

EXHIBIT 2

Invalidity Claim Chart Against U.S. Patent No. 10,775,935 **Based on U.S. Patent No. U.S. Pre-Grant Pub. No. 2019/0235701 to Han et al.**

I. Introduction

Defendants assert that, based on the scope of the claims asserted by Plaintiff in its infringement contentions, U.S. Pre-Grant Pub. No. 2019/0235701 to Han et al. (published August 1, 2019), in view of the prior art references cited in the claim charts below, renders obvious all ‘935 Asserted Claims under AIA 35 U.S.C. § 103. Although Defendants reserve the right to rely on other portions of the prior art and/or other evidence to show the invalidity of the ‘935 Asserted Claims, the citations below are representative of where specifically in the item of prior art each element of each Asserted Claim of the ‘935 Patent is found.

Exemplary evidence regarding motivation to combine is provided in U.S. Patent No. 4,751,379 to Sasaki et al.; U.S. Pre-Grant Pub. No. 2015/0256658 to Shin et al.; U.S. Patent No. 9,291,845 to Shin et al.; U.S. Pre-Grant Pub. No. 2017/0123257 to Zhao; U.S. Patent No. 9,983,626 to Cao et al.; U.S. Pre-Grant Pub. No. 2019/0025984 to Weilbacher et al.; Pub. Int’l App. No. WO 2014/130515 to Allan et al.; European Standard EN 12150-1:2000, entitled “Glass in Building—Thermally Toughened Soda Lime Silicate Safety Glass”; ASTM Standard C 1048 – 04, entitled “Standard Specification for Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass”; the ActivPanel 4.5 product; Admitted Prior Art in the ‘935 Patent; U.S. Pre-Grant Pub. No. 2016/0202841 to Christiansson et al.; International App. Pub. No. WO 2014/098742 to Wassvik et al.; U.S. Pre-Grant Pub. No. 2011/0080361 to Miller et al.; China Pub. App. No. 104808843 to Kang; U.S. Pre-Grant Pub. No. 2019/0004668 to Jeong et al.; U.S. Patent No. 9,366,802 to Lee et al.; U.S. Patent No. 9,207,800 to Eriksson et al.; U.S. Patent No. 8,581,884 to Fahraeus et al.; and/or International App. Pub. No. WO 2006/095320 to Van De Wijdeven. Defendants reserve the right to rely on other publications and to provide additional evidence, including expert testimony, that one of ordinary skill in the art would have been motivated to make the combinations described below and other combinations.

Further, Defendants may rely on one or more of the above-listed references, International App. Pub. No. WO 2016/130074 to Wassvik et al.; Taiwan Utility Model No. M517370U to Lee et al.; China Published App. No. 102117155A to Cheng et al.; U.S. Pre-Grant Pub. No. 2017/0308245 to Goertz; Korea Pub. App. No. 10-2015-0125374 to Lee; Korean Patent No. 10-1081586 to Joung; U.S. Patent No. 8,319,729 to Choi et al.; and/or International App. Pub. No. WO 2017/099657 to Christiansson et al. to show the level of knowledge of one of ordinary skill in the art at the time of the alleged invention in the ‘935 Asserted Claims and/or alternative structures.

Although certain exemplary obviousness combinations are set forth in the charts below, these combinations are not exhaustive. Each reference disclosing any limitation of a ‘935 Asserted Claim can be combined with any other reference having disclosure for the same or any other limitation of that ‘935 Asserted Claim to render that ‘935 Asserted Claim obvious. In addition,

in the event that any listed reference is found not to adequately disclose any listed element, any other references listing such elements may be relied upon to establish that element.

