

EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

U.S. Patent Application Publication No. 2004/0009366 (“Takagi”), published on January 15, 2004 from an application filed on June 24, 2003, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of U.S. Patent No. 10,961,602 (“the ’602 patent”), as discussed in detail in the claim chart below.

Hein et al., “Hot Stamping of USIBOR 1500 P: Part and Process Analysis Based on Numerical Simulation” (2006) (“Hein”), publicly available as of May 9, 2006, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of the ’602 patent, as discussed in detail in the claim chart below.

GMW14400 material specification (“GMW14400”), publicly available no later than December 1, 2005, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of the ’602 patent, as discussed in detail in the claim chart below.

Vaissiere et al., “Development of Pre-Coated Boron Steel for Applications on PSA Peugeot Citroën and RENAULT Bodies in White,” SAE Technical Paper Series 2002-01-2048, reprinted from the Proceedings of the 2002 SAE International Body Engineering Conference and Automotive & Transportation Technology Conference (2002) (“Vaissiere”), publicly available at the Library of Congress as of July 2002, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of the ’602 patent, as discussed in detail in the claim chart below.

U.S. Patent No. 6,296,805 (“Laurent”), published on October 2, 2001 from an application filed on July 9, 1999, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of the ’602 patent, as discussed in detail in the claim chart below.

U.S. Patent Application Publication No. 2006/0185774 (“Nishibata”), published on August 24, 2006 from an application filed on November 28, 2005, qualifies as prior art under at least 35 U.S.C. §§ 102 and/or 103 for the asserted claims of U.S. Patent No. 10,961,602 (“the ’602 patent”), as discussed in detail in the claim chart below.

The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. As such, nothing in Respondents’ claim charts should be construed as an admission regarding infringement, either literally or under the doctrine of equivalents, or as an admission regarding Respondents’ understanding of the proper scope of the asserted claims. Respondents reserve the right to rely on additional citations or sources of evidence that also may be applicable, or that may become applicable in light of claim construction, changes in Complainant’s infringement contentions, and/or information obtained during discovery as the investigation progresses.

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To the extent Complainant allege that Takagi does not disclose any particular limitation of the asserted claims of the '602 patent, either expressly or inherently, it would have been obvious to a person of ordinary skill in the art as of the priority date of the '602 patent to modify Takagi and/or to combine the teachings of Takagi with other prior art references, including but not limited to other prior art references discussed in detail in this claim chart, the present prior art references cited in the Cover Pleading, and the relevant section(s) of claim charts for other prior art references for the '602 patent in a manner that would have rendered the asserted claims invalid as obvious.

Respondents reserve the right to amend or supplement this claim chart at a later date as more fully set forth in the Cover Pleading.

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Claim 1	
[1pre] A precoated steel product comprising:	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. To the extent the preamble of claim 1 is found to be limiting, Takagi and/or one or more prior art references disclose a precoated steel product. For example: “The present invention relates to an aluminum-coated structural member and a production method thereof. More specifically, the present invention relates to an aluminum-coated structure member, such as a structural member used for motor vehicles, produced by applying heat treatment and forming operation to aluminum-coated steel sheet, and coated with an alloy layer of an Al—Si—Fe alloy for improvement in formability, weldability and corrosion resistance.” Takagi at [0001]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si).” Takagi at [0003]. “According to one aspect of the present invention, an aluminum-coated structural member comprises: a steel substrate layer; and an Al—Si—Fe alloy layer formed on a surface of the steel substrate layer, the alloy layer including a softer region having a hardness smaller than or equal to a hardness of the steel substrate layer, extending from the surface of the steel substrate layer toward a surface of the alloy layer, and having a thickness greater than or equal to 50% of a thickness of the alloy layer, the Al—Si—Fe alloy layer having an oxide weight smaller than or equal to 500 mg/dm².” Takagi at [0005]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel

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	sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016] “An aluminum-coated structural member having an Al—Si—Fe alloy layer on the surface as mentioned above can be obtained by the following process. First, a heat resisting hot-dip aluminum-coated steel sheet containing Si in a coating layer is heated at a rate of 1~10° C./sec to a temperature in the temperature range of 900~950° C., and held at that raised temperature for a holding time (or duration) of 2~8 minutes. In this case, the aluminum coating could melt locally when the hot-dip aluminum-coated steel sheet is heated at a heating rate faster than 10° C./sec to a temperature higher than 900° C. The coating layer could oxidize when the heating rate is slower than 1° C./sec. The

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	progress of austenitizing in the steel base material is too slow to obtain a sufficient strength as a structural member when the raised temperature at which the specimen is held is lower than 900° C. When the raised temperature is higher than 950° C., the undesired oxidation of the coating layer proceeds, and the diffusion of Fe proceeds too much up to the surface of the coating layer. When the time for holding at the raised temperature is shorter than 2 minutes, then the formation of Al—Si—Fe alloy layer becomes insufficient. When the time for holding at the raised temperature is longer than 8 minutes, the oxidation of coating layer proceeds, and undesired influence is exerted on the adhesiveness of the coating film by electro deposition. After the heat treatment for holding in the above-mentioned temperature range, the steel sheet is carried from a heating furnace to a forming press. During the transportation, cooling starts. In this case, the rate of cooling after the heat treatment is required to be 5~15° C./sec in order to perform the forming operation at a predetermined temperature and the rapid cooling from a predetermined temperature. When the cooling rate is slower than 5° C./sec, the oxidation of the coating layer becomes conspicuous. For cooling at a rate higher than 15° C./sec, the need arises for forced cooling. The forming operation into a desired shape is started in the temperature range of 700~800° C. After the forming operation, the shaped sheet is cooled rapidly from the temperature range of 700~800° C., to a temperature lower than or equal to 300° C. at a rate in the range of 20~100° C./sec. By this rapid cooling, the steel base material is cooled while preserving the Al—Si—Fe alloy layer formed by the heat treatment, and an aluminum-coated structural member of a desired shape is obtained. The above-mentioned conditions of the heat treatment are adequate also for quench hardening of the steel base material, and hence effective for enhance the strength of the material. To start the forming operation at a temperature higher than 800° C. is not desirable because reheating is required and oxidation of coating is promoted. When the forming operation is started at a temperature lower than 700° C., the quenching temperature is too low for martensitic transformation. When the cooling rate after the forming operation is slower than 20° C./sec, the transformation to martensite is insufficient, and the diffusion of Fe proceeds too much. When the cooling rate after the forming operation is faster than 100° C./sec, the cost for facility is increased significantly for the need for improving a cooling system in production equipment. The rapid cooling to a temperature lower than or equal to 300° C. is effective

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	for preventing ferrite phase from being left over, and promoting martensitic transformation sufficiently." Takagi at [0026]-[0028] "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table><tr><td>Heating rate:</td><td>8° C./sec</td></tr><tr><td>Heating temperature:</td><td>900~950° C.</td></tr><tr><td>Holding time:</td><td>2~10 min</td></tr><tr><td>Rate of Primary cooling:</td><td>7° C./sec</td></tr><tr><td>Temperature at a start of forming:</td><td>720° C.</td></tr><tr><td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr><tr><td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr><tr><td>Temperature at an end of cooling:</td><td>100°</td></tr></table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability." Takagi at [0036]-[0038]. ¹																																																																																																																																																																																																											
	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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¹ In Table 1, layers Inner, Inter 1, Inter 2, Inter 3, and Outer are arranged from the base steel outwards. However, Takagi FIG. 2A erroneously shows the opposite order for intermediate layers 1-3. FIG. 2(a) of the original Japanese patent filing, JP3738754, shows the correct order, which accords with the order presented in Table 1 and with Takagi's discussion of the soft inner layer.

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	In addition, Hein shows a “[s]tructure of the alloyed layer Al-Fe-Si after hot-stamping.” Hein at 165, FIG. 4.
[1a] a strip of base steel having a first side and a second side; and	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose a strip of base steel having a first side and a second side. For example: “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability.” Takagi at [0036].

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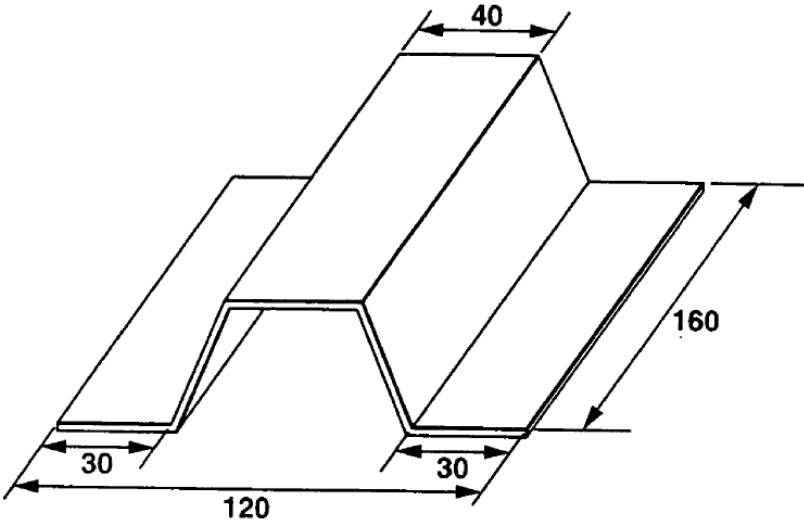
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References
	FIG.1 
[1b] a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant's infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-coating, and wherein the coating includes, proceeding from the base steel outwards. For example:

EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
or aluminum alloy pre-coating, and wherein the coating includes, proceeding from the base steel outwards:	“In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016]

