo you recently took to a house full of people, just put it up on the TV and show

everyone at once." *See* https://downloadcenter.samsung.com/content/UM/202302/20230207045923682/SAM_S911_S916_S918_EN_UM_OS13_020223_FINAL.pdf; https://downloadcenter.samsung.com/content/UM/202502/20250222041039901/SAM_S931_S936_S938_EN_UG_OS15_012425_FINAL_AC_02072025.pdf; *see also* https://www.samsungtvplus.com/; https://www.samsung.com/us/support/answer/ANS10001896/.

Samsung is thereby liable for infringement of the '681 Patent pursuant to 35 U.S.C. § 271(b). Samsung has indirectly infringed at least claims 1-5 and 7 of the '681 Patent by, among other things, contributing to the direct infringement of others, including customers of the '681 Accused Products by making, offering to sell, or selling in the United States, or importing a component of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process, constituting a material part of the invention, knowing the same to be especially made or especially adapted for use in infringement of the '681 Patent, and not a staple article or commodity of commerce suitable for substantial non-infringing use.

For example, the '681 Accused Products each include hardware and software for having Screen mirroring, Smart View, Samsung TV application, and/or Netflix application, each of which use Wi-Fi Direct to perform screen mirroring. These are components of a patented machine, manufacture, or combination, or an apparatus for use in practicing a patented process. Furthermore, these components are a material part of the invention and, upon information and belief, are not a staple article or commodity of commerce suitable for substantial non-infringing use. Thus, Samsung is liable for infringement of the '681 Patent pursuant to 35 U.S.C. § 271(c).

Samsung has been on notice of the '681 Patent since at least November 28, 2024, based on correspondence directed to Mr. H. Lee of SEC from Mr. T. Yamamoto of Maxell. This

correspondence sets forth Maxell's belief that Samsung makes, uses, sells, offers to sell, or imports products that infringe certain of Maxell's patents and specifically identified the allowed patent application that issued as the '681 Patent, as well as exemplary allowed claims and exemplary accused products for that patent. By the time of trial, Samsung will thus have known and intended (since receiving this notice) that its continued actions would actively induce and contribute to actual infringement of at least claims 1-5 and 7 of the '681 Patent.

Samsung undertook and continued its infringing actions despite an objectively high likelihood that such activities infringed the '681 Patent, which has been duly issued by the USPTO and is presumed valid. For example, since at least November 28, 2024, Samsung has been aware of an objectively high likelihood that its actions constituted and continue to constitute infringement of the '681 Patent and that the '681 Patent is valid. On information and belief, Samsung could not reasonably, subjectively believe that its actions do not constitute infringement of the '681 Patent nor could it reasonably, subjectively believe that the patent is invalid. Despite that knowledge and subjective belief and the objectively high likelihood that its actions constitute infringement, Samsung continued its infringing activities. As such, Samsung has willfully infringed and continues to willfully infringe the '681 Patent.

Alternatively, to the extent that Samsung argues any particular accused component or structure (*e.g.*, control circuitry, memory, or communication circuitry) does not literally meet a claim element, that element is nevertheless present under the doctrine of equivalents. The corresponding structure in the Accused Products performs substantially the same function, in substantially the same way, to achieve substantially the same result as the claimed element, such that any differences are insubstantial.

D. P.R. 3-1(d): Literal Infringement and Infringement Under the Doctrine of Equivalents

Pursuant to P.R. 3-1(d), Maxell asserts that each element of each claim is literally present in each of the Accused Instrumentalities. To the extent any claim limitation is found not to be literally present, Maxell asserts that such limitation is present under the doctrine of equivalents in each of the Accused Instrumentalities. By asserting that a claim element may be present under the doctrine of equivalents, Maxell does not waive its right to assert literal infringement of that claim element. Additional, information about infringement under the doctrine of equivalents is set forth in the attached claim charts at Appendices 1-10 and Maxell incorporates by reference the analysis of accused functions, the way of performing these functions, and the results of such performance from its literal infringement theories in the appropriate claim elements into the doctrine of equivalent infringement theories, as identified in Appendices 1-10. Further, various claim limitations implicate the software, firmware, and/or source code of the Accused Samsung Products. Therefore, to the extent necessary, Maxell reserves all rights to supplement its Doctrine of Equivalents theories/contentions 30 days after Defendant (or third-parties where) substantially complete adequate production of source code for each of the Accused Samsung Products in accordance with P.R. 3-1(g), Judge Schroeder's standing Patent Discovery Order, and/or P.R. 3-6(a).