II. Invalidity of Asserted Claims 1-12 and 14

U.S. Patent No. 10,775,935 Claim 1	US 2019/0235701 to Han et al.
[1 P] A method for assembling a touch sensing apparatus, the touch sensing apparatus comprising a display panel, a plate including a touch surface, and a frame assembly, wherein the frame assembly includes: a first edge extending between a first end point and an opposite second end point; and a second edge extending between the second end point and a third end point; the method comprising:	Claim 1 is invalid as obvious based on Han in view of any of U.S. Pre-Grant Pub. No. 2015/0256658 to Shin et al., U.S. Patent No. 9,291,845 to Shin et al., U.S. Pre-Grant Pub. No. 2017/0123257 to Zhao, the AP4.5 product, or the Admitted Prior Art in the ‘935 Patent (“‘935 Admitted Prior Art”). Alternatively, Claim 1 is obvious based on Han in view of U.S. Patent No. 4,751,379 to Sasaki et al., U.S. Pre-Grant Pub. No. 2019/0004668 to Jeong et al., or U.S. Patent No. 9,983,626 to Cao et al.; further in view of Shin ‘658, Shin ‘845, Zhao, the AP4.5 product, or the ‘935 Admitted Prior Art. To the extent the preamble is found to limit the claim, Han discloses a method for assembling a touch sensing apparatus, the touch sensing apparatus comprising a display panel, a plate including a touch surface, and a frame assembly, wherein the frame assembly includes: a first edge extending between a first end point and an opposite second end point; and a second edge extending between the second end point and a third end point. <i>See, e.g.</i>, Han, at ¶¶ 0002, 0025-71, 0111-119, Figs. 2-4, 6-7.
[1.1] configuring the frame assembly to support the display panel;	Han discloses the step of configuring the frame assembly to support the display panel. <i>See, e.g.</i>, Han, at ¶¶ 0029, 0034, 0037, 0050-52, 0058-063; Figs. 2-4, 6-7.
[1.2] arranging a plurality of emitters adjacent to a periphery of the plate, said plurality of emitters configured to emit light to propagate over the touch surface;	Han discloses arranging a plurality of emitters adjacent to a periphery of the plate, said plurality of emitters configured to emit light to propagate over the touch surface. <i>See, e.g.</i>, Han, at ¶¶ 0034-35, 0037, 0039-51, 0056, 0061-71, 0074-78, 0081-88, Figs. 2-4, 7. It would also have been obvious to combine Han with other prior art references, such as

U.S. Patent No. 10,775,935 Claim 1	US 2019/0235701 to Han et al.
	Sasaki ‘379, Jeong, Cao ‘626, or the AP4.5 product, so that the Han touch sensing apparatus would have various alternative arrangements of the plurality of emitters adjacent to a periphery of the plate. <i>See, e.g.</i>, Han, at ¶¶ 0058-60, 0065; Sasaki ‘379, at 1:34-2:30, and Figs. 2-5; Jeong, at ¶¶ 0082, 0090-96, 102-107, 0111-115, 0180-184, Figs. 4-8, 11, 13, 15-20; Cao ‘626, at 3:66-4:26, 4:59-63, 5:29-34, 7:13-43, Figs. 8-10; AP4.5 product, at Exhibit 1.
[1.3] arranging a plurality of detectors arranged adjacent to the periphery of the plate, said plurality of detectors configured to receive light from the set of emitters; and	Han discloses arranging a plurality of detectors arranged adjacent to the periphery of the plate, said plurality of detectors configured to receive light from the set of emitters. <i>See, e.g.</i>, Han, at ¶¶ 0034-35, 0037, 0039-51, 0056, 0061-71, 0074-78, 0081-88; Figs. 2-4, 7. It would also have been obvious to combine Han with other prior art references, such as Sasaki ‘379, Jeong, Cao ‘626, or the AP4.5 product, so that the Han touch sensing apparatus would have various alternative arrangements of a plurality of detectors adjacent to the periphery of the plate. <i>See, e.g.</i>, Han, at ¶¶ 0058-60, 0065; Sasaki ‘379, at 1:34-2:30 and Figs. 2-5; Jeong, at ¶¶ 0082, 0090-96, 102-107, 0111-115, 0180-184, Figs. 4-8, 11, 13, 15-20; Cao ‘626, at 3:66-4:26, 4:59-63, 5:29-34, 7:13-43, Figs. 8-10; AP4.5 product, at Exhibit 1.
[1.4] configuring the frame assembly to support the plate;	Han discloses configuring the frame assembly to support the plate. <i>See, e.g.</i>, Han, at ¶¶ 0037, 0039, 0042, 0044-45, 0052, 0057-63; Figs. 2-4, 7.
[1.5] wherein configuring the frame assembly to support the plate includes inducing a parabolic curvature in the touch surface relative to a first axis and relative to a second axis perpendicular to the first axis, said first	Han discloses a parabolic curvature in the touch surface relative to a first axis and relative to a second axis perpendicular to the first axis, said first axis is parallel to a line between the first end point and the second end