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

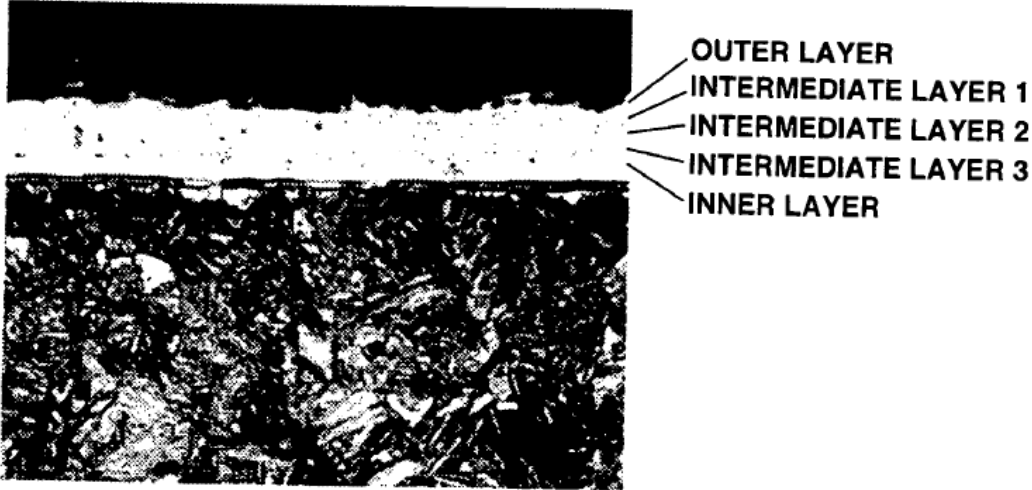
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	FIG.2A  “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td></td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td></td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td></td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td></td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td></td><td></td><td></td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td></td><td></td><td></td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td></td><td></td><td></td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td></td><td></td><td></td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td></td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td></td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td></td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td></td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6		54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7		0.8	Fe	67.2	50.1	61.9		44.1	Hv	380	760	720		810	3	930	10	Al	9.4				11.6	400	305	385	78	550	○	×	×	Si	1.3				1.8	Fe	88.4				85.7	Hv	305				410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4		54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3		6.8	Fe	94.3	42.7	51.4		38.4	Hv	300	740	700		810
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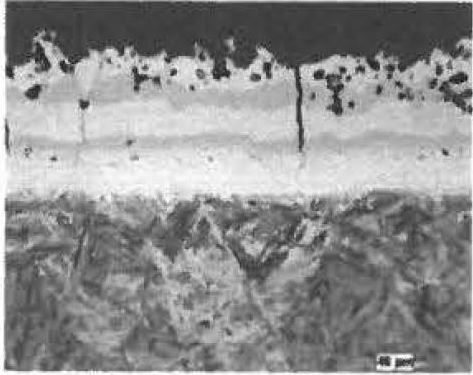
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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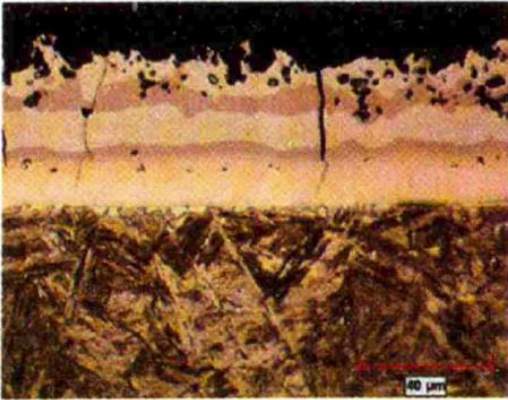
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[1c] (a) an interdiffusion layer having a first mean iron composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (a) an interdiffusion layer having a first mean iron composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

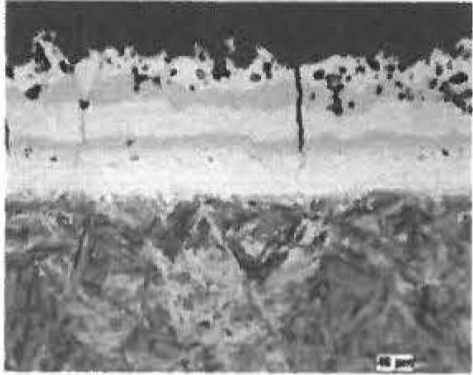
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

EXHIBIT B-07

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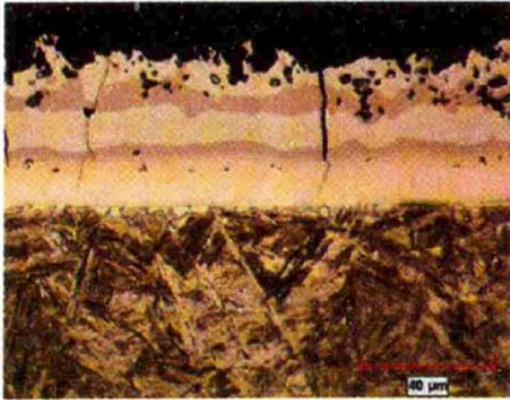
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[1d] (b) an intermediate layer having a second mean iron composition different from the first mean iron composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (b) an intermediate layer having a second mean iron composition different from the first mean iron composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

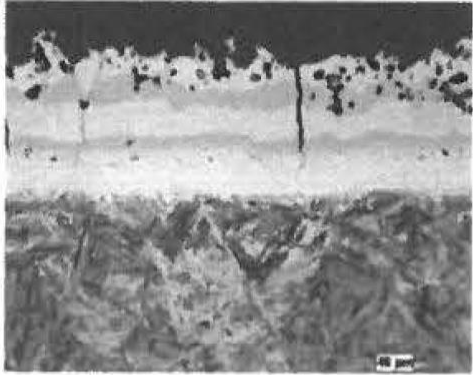
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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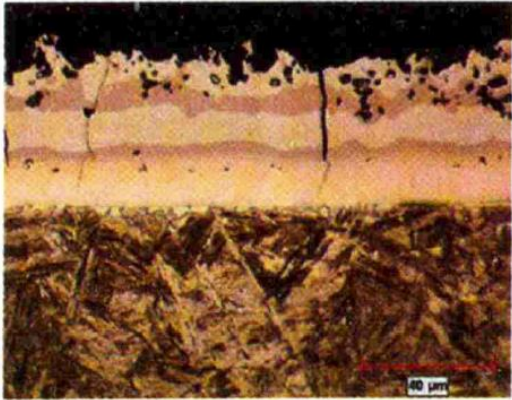
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[1e] (c) an intermetallic layer having a third mean iron composition different from the first and second mean iron compositions, the third mean iron composition being higher than the second mean iron composition; and	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (c) an intermetallic layer having a third mean iron composition different from the first and second mean iron compositions, the third mean iron composition being higher than the second mean iron composition. For example:

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	“[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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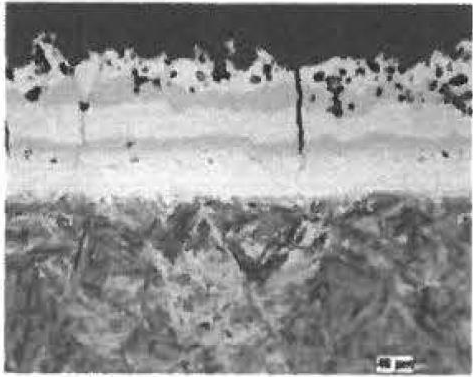
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	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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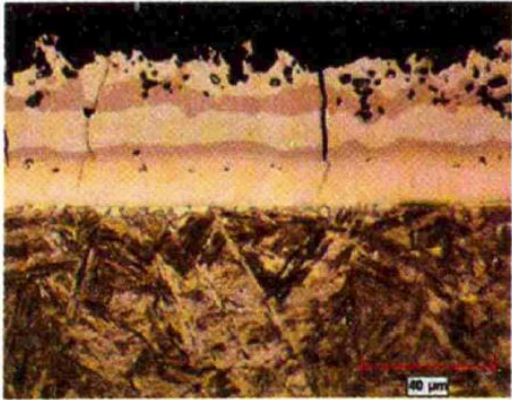
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	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[1f] (d) a superficial layer having a fourth mean iron composition different from the third mean iron composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (d) a superficial layer having a fourth mean iron composition different from the third mean iron composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY					CORROSION RESISTANCE	WELDABILITY																																																																																																																																																																																								
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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

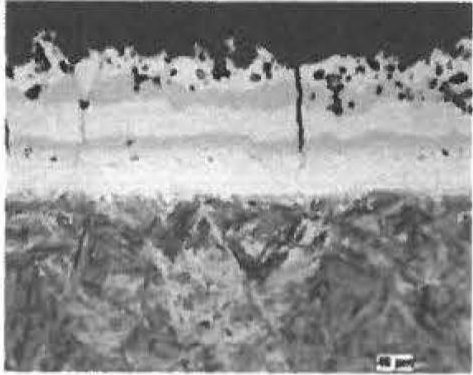
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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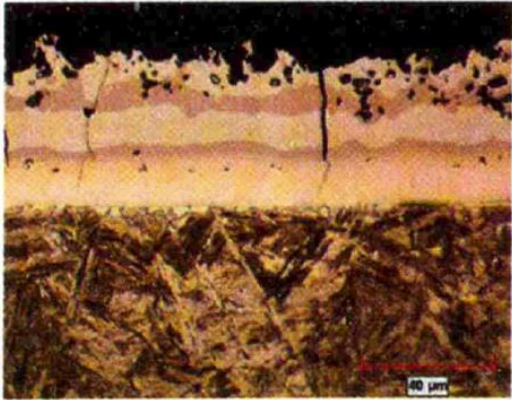
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[1g] wherein the coating has a thickness greater than 30 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose wherein the coating has a thickness greater than 30 micrometers. For example: “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and

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'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References																
	formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, measurements indicate that the Hein FIG. 4 coating has a thickness greater than 30 micrometers.	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung Further, GMW14400 requires that the Al-Si pre-coating (“[p]rior to hot-stamping”) have a thickness of “20 to 33” μm, and that the coating thickness “[f]ollowing hot-stamping” be “>35” μm. GMW14400 at 7.
Claim 2	
[2] The precoated steel product as recited in claim 1 wherein the layers (c) and (d) are quasi continuous by occupying at least 90% of a level corresponding to each	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the layers (c) and (d) are quasi continuous by occupying at least 90% of a level corresponding