E. P.R. 3-1(e): Priority Based on Earlier Applications

Pursuant to P.R. 3-1(e), Maxell asserts that the patents-in-suit are entitled to claim priority to at least the following applications:

Asserted Patent	Priority Applications
'088 Patent	PCT Patent Appln. No. JP2014/072783, filed August/29/2014; U.S. Patent Appln. No. 15/504,668 filed February 17, 2017
'650 Patent	Japanese Patent Appln. No. 2006-261645, filed September 27, 2006; U.S. Patent Appln. No. 11/861,390, filed on September 26, 2007; U.S. Patent Appln. No. 13/972,624, filed on August 21, 2013;

Asserted Patent	Priority Applications
	U.S. Patent Appln. No. 14/467,076, filed on August 25, 2014; U.S. Patent Appln. No. 15/602,417, filed on May 23, 2017; U.S. Patent Appln. No. 16/387,841, filed on April 18, 2019; U.S. Patent Appln. No. 16/855,012, filed April 22, 2020
’417 Patent	Japanese Patent Appln. No. 2002-100735, filed April 03, 2002; U.S. Patent Appln. No. 10/405,368, filed April 03, 2003; U.S. Patent Appln. No. 11/480,971, filed July 06, 2006;
’198 Patent	Japanese Patent Appln. No. 2004-212452, filed July 21, 2004; U.S. Patent Appln. No. 11/054,775, filed February 09, 2005
’091 Patent	Japanese Patent Appln. No. 2005-248576, filed August 30, 2005; U.S. Patent Appln. No. 11/508, 209, filed August 23, 2006; U.S. Patent Appln. No. 13/443,955, filed April 11, 2012; U.S. Patent Appln. No. 15/287,074, filed October 6, 2016; U.S. Patent Appln. No. 15/670,155, filed August 7, 2017; U.S. Patent Appln. No. 17/868,139, filed July 19, 2022
’645 Patent	Japanese Patent Appln. No. 2005-338000, filed November 24, 2005; U.S. Patent Appln. No. 11/602,956, filed November 22, 2006
’950 Patent	Japanese Patent Appln. No. 2008-303423, filed November 28, 2008; U.S. Patent Appln. No. 12/621,304, filed November 18, 2009
’228 Patent	PCT Patent Appln. No. JP2014/065,644, June 12, 2014; U.S. Patent Appln. No. 15/315,735, filed June 12, 2014; U.S. Patent Appln. No. 16/535,574, filed August 08, 2019
’646 Patent	PCT Patent Appln. No. JP2014/068,826, filed July 15, 2014: U.S. Patent Appln. No. 15/326,365, filed July 15, 2014; U.S. Patent Appln. No. 16/370,233, filed March 29, 2019; U.S. Patent Appln. No. 16/576,079, filed September 19, 2019
’681 Patent	Japanese Patent Appln. No. 2009-158361, filed July 03, 2009; U.S. Patent Appln. No. 12/783,329, filed May 19, 2010; U.S. Patent Appln. No. 18/113,545, filed February 23, 2023

Maxell further directs Samsung to the patents themselves and the file histories, which contain information regarding the patents’ priority dates.

F. P.R. 3-1(f): Identification of Any Maxell Instrumentalities that Practice Claimed Inventions

Pursuant to P.R. 3-1(f), Maxell states that it is not presently aware of any of its own apparatuses, products, devices, processes, methods, acts, or other instrumentalities that practice the claimed inventions of the patents-in-suit.

G. P.R. 3-1(g): Source Code

Pursuant to P.R. 3-1(g), Maxell asserts the following with respect to the patents-in-suit.

Claims 1 and 14 of the ’088 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’088 Patent.

Claims 1 and 4 of the ’650 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’650 Patent.

Claims 1-3, and 7 of the ’417 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’417 Patent.

Claims 1 and 4 of the ’198 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’198 Patent.

Claims 1-3, 6, 7, 10, 13-17, and 20 of the ’091 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection

of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’091 Patent.

Claims 1-8 of the ’645 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’645 Patent.

Claims 1-5, 7, 8, 10, 12, and 14 of the ’950 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’950 Patent.

Claims 1, 2, and 4-9 of the ’228 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’228 Patent.

Claims 1-8, 10, and 11 of the ’646 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to

supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’646 Patent.

Claims 1-5, and 7 of the ’681 Patent recite functionality that is implemented by using a combination of hardware and software. Thus, to the extent that inspection of code indicates that an infringement theory needs to be changed or is not already disclosed, Maxell reserves rights to supplement its infringement contentions after Samsung and/or third parties produce adequate source code for each of the products accused of infringing the ’681 Patent.

H. Document Production Accompanying Disclosure

Pursuant to P.R. 3-2, Maxell hereby discloses the following documents accompanying its Disclosure of Asserted Claims and Infringement Contentions that correspond to the following categories:

P.R. 3-2(a): Based on its reasonable search and investigation, Maxell states that it does not have any documents that fall within this category.

P.R. 3-2(b): Based on its reasonable search and investigation, Maxell states that it does not have any documents that fall within this category.

P.R. 3-2(c): A copy of the asserted patents and file histories is being produced concurrently herewith at Bates Nos. MAXELL_SAMSUNGII_0000001 through MAXELL_SAMSUNGII_0004247.

Dated: August 12, 2025

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CERTIFICATE OF SERVICE

I hereby certify that on August 12, 2025, I caused a copy of Plaintiff Maxell, Ltd.'s Patent Rule 3-1 and 3-2 Disclosure of Asserted Claims and Infringement Contentions Against Defendants Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. to be served on counsel of record via Kiteworks.

Dated: August 12, 2025

/s/ Jamie B. Beaber
Jamie B. Beaber