U.S. Patent No. 10,775,935 Claim 1	US 2019/0235701 to Han et al.
axis is parallel to a line between the first end point and the second end point and said second axis is parallel to a line between the second end point and the third end point.	point and said second axis is parallel to a line between the second end point and the third end point. <i>See, e.g.</i>, Han, at ¶¶ 0074-78, 0083-0100, Figs. 2-4, 7. At the time of the alleged invention, it would have been obvious to one of ordinary skill in the art to modify the device of Han, or in the alternative the device of a combination of Han and any of Sasaki '379, Jeong, Cao '626, or the AP4.5 product, so that the frame assembly of Han induces the parabolic curvature in the plate of Han when the step of configuring the frame assembly to support the plate is performed. It would have been obvious to do so, for example, based on the disclosures to use frame assemblies in the prior art to control plate curvature, e.g. as disclosed by U.S. Pre-Grant Pub. No. 2015/0256658 to Shin et al., U.S. Patent No. 9,291,845 to Shin et al, U.S. Pre-Grant Pub. No. 2017/0123257 to Zhao, the AP4.5 product, or the '935 Admitted Prior Art. <i>See, e.g.</i>, Han, at Figs. 2-4, 7; Shin '658, at ¶¶ 0051-52, 0154, 0157-163, 206-207, & Figs. 2-14; Shin '845, at 4:56-67, 18:5-22:63 & Figs. 2-7; Zhao, at ¶¶ 45-57 & Figs. 1-4; the AP4.5 product, at Exhibit 1; '935 Patent, at 1:26-2:17.

U.S. Patent No. 10,775,935 Claim 2	US 2019/0235701 to Han et al.
[2] The method of claim 1, wherein the first edge is curved and the second edge is curved.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han and any of Shin '658, Shin '845, Zhao, or the AP4.5 product, as described with respect to Claim 1 above. Alternatively, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han and any of Sasaki '379, Jeong, Cao '626, and the AP4.5 product, and further in view of any of Shin '658, Shin '845, Zhao, or the AP4.5 product, as described with respect to Claim 1 above.

U.S. Patent No. 10,775,935 Claim 2	US 2019/0235701 to Han et al.
	As modified based on Shin ‘658, Shin ‘845, Zhao or the AP4.5 product, the touch sensing device of Han, or in the alternative the touch sensing device of the combination of Han and any of Sasaki ‘379, Jeong, Cao ‘626, or the AP4.5 product, would have a curved first edge and a curved second edge as a result of the use of curved frame assemblies to curve the plate. <i>See, e.g.</i>, Han, ¶¶ 0074-78 & Figs. 2-3; Shin ‘658, at ¶¶ 0154-158 & Figs. 2-4, 5-7; Shin ‘845, at 18:1-17 & Figs. 2-4; Zhao, at ¶¶ 0010-12, 0051-52, Figs. 2-3; AP4.5 product, Exhibit 1.

U.S. Patent No. 10,775,935 Claim 3	US 2019/0235701 to Han et al.
[3] The method of claim 1, wherein the plate has a first curvature when not configured in the frame assembly, and wherein the plate has a second curvature greater than the first curvature after the plate is configured in the frame assembly.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han and any of Shin ‘658, Shin ‘845, or Zhao, as described with respect to Claim 1 above. Alternatively, this limitation also would have been obvious to one of ordinary skill in the art based on the combination of Han and any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, further in view of any of Shin ‘658, Shin ‘845, or Zhao described in Claim 1 above. Any of Shin ‘658, Shin ‘845, and Zhao discloses that a frame assembly can induce a curvature in an initially flat plate, so that the plate’s second curvature, after the plate is configured in the frame assembly, is greater than the plate’s first curvature, when the plate is not configured in the frame assembly. <i>See, e.g.</i>, Shin ‘658, at ¶¶ 0157-159, 162, & Fig. 4; Shin ‘845, at 20:4-8, 20:32-21:10 & Figs. 4-5; Zhao, at ¶¶ 45-57 & Figs. 1-4. Thus, as modified based on Shin ‘658, Shin ‘845, or Zhao, the touch sensing device of Han, or in the alternative the touch sensing device of the combination of Han and any of Sasaki ‘379,

U.S. Patent No. 10,775,935 Claim 3	US 2019/0235701 to Han et al.
	Jeong, Cao ‘626 or the AP4.5 product, has a plate that has a first curvature when not configured in the frame assembly, where the plate has a second curvature greater than the first curvature after the plate is configured in the frame assembly.