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'602 Patent	U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References																
of the layers (c) and (d) and wherein less than 10% of layer (c) is present at an extreme surface of the product.	to each of the layers (c) and (d) and wherein less than 10% of layer (c) is present at an extreme surface of the product. For example: "The mechanism of formation of the layered structure is not fully evident. Currently, the presumption by the inventors of the present invention is as follows: (1) The retention of a specimen at an elevated temperature causes the diffusion of Fe, and produce a concentration gradient in Fe and Si in the coating layer. (2) In this case, the coating alloy phase is urged to transform into a stable compound phase determined by the composition at each depth, so that there are formed different compound layers in different regions of depth. (3) Therefore, by controlling the raised temperature of the heating and the holding time at the raised temperature, the diffusion quantity of Fe is varied and the degree of transformation into a stable compound is varied." Takagi at [0019] "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td> <td>8° C./sec</td> </tr> <tr> <td>Heating temperature:</td> <td>900~950° C.</td> </tr> <tr> <td>Holding time:</td> <td>2~10 min</td> </tr> <tr> <td>Rate of Primary cooling:</td> <td>7° C./sec</td> </tr> <tr> <td>Temperature at a start of forming:</td> <td>720° C.</td> </tr> <tr> <td>Temperature at a start of rapid cooling:</td> <td>720° C.</td> </tr> <tr> <td>Rate of Secondary cooling (quenching):</td> <td>30° C./sec</td> </tr> <tr> <td>Temperature at an end of cooling:</td> <td>100°</td> </tr> </table>	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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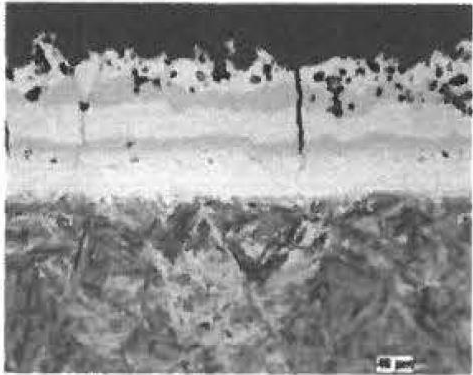
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping

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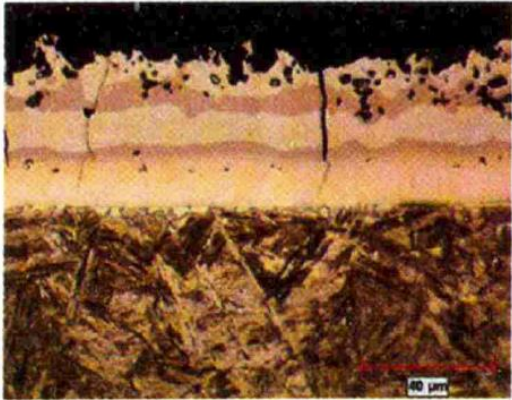
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5. A micrograph showing a cross-section of a material. The top portion is dark and granular, while the bottom portion is lighter and more uniform. A scale bar in the bottom right corner indicates 40 µm. Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
Claim 3	
[3] The precoated steel product as recited in claim 1 wherein the base steel includes the following	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with.

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'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
components by weight based on total weight: 0.15%<carbon<0.5%; 0.5%<manganese<3%; 0.1%<silicon<0.5%; 0.01%<chromium<1%; titanium<0.2%; aluminum<0.1%; phosphorus<0.1%; sulfur<0.05%; 0.0005%<boron<0.08%; and further comprises iron and impurities inherent in processing.	Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the base steel includes the following components by weight based on total weight: 0.15%<carbon<0.5%; 0.5%<manganese<3%; 0.1%<silicon<0.5%; 0.01%<chromium<1%; titanium<0.2%; aluminum<0.1%; phosphorus<0.1%; sulfur<0.05%; 0.0005%<boron<0.08%; and further comprises iron and impurities inherent in processing. For example, the steel compositions described by GMW14400 satisfy or at least overlap all composition ranges recited in claim 16. GMW14400 at 2.² It would have been obvious to use these steel compositions to satisfy General Motors’ requirements. A person having ordinary skill in the art would have been motivated by the recognition that the values in GMW1400 are in agreement with the “Maximum-%” for C, Mn, Si, Cr, Ti, and B described by Hein for USIBOR 1500 steel, which provides “numerous” “technical and economic advantages [] for the manufacturers and the hot-stampers.” Hein at 164, 165. A presumption of obviousness applies “[w]here a claimed range overlaps with a range disclosed in the prior art.” <i>Ormco Corp. v. Align Tech., Inc.</i>, 463 F.3d 1299, 1311 (Fed. Cir. 2006). It would have been understood and obvious that GMW1440’s lack of disclosure of a Ti% range would have suggested to a person having ordinary skill in the art that Ti was not an essential element in the steel, such that this disclosure teaches a steel without Ti, i.e., a Ti% of 0 or effectively 0, within the claimed range. In addition, it would have been obvious to use the steel compositions of Laurent in the hot-stamping process described by Takagi alone or as modified. A person having ordinary skill in the art would have

² A person having ordinary skill in the art would have understood that the “0.010 max. %” nitrogen disclosed by GMW14400 is an impurity inherent in processing.

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

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	found it obvious to try using a steel as disclosed by Laurent in order to realize the “very high mechanical resistance after thermal treatment” disclosed by Laurent. Laurent at 1:47-62. This would have constituted “mere substitution of one element [the Laurent steel] for another [the “22MnB5” steel of Engels] known in the field.” <i>KSR</i>, 550 U.S. at 416; Engels at 135, 141, 149. A person having ordinary skill in the art would have been motivated at least by Laurent’s discussion of the advantages of such a steel and the specific advantages of the particular elements and concentrations of the elements of the steel. Indeed, 22MnB5 and Laurent’s steel have generally similar compositions, such that the substitution of one for the other would have constituted a minor modification within the general conditions of what was already in use. The “preferabl[e]” “steel composition by weight” of Laurent satisfies or renders obvious each of the recited compositions of claim 3, illustrating that there was nothing new about the compositions recited in claim 3. For each element, the Laurent composition either exactly matches, falls fully within, or overlaps substantially with the compositions of claim 3, thereby rendering obvious those compositions. Absent criticality (which has not been alleged or demonstrated here), “ranges which overlap or lie within ranges disclosed by the prior art” are obvious. <i>In re Wertheim</i> at 267.
Claim 4	
[4] The precoated steel product as recited in claim 1 wherein the base steel comprises the following components by weight based on total weight: 0.20%<carbon<0.5%; 0.8%<manganese<1.5%; 0.1%<silicon<0.35%;	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the base steel comprises the following components by weight based on total weight: 0.20%<carbon<0.5%; 0.8%<manganese<1.5%; 0.1%<silicon<0.35%;

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0.01%<chromium<1%; titanium<0.1%; aluminum<0.1%; phosphorus<0.05%; sulfur<0.03%; 0.0005%<boron<0.01%; and further comprises iron and impurities inherent in processing.	0.01%<chromium<1%; titanium<0.1%; aluminum<0.1%; phosphorus<0.05%; sulfur<0.03%; 0.0005%<boron<0.01%; and further comprises iron and impurities inherent in processing. For example, the steel compositions described by GMW14400 satisfy or at least overlap all composition ranges recited in claim 17. GMW14400 at 2.³ It would have been obvious to use these steel compositions to satisfy General Motors' requirements. A person having ordinary skill in the art would have been motivated by the recognition that the values in GMW1400 are in agreement with the “Maximum-%” for C, Mn, Si, Cr, Ti, and B described by Hein for USIBOR 1500 steel, which provides “numerous” “technical and economic advantages [] for the manufacturers and the hot-stampers.” Hein at 164, 165. A presumption of obviousness applies “[w]here a claimed range overlaps with a range disclosed in the prior art.” <i>Ormco Corp. v. Align Tech., Inc.</i>, 463 F.3d 1299, 1311 (Fed. Cir. 2006). It would have been understood and obvious that GMW1440's lack of disclosure of a Ti% range would have suggested to a person having ordinary skill in the art that Ti was not an essential element in the steel, such that this disclosure teaches a steel without Ti, i.e., a Ti% of 0 or effectively 0, within the claimed range. In addition, it would have been obvious to use the steel compositions of Laurent in the hot-stamping process described by Takagi alone or as modified. A person having ordinary skill in the art would have found it obvious to try using a steel as disclosed by Laurent in order to realize the “very high mechanical resistance after thermal treatment” disclosed by Laurent. Laurent at 1:47-62. This would have constituted “mere substitution of one element [the Laurent steel] for another [the “22MnB5” steel of Engels] known in the field.” <i>KSR</i>, 550 U.S. at 416; Engels at 135, 141, 149. A

³ A person having ordinary skill in the art would have understood that the “0.010 max. %” nitrogen disclosed by GMW14400 is an impurity inherent in processing.

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Claim 5	
[5] The precoated steel product as recited in claim 1 wherein the base steel comprises 20 ppm or less of sulfur.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the base steel comprises 20 ppm or less of sulfur. For example: “[Hot-dip aluminum-coated steel sheet to be tested] Composition of original sheet for coating: 0.22%C, 0.22% Si, 1.0% Mn, 0.015% P, 0.007% S. Sheet thickness: 1.4 mm. Si concentration in Aluminum coating: 5%. Thickness of aluminum coating layer: 10~20 μm.” Takagi at [0031]-[0035].