U.S. Patent No. 10,775,935 Claim 4	US 2019/0235701 to Han et al.
[4] The touch sensing apparatus of claim 3, wherein the first curvature and second curvature are defined along an edge of the plate.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han (or Han in view of any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product) and any of Shin ‘658, Shin ‘845, Zhao, as described with respect to Claim 3 above. Any of Shin ‘658, Shin ‘845, and Zhao discloses that a frame assembly can induce a curvature in an initially flat plate, so that the plate’s second curvature along an edge of the plate, after the plate is configured in the frame assembly, is greater than the plate’s first curvature along the same edge of the plate, when the plate is not configured in the frame assembly. <i>See, e.g.</i>, Shin ‘658, at Figs. 2, 4-7, and 10-14 and corresponding text; Shin ‘845, at Figs. 2, 4(c), 5, and 6, and corresponding text; and Zhao, at ¶¶ 0010-12, 0045-62, Figs. 1-3. Thus, the combination of Han (or Han in view of any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product) and any of Shin ‘658, Shin ‘845, or Zhao, as described with respect to Claim 3 above, meet the limitations of Claim 4.

U.S. Patent No. 10,775,935 Claim 5	US 2019/0235701 to Han et al.
[5] The touch sensing apparatus of claim 3, wherein the first curvature and second curvature are measured along an axis passing through a center point of the plate.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han (or Han in view of any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5

U.S. Patent No. 10,775,935 Claim 5	US 2019/0235701 to Han et al.
	product) and any of Shin ‘658, Shin ‘845, Zhao, as described with respect to Claim 3 above. For instance, the touch device of Han or, in the alternative, the touch device of Han and any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, as modified based on the teachings of Shin ‘658, Shin ‘845, or Zhao, has a first curvature and a second curvature that are measured along an axis passing through a center point of the plate. <i>See, e.g.</i>, Shin ‘658, at Figs. 2, 4-8, 10; Shin ‘845, at Figs. 2, 4(c), 5-6; Zhao, at ¶¶ 45-57 & Figs. 1, 4; Han, at Figs. 2-4, 7.

U.S. Patent No. 10,775,935 Claim 6	US 2019/0235701 to Han et al.
[6] The touch sensing apparatus of claim 3, wherein the first curvature and second curvature are measured along a line passing through a point on the touch surface.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on the combination of Han (or Han in view of any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product) and any of Shin ‘658, Shin ‘845, and Zhao, as described with respect to Claim 3 above. For instance, the touch device of Han or, in the alternative, the touch device of Han and any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, as modified based on the teachings of Han and Shin ‘658, Shin ‘845, or Zhao, has a first curvature and a second curvature that are measured along a line passing through a point on the touch surface. <i>See, e.g.</i>, Shin ‘658, at Figs. 2, 4-8, 10; Shin ‘845, at Figs. 2, 4(c), 5-6; Zhao, at ¶¶ 45-57 & Figs. 1, 4; Han, at Figs. 2-4, 7.

U.S. Patent No. 10,775,935 Claim 7	US 2019/0235701 to Han et al.
[7 P] A touch sensing apparatus comprising:	Claim 7 is invalid as obvious based on Han in view of any of U.S. Patent No. 4,751,379 to Sasaki et al., U.S. Pre-Grant Pub. No.