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	Further, Hein discloses the use of a specific steel (“Usibor 1500 P”) that provides “numerous” “technical and economic advantages,” including “an ultimate tensile strength of 1400 MPa to 1600 MPa.” Hein at 164-165. As shown in Figure 1 below, Hein’s proportions entirely satisfy or overlap with the range recited in claim 5, rendering those ranges obvious. Absent criticality (which has not been alleged or demonstrated here), “ranges which overlap or lie within ranges disclosed by the prior art” are obvious. <i>In re Wertheim</i>, 541 F.2d 257, 267 (C.C.P.A. 1976). <table><tr><th>C</th><th>Mn</th><th>Si</th><th>Cr</th><th>Ti</th><th>B</th></tr><tr><td>0,25</td><td>1,4</td><td>0,35</td><td>0,3</td><td>0,05</td><td>0,005</td></tr></table> Figure 1. Chemical analysis of Usibor 1500 P (Maximum- %) In addition, Laurent describes that the “preferabl[e]” “steel composition by weight” satisfies or renders obvious each of the recited compositions of claim 5, as shown in the below chart, illustrating that there was nothing new about the compositions recited in claim 16. Laurent at 1:65-2:10. For each element, the Laurent composition either exactly matches, falls fully within, or overlaps substantially with the composition of claim 5, thereby rendering obvious those compositions. Absent criticality (which has not been alleged or demonstrated here), “ranges which overlap or lie within ranges disclosed by the prior art” are obvious. <i>In re Wertheim</i> at 267. In addition, Nishibata describes: “In this example, steel sheets having the compositions shown in Table 1 (sheet thickness: 1.0 mm) were used as steel sheets to be worked.” Nishibata at [0047], Table 1 (below).	C	Mn	Si	Cr	Ti	B	0,25	1,4	0,35	0,3	0,05	0,005
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[7] The precoated steel product as recited in claim 1 wherein a ratio of titanium to nitrogen in the base steel in weight % is in excess of 3.42.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein a ratio of titanium to nitrogen in the base steel in weight % is in excess of 3.42. For example: “[Hot-dip aluminum-coated steel sheet to be tested] Composition of original sheet for coating: 0.22%C, 0.22% Si, 1.0% Mn, 0.015% P, 0.007% S. Sheet thickness: 1.4 mm. Si concentration in Aluminum coating: 5%. Thickness of aluminum coating layer: 10~20 μm.” Takagi at [0031]-[0035].																																																																																																

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	Further, Laurent describes: “Titanium, the ratio of the content of which with respect to the nitrogen content should be in excess of 3.42, is introduced in order to prevent combining of the boron with the nitrogen, the nitrogen being combined with titanium.” Laurent at 4:24-28.
Claim 8	
[8] The precoated steel product as recited in claim 2 wherein a ratio of titanium to nitrogen in the base steel in weight % is in excess of 3.42.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 2 wherein a ratio of titanium to nitrogen in the base steel in weight % is in excess of 3.42. For example: “[Hot-dip aluminum-coated steel sheet to be tested] Composition of original sheet for coating: 0.22%C, 0.22% Si, 1.0% Mn, 0.015% P, 0.007% S. Sheet thickness: 1.4 mm. Si concentration in Aluminum coating: 5%. Thickness of aluminum coating layer: 10~20 μm.” Takagi at [0031]-[0035]. Further, Laurent describes: “Titanium, the ratio of the content of which with respect to the nitrogen content should be in excess of 3.42, is introduced in order to prevent combining of the boron with the nitrogen, the nitrogen being combined with titanium.” Laurent at 4:24-28.
Claim 9	
[9] The precoated steel product as recited in claim 1 wherein the layer (a) has a thickness less than 15 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the layer (a) has a thickness less than 15 micrometers. For example:

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	“The mechanism of formation of the layered structure is not fully evident. Currently, the presumption by the inventors of the present invention is as follows: (1) The retention of a specimen at an elevated temperature causes the diffusion of Fe, and produce a concentration gradient in Fe and Si in the coating layer. (2) In this case, the coating alloy phase is urged to transform into a stable compound phase determined by the composition at each depth, so that there are formed different compound layers in different regions of depth. (3) Therefore, by controlling the raised temperature of the heating and the holding time at the raised temperature, the diffusion quantity of Fe is varied and the degree of transformation into a stable compound is varied.” Takagi at [0019] “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table border="1"> <tbody> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </tbody> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, the measurements indicate that the deepest layer of the Hein FIG. 4 coating (and, accordingly, the Inner layers of the modified Takagi coatings) has a thickness of 15 micrometers or less. To the extent any uncertainty in this measurement may permit arguments that the recited thicknesses are not explicitly disclosed, it would have been obvious to try varying the thickness of the layer to obtain a very-slightly thinner layer, thereby satisfying the recited thickness ranges.

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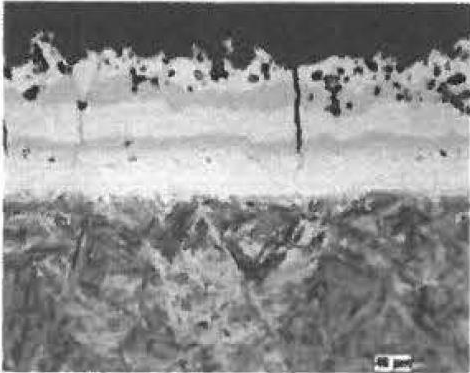
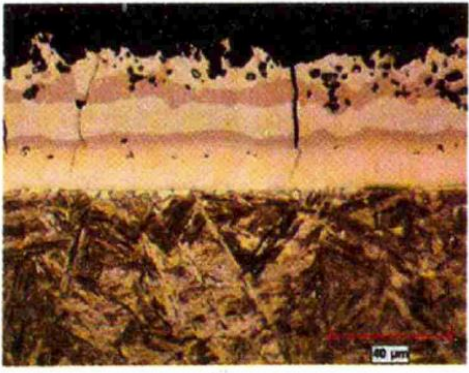
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
Claim 10	
[10] The precoated steel product as recited in claim 1 wherein the layer (a) has a thickness less than 10 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the layer (a) has a thickness less than 10 micrometers. For example: “The mechanism of formation of the layered structure is not fully evident. Currently, the presumption by the inventors of the present invention is as follows: (1) The retention of a specimen at an elevated

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	temperature causes the diffusion of Fe, and produce a concentration gradient in Fe and Si in the coating layer. (2) In this case, the coating alloy phase is urged to transform into a stable compound phase determined by the composition at each depth, so that there are formed different compound layers in different regions of depth. (3) Therefore, by controlling the raised temperature of the heating and the holding time at the raised temperature, the diffusion quantity of Fe is varied and the degree of transformation into a stable compound is varied." Takagi at [0019] "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3),	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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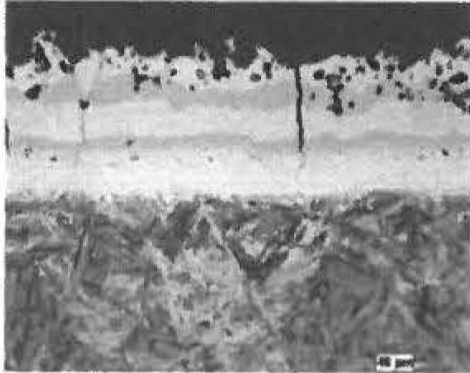
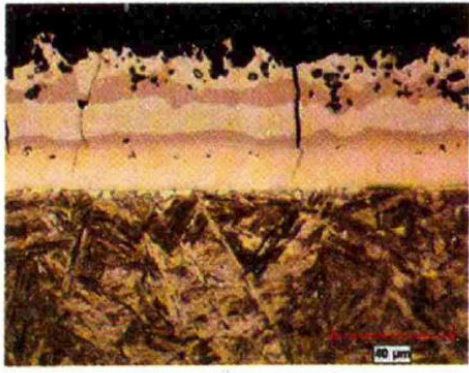
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	and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, the measurements indicate that the deepest layer of the Hein FIG. 4 coating (and, accordingly, the Inner layers of the modified Takagi coatings) has a thickness of or around 10 micrometers or less. To the extent any uncertainty in this measurement may permit arguments that the recited thicknesses are not explicitly disclosed, it would have been obvious to try varying the thickness of the layer to obtain a very-slightly thinner layer, thereby satisfying the recited thickness ranges.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping  Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung

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Claim 12	
[12] The precoated steel product as recited in claim 1 wherein the intermediate layer comprises the following components by weight based on total weight: 39 to 47% Fe, 53 to 61% Al, and 0 to 2% Si.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the intermediate layer comprises the following components by weight based on total weight: 39 to 47% Fe, 53 to 61% Al, and 0 to 2% Si. For example, as taught in Takagi Table 1, the Inter 2 layers of modified Takagi coating Nos. 1 and 4 have compositions of, or similar to, 50.1% Fe, 48.4% Al, 1.2% Si, and 46.8% Fe, 51.9% Al, 5.3% Si, respectively. These values are within the recited ranges except for No. 1 Al% (deviation of 4.6%), No. 1 Fe% (deviation of 3.1%), and No. 4 Al% (deviation of 1.1%). Despite slight deviations, it is well established that a claimed amount that does not overlap with, but is close to, a prior art amount, is obvious absent evidence of unexpected results or teaching-away. <i>See, e.g., Titanium Metals Corp. of America v. Banner</i>, 778 F.2d 775 (Fed. Cir. 1985) (prior art disclosing 0.25% Mo/0.75% Ni and 0.31% Mo/0.94% Ni was found to render obvious a claimed composition of 0.3% Mo/0.8% Ni because “[t]he proportions are so close that prima facie one skilled in the art would have expected them to have the same properties”); <i>Haynes Intern., Inc. v. Jessop Steel Co.</i>, 8 F.3d 1573 (Fed. Cir. 1993) (“when the difference between the claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in range or value is minor”); <i>In re Becket</i>, 88 F.2d 684 (C.C.P.A. 1937) (in relation to alloy steels, “[w]here the component elements of alloys are the same, and where they approach so closely the same range of quantities as is here the case, it seems that there ought to be some noticeable difference in the qualities of the respective alloys [to achieve patentability]”). Here, the ’602 Patent describes no criticality or unexpected results for a range of 53-61% Al compared to the very similar art value of 51.4% Al. For at least this reason, the disclosed composition of Engels’ phase 3 renders obvious the claimed composition of the Intermediate layer.

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Claim 18	
[18] The precoated steel product as recited in claim 1 wherein the interdiffusion layer has a thickness of from 1 micron to 15 microns.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the interdiffusion layer has a thickness of from 1 micron to 15 microns. For example: “The mechanism of formation of the layered structure is not fully evident. Currently, the presumption by the inventors of the present invention is as follows: (1) The retention of a specimen at an elevated temperature causes the diffusion of Fe, and produce a concentration gradient in Fe and Si in the coating layer. (2) In this case, the coating alloy phase is urged to transform into a stable compound phase determined by the composition at each depth, so that there are formed different compound layers in different regions of depth. (3) Therefore, by controlling the raised temperature of the heating and the holding time at the raised temperature, the diffusion quantity of Fe is varied and the degree of transformation into a stable compound is varied.” Takagi at [0019] “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability.

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	[0037] <Conditions of Heat treatment> <table border="1"> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability." Takagi at [0036]-[0038]. Further, the measurements indicate that the deepest layer of the Hein FIG. 4 coating (and, accordingly, the Inner layers of the modified Takagi coatings) has a thickness of from 1 micron to 15 microns. To the extent any uncertainty in this measurement may permit arguments that the recited thicknesses are not explicitly disclosed, it would have been obvious to try varying the thickness of the layer to obtain a very-slightly thinner layer, thereby satisfying the recited thickness ranges.	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
Claim 20	
[20] The precoated steel product as recited in claim 1 wherein the fourth mean iron composition is lower than the third mean iron composition.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the fourth mean iron composition is lower than the third mean iron composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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EXHIBIT B-07**Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References**

'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
Claim 21	
[21pre] A precoated steel product comprising:	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. To the extent the preamble of claim 1 is found to be limiting, Takagi and/or one or more prior art references disclose a precoated steel product comprising. For example: “The present invention relates to an aluminum-coated structural member and a production method thereof. More specifically, the present invention relates to an aluminum-coated structure member, such as a structural member used for motor vehicles, produced by applying heat treatment and forming operation to aluminum-coated steel sheet, and coated with an alloy layer of an Al—Si—Fe alloy for improvement in formability, weldability and corrosion resistance.” Takagi at [0001]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si).” Takagi at [0003]. “According to one aspect of the present invention, an aluminum-coated structural member comprises: a steel substrate layer; and an Al—Si—Fe alloy layer formed on a surface of the steel substrate layer, the alloy layer including a softer region having a hardness smaller than or equal to a hardness of the steel substrate layer, extending from the surface of the steel substrate layer toward a surface of the alloy layer, and having a thickness greater than or equal to 50% of a thickness of the alloy layer, the Al—Si—Fe alloy layer having an oxide weight smaller than or equal to 500 mg/dm².” Takagi at [0005]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel

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	sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016] “An aluminum-coated structural member having an Al—Si—Fe alloy layer on the surface as mentioned above can be obtained by the following process. First, a heat resisting hot-dip aluminum-coated steel sheet containing Si in a coating layer is heated at a rate of 1~10° C./sec to a temperature in the temperature range of 900~950° C., and held at that raised temperature for a holding time (or duration) of 2~8 minutes. In this case, the aluminum coating could melt locally when the hot-dip aluminum-coated steel sheet is heated at a heating rate faster than 10° C./sec to a temperature higher than 900° C. The coating layer could oxidize when the heating rate is slower than 1° C./sec. The

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	progress of austenitizing in the steel base material is too slow to obtain a sufficient strength as a structural member when the raised temperature at which the specimen is held is lower than 900° C. When the raised temperature is higher than 950° C., the undesired oxidation of the coating layer proceeds, and the diffusion of Fe proceeds too much up to the surface of the coating layer. When the time for holding at the raised temperature is shorter than 2 minutes, then the formation of Al—Si—Fe alloy layer becomes insufficient. When the time for holding at the raised temperature is longer than 8 minutes, the oxidation of coating layer proceeds, and undesired influence is exerted on the adhesiveness of the coating film by electro deposition. After the heat treatment for holding in the above-mentioned temperature range, the steel sheet is carried from a heating furnace to a forming press. During the transportation, cooling starts. In this case, the rate of cooling after the heat treatment is required to be 5~15° C./sec in order to perform the forming operation at a predetermined temperature and the rapid cooling from a predetermined temperature. When the cooling rate is slower than 5° C./sec, the oxidation of the coating layer becomes conspicuous. For cooling at a rate higher than 15° C./sec, the need arises for forced cooling. The forming operation into a desired shape is started in the temperature range of 700~800° C. After the forming operation, the shaped sheet is cooled rapidly from the temperature range of 700~800° C., to a temperature lower than or equal to 300° C. at a rate in the range of 20~100° C./sec. By this rapid cooling, the steel base material is cooled while preserving the Al—Si—Fe alloy layer formed by the heat treatment, and an aluminum-coated structural member of a desired shape is obtained. The above-mentioned conditions of the heat treatment are adequate also for quench hardening of the steel base material, and hence effective for enhance the strength of the material. To start the forming operation at a temperature higher than 800° C. is not desirable because reheating is required and oxidation of coating is promoted. When the forming operation is started at a temperature lower than 700° C., the quenching temperature is too low for martensitic transformation. When the cooling rate after the forming operation is slower than 20° C./sec, the transformation to martensite is insufficient, and the diffusion of Fe proceeds too much. When the cooling rate after the forming operation is faster than 100° C./sec, the cost for facility is increased significantly for the need for improving a cooling system in production equipment. The rapid cooling to a temperature lower than or equal to 300° C. is effective

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	for preventing ferrite phase from being left over, and promoting martensitic transformation sufficiently." Takagi at [0026]-[0028] "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability." Takagi at [0036]-[0038].	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td></td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td></td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td></td><td></td><td></td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td></td><td></td><td></td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td></td><td></td><td></td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td></td><td></td><td></td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td></td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td></td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6		54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9		44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4				11.6	400	305	385	78	550	○	×	×	Si	1.3				1.8	Fe	88.4				85.7	Hv	305				410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4		54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4		38.4	Hv	300	740	700	—	810
No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY					CORROSION RESISTANCE	WELDABILITY																																																																																																																																																																																								
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[21a] a strip of base steel having a first side and a second side; and	In addition, Hein shows a “[s]tructure of the alloyed layer Al-Fe-Si after hot-stamping.” Hein at 165, FIG. 4. The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with.																																																																																																																																																																																																											

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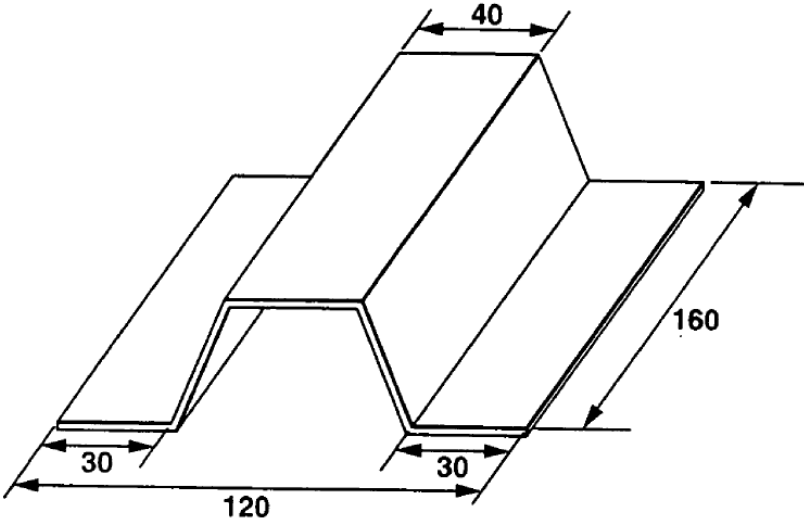
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	Takagi and/or one or more prior art references disclose a strip of base steel having a first side and a second side. For example: “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability.” Takagi at [0036]. FIG.1 

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’602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
[21b] a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-coating, and wherein the coating includes, proceeding from the base steel outwards:	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-coating, and wherein the coating includes, proceeding from the base steel outwards. For example: “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as

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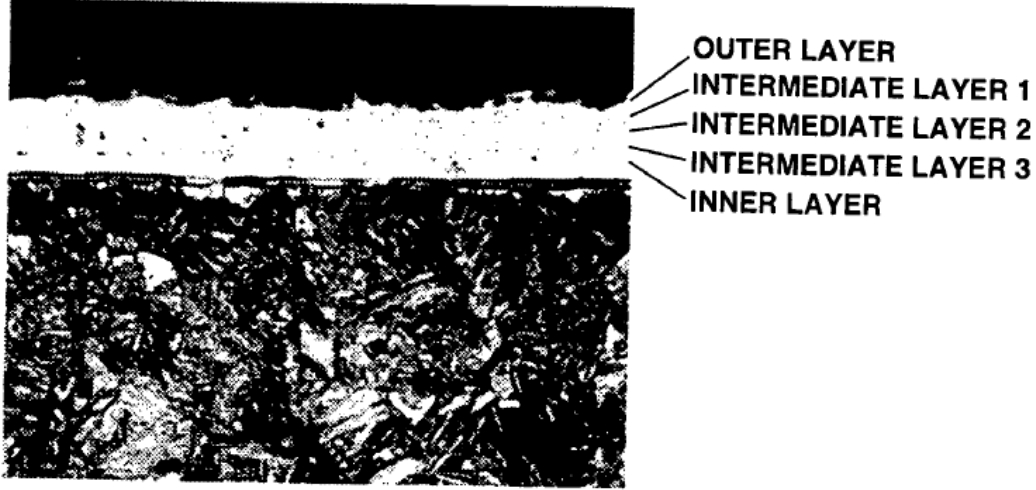
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016] FIG.2A  “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References

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	column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038]. FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.																																																																																																																																																																																																											

EXHIBIT B-07

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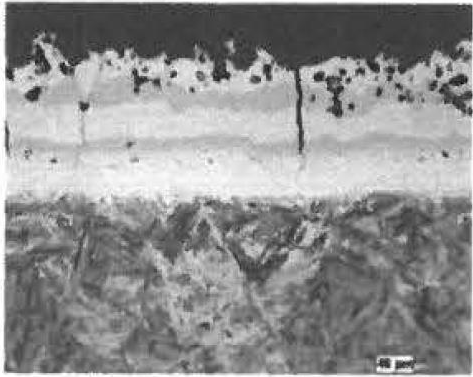
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	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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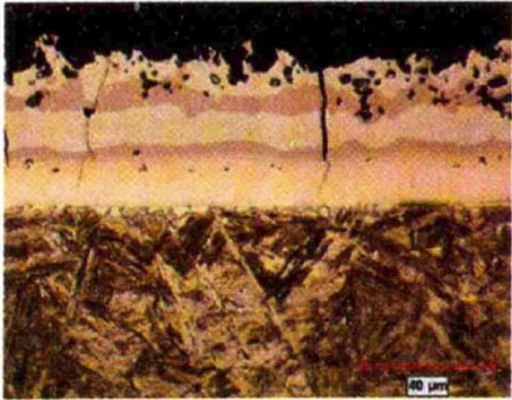
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	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[21c] (a) an interdiffusion layer having a first mean iron composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (a) an interdiffusion layer having a first mean iron composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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	column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].																																																																																																																																																																																																											
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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