U.S. Patent No. 10,775,935 Claim 7	US 2019/0235701 to Han et al.
	2019/0004668 to Jeong et al., U.S. Patent No. 9,983,626 to Cao et al. and the AP4.5 product; in view of any of U.S. Pre-Grant Pub. No. 2015/0256658 to Shin et al., U.S. Patent No. 9,291,845 to Shin et al., U.S. Pre-Grant Pub. No. 2017/0123257 to Zhao, the AP4.5 product, or the '935 Admitted Prior Art; and further in view of any of International App. Pub. No. WO 2014/130515 to Allan et al., European Standard EN 12150-1:2000, ASTM Standard C 1048 - 04, or the AP4.5 product. To the extent the preamble is found to limit the claim, Han discloses a touch sensing apparatus. <i>See, e.g.</i>, Han, at ¶¶ 0002, 0025-71, 0111-119, Figs. 2-4, 6-7.
[7.1] a display panel;	Han discloses a display panel. <i>See, e.g.</i> , Han, at ¶¶ 0027-29, 0118-119, Figs. 1-4, 6-7.
[7.2] a plate having a width, a length and a periphery, the plate further including a touch surface;	Han discloses a plate having a width, a length and a periphery, the plate further including a touch surface. <i>See, e.g.</i> , Han, at ¶¶ 0034, 0037-38, 0074-88, 113-14, Figs. 2-4, 6-7.
[7.3] one or more emitters arranged adjacent to the periphery of the plate and configured to emit light across the touch surface of the plate;	Han discloses one or more emitters arranged adjacent to the periphery of the plate and configured to emit light across the touch surface of the plate. <i>See, e.g.</i>, Han, at ¶¶ 0034-35, 0037, 0039-51, 0056, 0061-71, 0074-78, 0081-88, Figs. 2-4, 7. Additionally, at the time of the alleged invention, it would also have been obvious to combine Han with other prior art references, such as Sasaki '379, Jeong, Cao '626, and the AP4.5 product, so that the Han touch sensing apparatus would have various alternative arrangements of one or more emitters adjacent to the periphery of the plate and configured to emit light across the touch surface of the plate. <i>See, e.g.</i>, Han, at ¶¶ 0058-60, 0065; Sasaki '379, at 1:34-2:30, Figs. 2-5; Jeong, at ¶¶ 0082, 0090-96, 102-107, 0111-115, 0180-184, Figs.

U.S. Patent No. 10,775,935 Claim 7	US 2019/0235701 to Han et al.
	4-8, 11, 13, 15-20; Cao '626, at 3:66-4:26, 4:59-63, 5:29-34, 7:13-43, Figs. 8-10; and AP4.5 product, Exhibit 1.
[7.4] a set of detectors arranged adjacent to the periphery of the plate and configured to receive light from the set of emitters, and	Han discloses a set of detectors arranged adjacent to the periphery of the plate and configured to receive light from the set of emitters. <i>See, e.g.</i>, Han, at ¶¶ 0034-35, 0037, 0039-51, 0056, 0061-71, 0074-78, 0081-88; Figs. 2-4, 7. Additionally, at the time of the alleged invention, it would also have been obvious to combine Han with other prior art references, such as Sasaki '379, Jeong, Cao '626, or the AP4.5 product, so that the Han touch sensing apparatus would have various alternative arrangements of detectors arranged adjacent to the periphery of the plate and configured to receive light from the set of emitters. <i>See, e.g.</i>, Han, at ¶¶ 0058-60, 0065; Sasaki '379, at 1:34-2:30, Figs. 2-5; Jeong, at ¶¶ 0082, 0090-96, 102-107, 0111-115, 0180-184, Figs. 4-8, 11, 13, 15-20; Cao '626, at 3:66-4:26, 4:59-63, 5:29-34, 7:13-43, Figs. 8-10; and the AP4.5 product, Exhibit 1.
[7.5a] a frame assembly, the frame assembly comprising:	Han discloses a frame assembly. <i>See, e.g.</i> , Han, at ¶¶ 0029, 0034, 0037, 0050-52, 0058-060; Figs. 2-4, 6-7.
[7.5b] a first frame element configured to support the display panel; and	Han discloses a first frame element configured to support the display panel. <i>See, e.g.</i> , Han, at ¶¶ 0029, 0034, 0037, 0050-52, 0058-060, Figs. 2-4, 6-7.
[7.5c] a second frame element arranged around at least a portion of the periphery of the plate, the second frame element having a first portion extending along an edge of the plate and a second portion opposed to the touch surface;	Han discloses a second frame element arranged around at least a portion of the periphery of the plate, the second frame element having a first portion extending along an edge of the plate. <i>See, e.g.</i> , Han, at ¶¶ 0029, 0034, 0037, 0050-52, 0057-71.