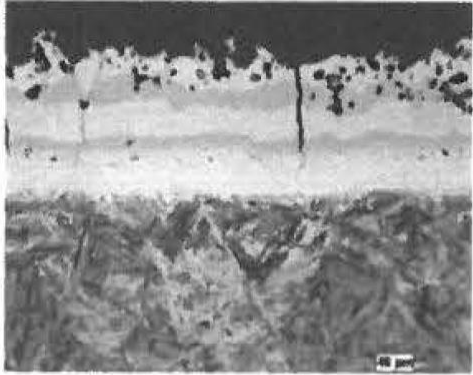
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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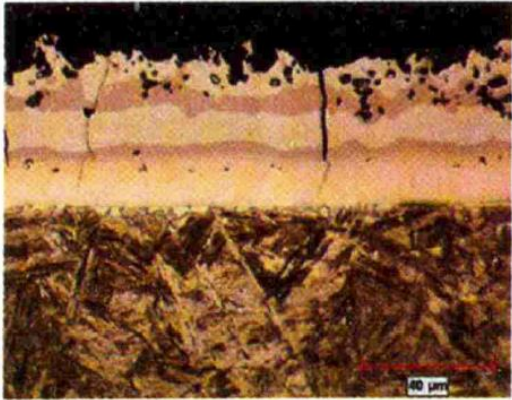
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[21d] (b) an intermediate layer having a second mean iron composition different from the first mean iron composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (b) an intermediate layer having a second mean iron composition different from the first mean iron composition. For example:

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	“[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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	FIG.4																
	TABLE 1																
	PRODUCTION			COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY
No.	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST		AVERAGE	SOFTER RANGE (%)					
1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	
			Si	2.0	3.9	1.2	5.7	0.8									
			Fe	89.6	65.9	50.1	62.0	44.5									
			Hv	310	360	750	700	800									
2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	
			Si	4.1	1.2	5.7	—	0.8									
			Fe	67.2	50.1	61.9	—	44.1									
			Hv	380	760	720	—	810									
3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	
			Si	1.3	—	—	—	1.8									
			Fe	88.4	—	—	—	85.7									
			Hv	305	—	—	—	410									
4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	
			Si	1.5	4.3	0.6	5.3	2.2									
			Fe	90.7	66.7	46.8	63.1	49.8									
			Hv	280	340	720	690	800									
5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	
			Si	0.4	2.5	15.3	—	6.8									
			Fe	94.3	42.7	51.4	—	38.4									
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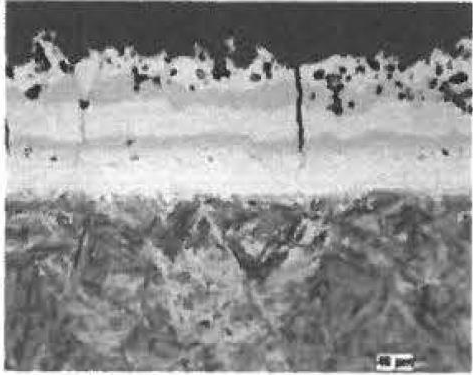
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	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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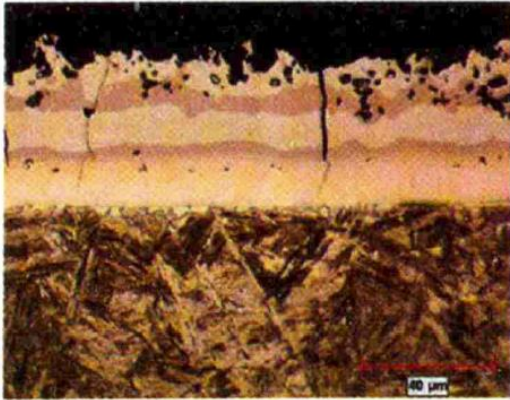
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[21e] (c) an intermetallic layer having a third mean iron composition different from the first and second mean iron compositions, the third mean iron concentration being higher than the second mean iron composition, and	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (c) an intermetallic layer having a third mean iron composition different from the first and second mean iron compositions, the third mean iron concentration being higher than the second mean iron composition. For example:

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	<table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>															No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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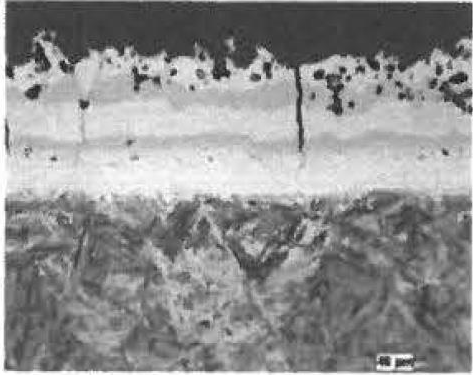
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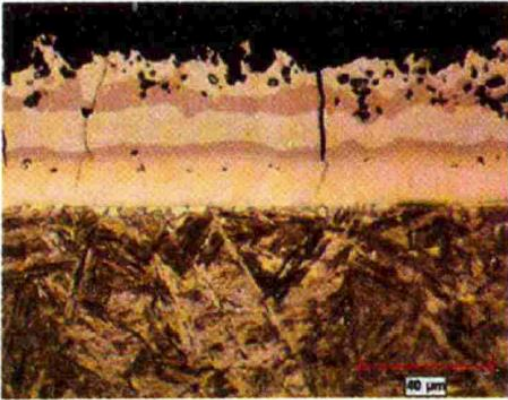
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[21f] (d) a superficial layer having a fourth mean iron composition different from the first, second and third mean iron compositions,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (d) a superficial layer having a fourth mean iron composition different from the first, second and third mean iron compositions. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY					CORROSION RESISTANCE	WELDABILITY																																																																																																																																																																																								
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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

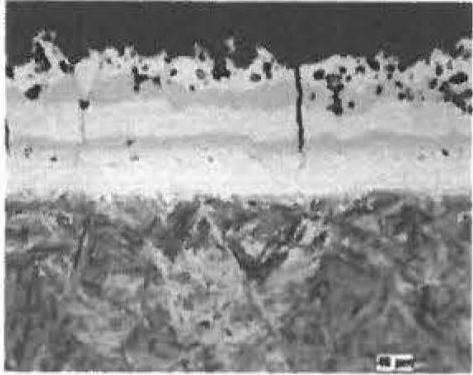
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi’s coatings.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

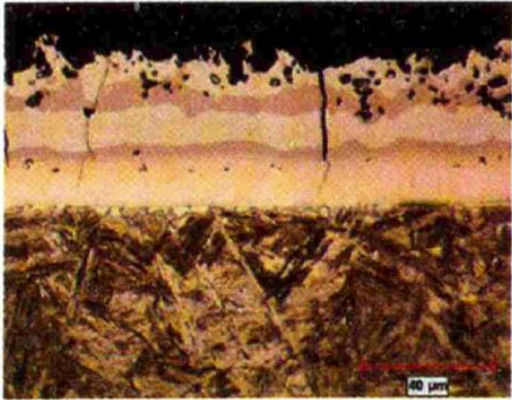
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[21g] wherein the coating has a thickness greater than 30 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose] wherein the coating has a thickness greater than 30 micrometers. For example: “” Takagi at [XXX].

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'602 Patent	U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References																
Claim 22																	
[22] The precoated steel product as recited in claim 21 wherein the fourth mean iron composition is lower than the third mean iron composition.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant's infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 21 wherein the fourth mean iron composition is lower than the third mean iron composition. For example: "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td> <td>8° C./sec</td> </tr> <tr> <td>Heating temperature:</td> <td>900~950° C.</td> </tr> <tr> <td>Holding time:</td> <td>2~10 min</td> </tr> <tr> <td>Rate of Primary cooling:</td> <td>7° C./sec</td> </tr> <tr> <td>Temperature at a start of forming:</td> <td>720° C.</td> </tr> <tr> <td>Temperature at a start of rapid cooling:</td> <td>720° C.</td> </tr> <tr> <td>Rate of Secondary cooling (quenching):</td> <td>30° C./sec</td> </tr> <tr> <td>Temperature at an end of cooling:</td> <td>100°</td> </tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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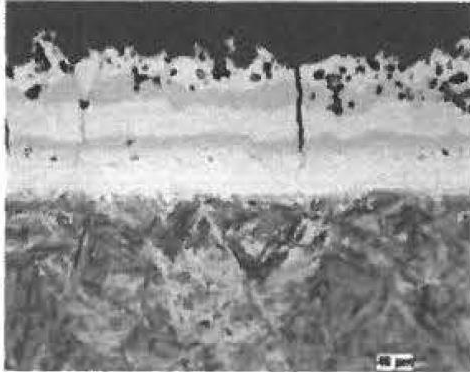
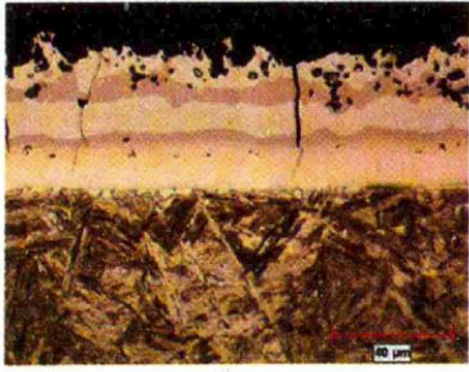
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, measurements indicate that the Hein FIG. 4 coating has a thickness greater than 30 micrometers.  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping  Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung

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	Further, GMW14400 requires that the Al-Si pre-coating (“[p]rior to hot-stamping”) have a thickness of “20 to 33” μm , and that the coating thickness “[f]ollowing hot-stamping” be “>35” μm . GMW14400 at 7.
Claim 24	
[24pre] A precoated steel product comprising:	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. To the extent the preamble of claim 1 is found to be limiting, Takagi and/or one or more prior art references disclose a precoated steel product. For example: “The present invention relates to an aluminum-coated structural member and a production method thereof. More specifically, the present invention relates to an aluminum-coated structure member, such as a structural member used for motor vehicles, produced by applying heat treatment and forming operation to aluminum-coated steel sheet, and coated with an alloy layer of an Al—Si—Fe alloy for improvement in formability, weldability and corrosion resistance.” Takagi at [0001]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si).” Takagi at [0003]. “According to one aspect of the present invention, an aluminum-coated structural member comprises: a steel substrate layer; and an Al—Si—Fe alloy layer formed on a surface of the steel substrate layer, the alloy layer including a softer region having a hardness smaller than or equal to a hardness of the steel substrate layer, extending from the surface of the steel substrate layer toward a surface of the alloy

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	layer, and having a thickness greater than or equal to 50% of a thickness of the alloy layer, the Al—Si—Fe alloy layer having an oxide weight smaller than or equal to 500 mg/dm².” Takagi at [0005]. “In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016] “An aluminum-coated structural member having an Al—Si—Fe alloy layer on the surface as mentioned above can be obtained by the following process. First, a heat resisting hot-dip aluminum-

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	coated steel sheet containing Si in a coating layer is heated at a rate of 1~10° C./sec to a temperature in the temperature range of 900~950° C., and held at that raised temperature for a holding time (or duration) of 2~8 minutes. In this case, the aluminum coating could melt locally when the hot-dip aluminum-coated steel sheet is heated at a heating rate faster than 10° C./sec to a temperature higher than 900° C. The coating layer could oxidize when the heating rate is slower than 1° C./sec. The progress of austenitizing in the steel base material is too slow to obtain a sufficient strength as a structural member when the raised temperature at which the specimen is held is lower than 900° C. When the raised temperature is higher than 950° C., the undesired oxidation of the coating layer proceeds, and the diffusion of Fe proceeds too much up to the surface of the coating layer. When the time for holding at the raised temperature is shorter than 2 minutes, then the formation of Al—Si—Fe alloy layer becomes insufficient. When the time for holding at the raised temperature is longer than 8 minutes, the oxidation of coating layer proceeds, and undesired influence is exerted on the adhesiveness of the coating film by electro deposition. After the heat treatment for holding in the above-mentioned temperature range, the steel sheet is carried from a heating furnace to a forming press. During the transportation, cooling starts. In this case, the rate of cooling after the heat treatment is required to be 5~15° C./sec in order to perform the forming operation at a predetermined temperature and the rapid cooling from a predetermined temperature. When the cooling rate is slower than 5° C./sec, the oxidation of the coating layer becomes conspicuous. For cooling at a rate higher than 15° C./sec, the need arises for forced cooling. The forming operation into a desired shape is started in the temperature range of 700~800° C. After the forming operation, the shaped sheet is cooled rapidly from the temperature range of 700~800° C., to a temperature lower than or equal to 300° C. at a rate in the range of 20~100° C./sec. By this rapid cooling, the steel base material is cooled while preserving the Al—Si—Fe alloy layer formed by the heat treatment, and an aluminum-coated structural member of a desired shape is obtained. The above-mentioned conditions of the heat treatment are adequate also for quench hardening of the steel base material, and hence effective for enhance the strength of the material. To start the forming operation at a temperature higher than 800° C. is not desirable because reheating is required and oxidation of coating is promoted. When the forming operation is started at a temperature lower than 700° C., the

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Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References

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	quenching temperature is too low for martensitic transformation. When the cooling rate after the forming operation is slower than 20° C./sec, the transformation to martensite is insufficient, and the diffusion of Fe proceeds too much. When the cooling rate after the forming operation is faster than 100° C./sec, the cost for facility is increased significantly for the need for improving a cooling system in production equipment. The rapid cooling to a temperature lower than or equal to 300° C. is effective for preventing ferrite phase from being left over, and promoting martensitic transformation sufficiently." Takagi at [0026]-[0028] "[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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	In addition, Hein shows a “[s]tructure of the alloyed layer Al-Fe-Si after hot-stamping.” Hein at 165, FIG. 4.																																																																																																																																																																																																											

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[24a] a strip of base steel having a first side and a second side; and	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose a strip of base steel having a first side and a second side. For example: “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability.” Takagi at [0036].

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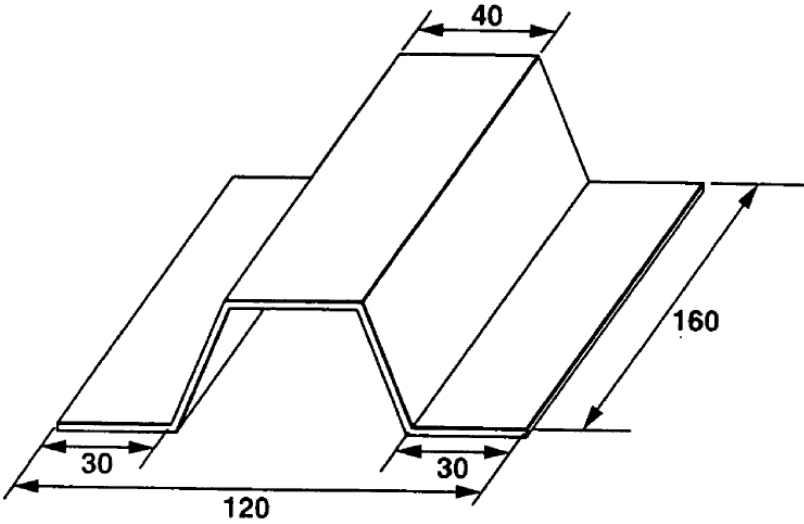
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	FIG.1 
[24b] a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant's infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose a coating on at least one of the first side of the strip of base steel and the second side of the strip of base steel, wherein the coating results from interdiffusion between the base steel, and an aluminum or aluminum alloy pre-coating, and wherein the coating includes, proceeding from the base steel outwards. For example:

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coating, and wherein the coating includes, proceeding from the base steel outwards:	“In general, a hot-dip aluminum-coated steel sheet is formed by immersing a strip continuously in a bath of molten aluminum. According to the coating metal component, hot-dip aluminum-coated steel sheets are classified broadly into two categories. One employs, as coating metal, pure aluminum (for weather resistance), and the other employs Al—Si alloy (for heat resistance) containing Si in addition to Al. An embodiment according to the present invention employs heat resisting coated steel sheet containing an additive of Si (approximately 3~11% Si). The addition of Si to the coating layer is for restraining the growth of a hard Al—Fe alloy layer in a boundary between the steel and coating during the process of aluminizing, and thereby for improving the adhesion and corrosion resistance of the Al coating layer. In such a hot-dip aluminum-coated steel sheet, there is formed an Al—Si—Fe alloy layer in the boundary between the Al coating and the steel substrate layer. When a hot-dip aluminum-coated steel sheet of such a type is subjected to heat treatment under certain conditions, the Al—Si—Fe layer can grow and spread entirely until the surface is reached. FIG. 2A shows a sectional structure in one example of an aluminum-coated steel sheet including such an Al—Si—Fe layer grown to the surface by the heat treatment. During the growth of the Al—Si—Fe alloy layer by the heat treatment, mutual diffusion between Al coating and steel substrate layer produces various Al—Si—Fe ternary intermetallic compounds such as αFeAlSi phase (alpha FeAlSi), βFeAlSi phase (beta FeAlSi) and γFeAlSi phase (gamma FeAlSi). The Al—Si—Fe alloy layer formed by the heat treatment has a layered structure made up of these intermetallic compounds, and offers advantages of formability, corrosion resistance and weldability.” Takagi at [0013]-[0016]

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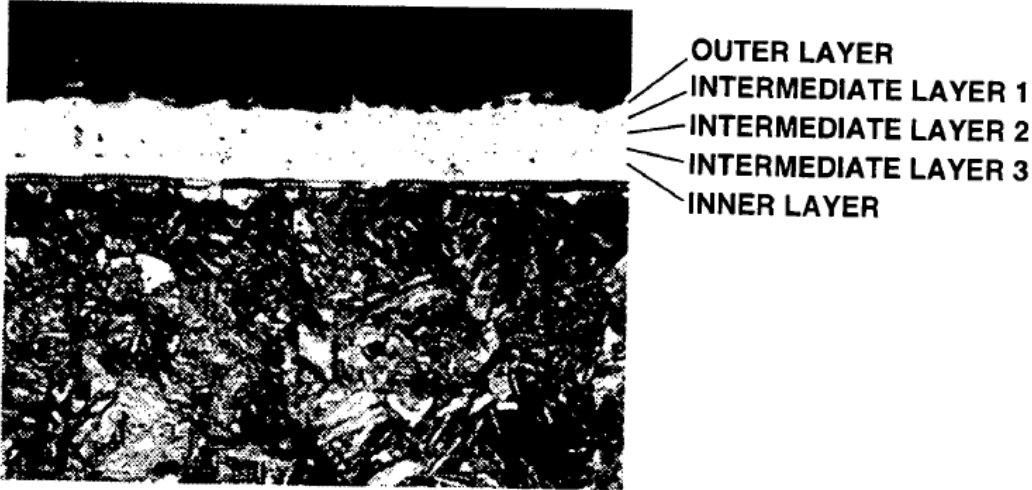
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	FIG.2A  “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td></td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td></td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td></td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td></td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td></td><td></td><td></td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td></td><td></td><td></td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td></td><td></td><td></td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td></td><td></td><td></td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td></td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td></td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td></td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td></td><td>810</td></tr></table>	No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6		54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7		0.8	Fe	67.2	50.1	61.9		44.1	Hv	380	760	720		810	3	930	10	Al	9.4				11.6	400	305	385	78	550	○	×	×	Si	1.3				1.8	Fe	88.4				85.7	Hv	305				410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4		54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3		6.8	Fe	94.3	42.7	51.4		38.4	Hv	300	740	700		810
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	In addition, Hein FIG. 4 shows an example of such a coating which corresponds to Takagi's coatings.																																																																																																																																																																																																											