U.S. Patent No. 10,775,935 Claim 7	US 2019/0235701 to Han et al.
	At the time of the alleged invention, it would have been obvious to modify Han with any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product to provide a second frame element arranged around at least a portion of the periphery of the plate, the second frame element having a first portion extending along an edge of the plate and a second portion opposed to the touch surface. <i>See, e.g.</i>, Han, at ¶¶ 0058-60, 0065; Sasaki ‘379, at 1:34-2:13, Figs. 2-5; Jeong, at ¶¶ 0065-74, 0079-89, 108, 0097-102, Figs. 2-3, 5-8, 11, 19-20; Cao ‘626, at 3:66-4:26, 5:29-39, 7:13-21, Figs. 1, 8-9, 12-13; AP4.5 product, Exhibit 1.
[7.6] wherein the plate has a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly, said second curvature is parabolic; and	The plate of the touch device of Han, in combination with any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly, said second curvature is parabolic. <i>See, e.g.</i>, Han, at ¶¶ 0074-78, 0087-0100, Figs. 2-4, 7. At the time of the alleged invention, it would have been obvious to modify the touch device of Han, in combination with any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, so that the plate has a first curvature in the touch surface when not installed in the frame assembly and has the second, parabolic curvature described above when installed in the frame assembly. For example, it would have been obvious to do so based on the disclosures of any of U.S. Pre-Grant Pub. No. 2015/0256658 to Shin et al., U.S. Patent No. 9,291,845 to Shin et al., U.S. Pre-Grant Pub. No. 2017/0123257 to Zhao; the AP4.5 product, or the ‘935 Admitted Prior Art. <i>See, e.g.</i>, Shin ‘658, at ¶¶ 0051-52, 0154, 0159-163, 206-207, & Figs. 2-14; Shin ‘845, at 4:56-67; 18:5-22:63 & Figs. 2-7; Zhao, at ¶¶ 45-57 & Figs. 1-4; AP4.5 product, Exhibit 1; ‘935 Patent, at 1:26-2:17.

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[7.7] wherein the first curvature is concave.	The first curvature of the touch plate of the touch device of Han, in combination with any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, as set forth above at elements 7.1-7.5(c), further in view of the ‘935 Admitted Prior Art, as set forth above at element 7.6, is concave. <i>See, e.g.</i>, ‘935 Patent, at 1:26-2:17. The first curvature of the touch plate of the touch device in Han, in combination with any of Sasaki ‘379, Jeong, Cao ‘626, and the AP4.5 product, as set forth above at elements 7.1-7.5(c), further in view of the AP4.5 product, as set forth at element 7.6, is concave. <i>See, e.g.</i>, the AP4.5 product, Exhibit 1. Alternatively, at the time of the alleged invention, it would have been obvious to one of ordinary skill in the art to modify the touch device of Han, in combination with any of Sasaki ‘379, Jeong, Cao ‘626 or the AP4.5 product, as set forth above at elements 7.1-7.5(c), in view of any of Shin ‘658, Shin ‘845, Zhao, the AP4.5 product, and the ‘935 Admitted Prior Art, as set forth above with regard to element 7.6, such that the first curvature is concave, e.g. in view of the disclosure of International App. Pub. No. WO 2014/130515 to Allan et al.; European Standard EN 12150-1:2000, entitled “Glass in Building—Thermally Toughened Soda Lime Silicate Safety Glass”; ASTM Standard C 1048 – 04, entitled “Standard Specification for Heat-Treated Flat Glass—Kind HS, Kind FT Coated and Uncoated Glass”; the AP4.5 product; or the ‘935 Admitted Prior Art. <i>See, e.g.</i>, Allan, at ¶¶ 0007, 0014, 0030-32, 0047, 0051; EN 12150-1:2000, at Secs. 6.3.1, 6.3.2; ASTM C 1048 - 04, at §§ 1.1, 7.4.6, 9.4, 11.6; Exhibit 1; ‘935 Patent, at 1:26-2:17.
U.S. Patent No. 10,775,935 Claim 8	US 2019/0235701 to Han et al.
[8] The touch sensing apparatus of claim 7, further comprising a processing element	Han discloses a processing element configured to determine a position of an object

U.S. Patent No. 10,775,935 Claim 8	US 2019/0235701 to Han et al.
configured to determine, based on output signals of the set of detectors, a position of an object proximate to the touch surface.	proximate to the touch surface. <i>See, e.g.</i>, Han, at ¶¶ 0012-15, 0049, 0053. At the time of the alleged invention, it would have been obvious to further modify the device of Han, as modified as discussed above with respect to Claim 7, so that the processing element determines the position of the object proximate to the touch surface based on output signals of the set of detectors. For example, it would have been obvious to do so based on the disclosure of U.S. Pre-Grant Pub. No. 2016/0202841 to Christiansson et al. Christiansson, at ¶¶ 0064-68, 0137-138.

U.S. Patent No. 10,775,935 Claim 9	US 2019/0235701 to Han et al.
[9] The touch sensing apparatus of claim 7, wherein the first curvature and second curvature are measured along an edge of the plate.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on Han in combination with any of Sasaki '379, Jeong, Cao '626, or the AP4.5 product, as set forth with regard to claim elements 7.1-7.5(c), in view of any of Shin '658, Shin '845, Zhao, the AP4.5 product, and the Admitted Prior Art, as set forth above with regard to claim element 7.6, further in view of any of Allan, EN 12150-1:2000, ASTM C 1048 - 04, or the AP4.5 product, as set forth above with regard to Claim 7. For example, each of Shin '658, Shin '845, Zhao, and the AP4.5 product discloses that a frame assembly can induce a curvature in a plate, so that the plate is curved along an edge of the plate. <i>See, e.g.</i>, Shin '658, at Figs. 2, 4-7, 10-14 and corresponding text; Shin '845, at Figs. 2, 4(c), 5, and 6 and corresponding text; Zhao, at ¶¶ 0010-12, 0051-52, Figs. 2-3; AP4.5, Exhibit 1. With regard to combinations of Han with any of Sasaki '379, Jeong, Cao, or the AP4.5 product as set forth at claim elements 7.1-7.5, and the Admitted Prior Art of the '935 Patent as set forth at

U.S. Patent No. 10,775,935 Claim 9	US 2019/0235701 to Han et al.
	claim element 7.6, it would have been obvious to define the curvature, as taught by the ‘935 Admitted Prior Art, at the edges of the plate. <i>See</i> Allan, at ¶ 0032 & Fig. 1; EN 12150-1:2000, at § 6.3.2 & Fig. 4; ASTM C 1048 - 04, at 11.6; Exhibit 1.

U.S. Patent No. 10,775,935 Claim 10	US 2019/0235701 to Han et al.
[10] The touch sensing apparatus of claim 7, wherein the first curvature and second curvature are measured along an axis passing through a center point of the plate.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on any of the prior art combinations described in Claim 7 above. For example, the touch device of Han, in view of any of Sasaki ‘379, Jeong, Cao ‘626, or the AP4.5 product, with regard to claim elements 7.1-7.5, in view of any of Shin ‘658, Shin ‘845, Zhao, and the AP4.5 product, with regard to claim element 7.6, and Allan, EN 12150-1:2000, ASTM C 1048 - 04, the AP4.5 product, or the ‘935 Admitted Prior Art, with regard to claim element 7.7, discloses that the first curvature and second curvature are measured along an axis passing through a center point of the plate. <i>See, e.g.</i>, Shin ‘658 at Figs. 2, 4-8, 10; Shin ‘845, at Figs. 2, 4(c), 5-6; Zhao, at ¶¶ 45-57 & Figs. 1, 4; and AP4.5 product, Exhibit 1. With regard to combinations of Han with any of Sasaki ‘379, Jeong, Cao, or the AP4.5 product as set forth at claim elements 7.1-7.5, and the ‘935 Admitted Prior Art as set forth at claim element 7.6, it would have been obvious to define the curvature, as taught by the ‘935 Admitted Prior Art, through the plate center. <i>See</i> EN 12150-1:2000, at § 6.3.2 & Fig. 4; Han, at Figs. 2-4; ASTM C 1048 - 04, at 11.6; Exhibit 1; ‘935 Patent, at 1:26-2:17.

U.S. Patent No. 10,775,935 Claim 11	US 2019/0235701 to Han et al.
[11] The touch sensing apparatus of claim 7, wherein the first curvature and second curvature are measured along a line passing through a point on the touch surface.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on any of the prior art combinations described in Claim 7 above. For example, the touch device of Han, in view of any of Sasaki ‘379, Jeong, Cao ‘626, or the AP4.5 product, with regard to claim elements 7.1-7.5, in view of any of Shin ‘658, Shin ‘845, Zhao, and the AP4.5 product, with regard to claim element 7.6, and Allan, EN 12150-1:2000, ASTM C 1048 - 04, the AP4.5 product, or the ‘935 Admitted Prior Art, with regard to claim element 7.7, discloses that the first curvature and second curvature are measured along an axis passing through a center point of the plate. <i>See, e.g.</i>, Shin ‘658 at Figs. 2, 4-8, 10; Shin ‘845, at Figs. 2, 4(c), 5-6; Zhao, at ¶¶ 45-57 & Figs. 1, 4; and the AP4.5 product, Exhibit 1. With regard to combinations of Han with any of Sasaki ‘379, Jeong, Cao, or the AP4.5 product as set forth at claim elements 7.1-7.5, and the ‘935 Admitted Prior Art as set forth at claim element 7.6, it would have been obvious to define the curvature, as taught by the ‘935 Admitted Prior Art, through the plate center. <i>See</i> EN 12150-1:2000, at § 6.3.2 & Fig. 4; Han, at Figs. 2-4; ASTM C 1048 - 04, at 11.6; Exhibit 1; ‘935 Patent, at 1:26-2:17.

U.S. Patent No. 10,775,935 Claim 12	US 2019/0235701 to Han et al.
[12] The touch sensing apparatus of claim 7, further comprising a gasket, wherein the plate is supported by the gasket proximate to an edge of the plate.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on combinations as set forth above with regard to Claim 7. For example, the AP4.5 product includes a gasket that supports the touch plate proximate an edge of the plate. <i>See</i> AP4.5 product, Exhibit 1. Thus, any of the prior art combinations set forth above with regard to Claim 7 that include the AP4.5 product with regard to

U.S. Patent No. 10,775,935 Claim 12	US 2019/0235701 to Han et al.
	claim elements 7.1-7.5(c) meet this limitation. Similarly, Shin ‘658 and Shin ‘845 disclose the use of gaskets that support the touch plate proximate an edge of the touch plate. <i>See, e.g.,</i> Shin ‘658, at ¶¶ 160-61, 171, 210, 223 & Figs. 4-5, 11, 13; Shin ‘845, at 19:23-26, 21:43-63, Figs. 4-7, 10. Thus any of the prior art combinations set forth above with regard to Claim 7 that include either Shin ‘658 or Shin ‘845 with regard to claim element 7.6 meet this limitation. Moreover, International App. Pub. No. WO 2014/098742 to Wassvik et al., at p. 15, lines 5-7 & Figs. 9-11, discloses the use of a gasket between the plate and the frame assembly, so that the use of such a gasket would be obvious in view of any of the combinations set forth above with regard to Claim 7, further in view of Wassvik.

U.S. Patent No. 10,775,935 Claim 14	US 2019/0235701 to Han et al.
[14] The apparatus of claim 7, wherein the second frame element is curved.	At the time of the alleged invention, this limitation would have been obvious to one of ordinary skill in the art based on any of the prior art combinations described with regard to Claim 7 above. For example, each of Shin ‘658, Shin ‘845, Zhao, and the AP4.5 product discloses or has curved frame elements. <i>See, e.g.,</i> Han, ¶¶ 0074-78 & Figs. 2-3; Shin ‘658, at ¶¶ 0154-158 & Figs. 2-3, 5-7; Shin ‘845, at 18:1-17 & Figs. 2-3; Zhao, at ¶¶ 0010-12, 0051-52, Figs. 2-3; Exhibit 1. With regard to combinations of Han with any of Sasaki ‘379, Jeong, Cao, or the AP4.5 product as set forth at claim elements 7.1-7.5, and the ‘935 Admitted Prior Art as set forth at claim element 7.6, it would have been obvious to have utilized curved frame elements, as taught by the AP4.5 product.