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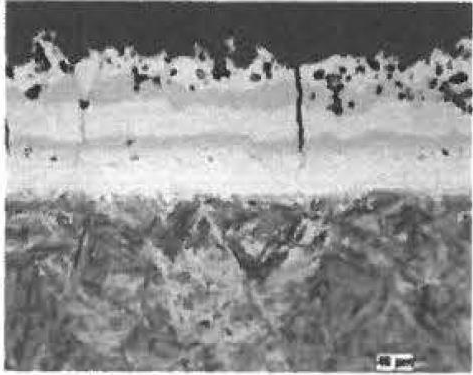
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	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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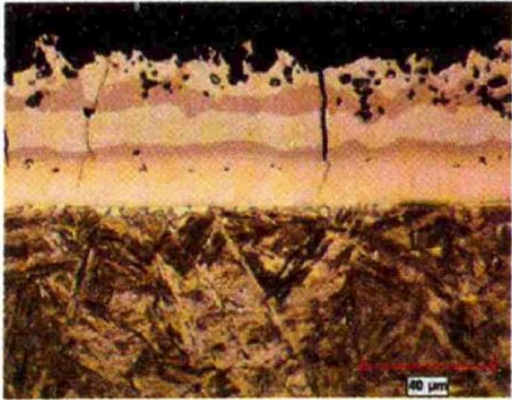
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	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[24c] (a) an interdiffusion layer having a first mean aluminum composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (a) an interdiffusion layer having a first mean aluminum composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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	column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].																																																																																																																																																																																																											
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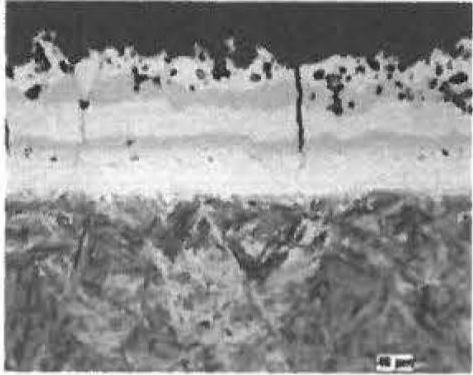
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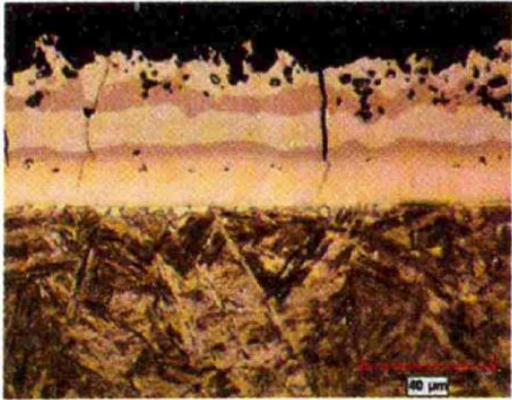
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[24d] (b) an intermediate layer having a second mean aluminum composition different from the first mean aluminum composition,	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (b) an intermediate layer having a second mean aluminum composition different from the first mean aluminum composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a

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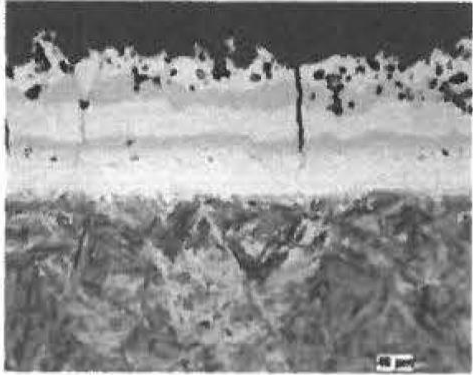
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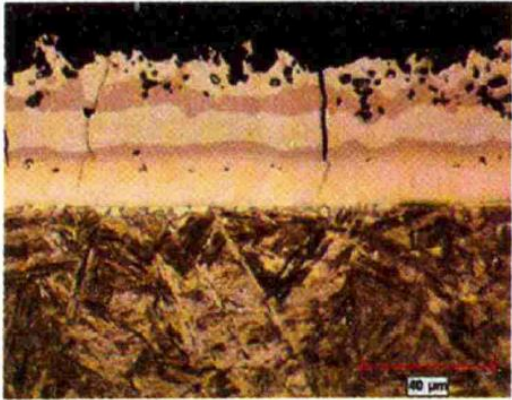
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[24e] (c) an intermetallic layer having a third mean aluminum composition different from the first and second mean aluminum compositions, and	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (c) an intermetallic layer having a third mean aluminum composition different from the first and second mean aluminum compositions. For example:

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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

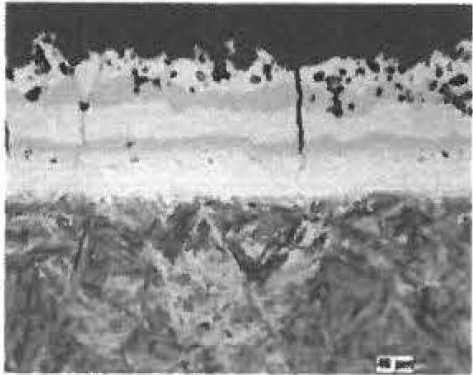
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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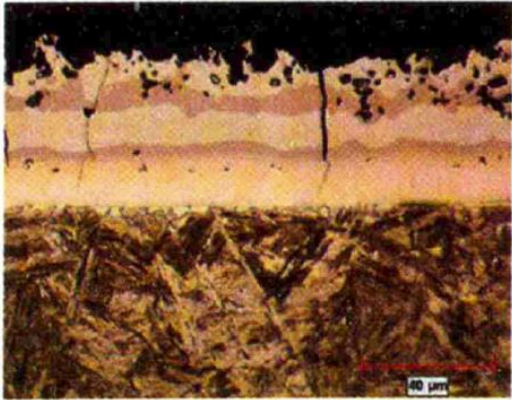
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[24f] (d) a superficial layer having a fourth mean aluminum composition different from the first, second and third mean aluminum compositions, the second mean aluminum composition being greater	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose (d) a superficial layer having a fourth mean aluminum composition different from the first, second and third mean aluminum compositions, the second mean aluminum composition being greater than the third mean aluminum composition. For example:

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than the third mean aluminum composition;	“[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm ²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References

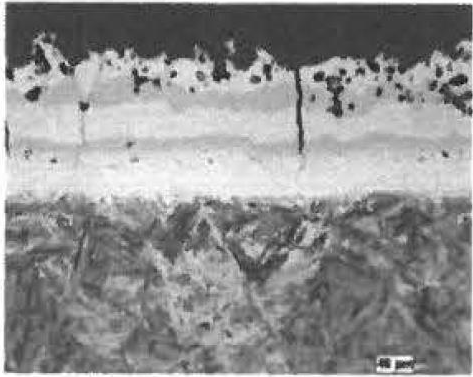
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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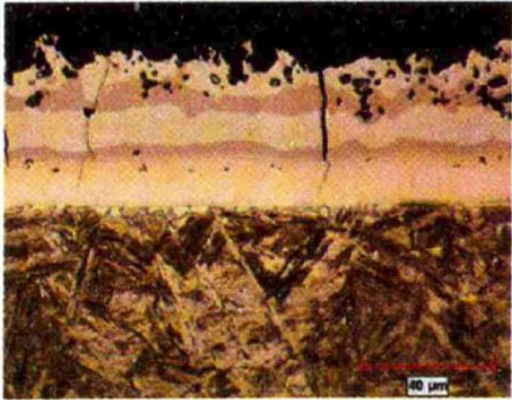
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
[24g] wherein the coating has a thickness greater than 30 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose wherein the coating has a thickness greater than 30 micrometers. For example: “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and

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'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References																
	formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, measurements indicate that the Hein FIG. 4 coating has a thickness greater than 30 micrometers.	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung Further, GMW14400 requires that the Al-Si pre-coating (“[p]rior to hot-stamping”) have a thickness of “20 to 33” μm, and that the coating thickness “[f]ollowing hot-stamping” be “>35” μm. GMW14400 at 7.
Claim 25	
[25] The precoated steel product as recited in claim 24 wherein the fourth mean aluminum composition is less than the second mean aluminum composition.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with.

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	Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 24 wherein the fourth mean aluminum composition is less than the second mean aluminum composition. For example: “[Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0038].

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	FIG.4 TABLE 1 <table><tr><th rowspan="2">No.</th><th colspan="2">PRODUCTION</th><th colspan="6">COATING LAYER STRUCTURE & COMPOSITION (%)</th><th rowspan="2">STEEL BASE HARDNESS (Hv)</th><th colspan="3">COATING LAYER HARDNESS (Hv)</th><th rowspan="2">OXIDE WEIGHT (mg/dm²)</th><th rowspan="2">FORMABILITY</th><th rowspan="2">CORROSION RESISTANCE</th><th rowspan="2">WELDABILITY</th></tr><tr><th>RAISED TEMPERATURE (°C)</th><th>HOLD TIME (min.)</th><th>COMPONENT & HARDNESS</th><th>INNER</th><th>INTER 1</th><th>INTER 2</th><th>INTER 3</th><th>OUTER</th><th>SOFTTEST</th><th>AVERAGE</th><th>SOFTER RANGE (%)</th></tr><tr><td rowspan="4">1</td><td rowspan="4">920</td><td rowspan="4">3</td><td>Al</td><td>7.7</td><td>31.0</td><td>48.4</td><td>31.6</td><td>54.8</td><td rowspan="4">450</td><td rowspan="4">310</td><td rowspan="4">415</td><td rowspan="4">51</td><td rowspan="4">300</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>2.0</td><td>3.9</td><td>1.2</td><td>5.7</td><td>0.8</td></tr><tr><td>Fe</td><td>89.6</td><td>65.9</td><td>50.1</td><td>62.0</td><td>44.5</td></tr><tr><td>Hv</td><td>310</td><td>360</td><td>750</td><td>700</td><td>800</td></tr><tr><td rowspan="4">2</td><td rowspan="4">900</td><td rowspan="4">2</td><td>Al</td><td>27.2</td><td>48.4</td><td>31.6</td><td>—</td><td>54.9</td><td rowspan="4">415</td><td rowspan="4">380</td><td rowspan="4">455</td><td rowspan="4">22</td><td rowspan="4">275</td><td rowspan="4">×</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>4.1</td><td>1.2</td><td>5.7</td><td>—</td><td>0.8</td></tr><tr><td>Fe</td><td>67.2</td><td>50.1</td><td>61.9</td><td>—</td><td>44.1</td></tr><tr><td>Hv</td><td>380</td><td>760</td><td>720</td><td>—</td><td>810</td></tr><tr><td rowspan="4">3</td><td rowspan="4">930</td><td rowspan="4">10</td><td>Al</td><td>9.4</td><td>—</td><td>—</td><td>—</td><td>11.6</td><td rowspan="4">400</td><td rowspan="4">305</td><td rowspan="4">385</td><td rowspan="4">78</td><td rowspan="4">550</td><td rowspan="4">○</td><td rowspan="4">×</td><td rowspan="4">×</td></tr><tr><td>Si</td><td>1.3</td><td>—</td><td>—</td><td>—</td><td>1.8</td></tr><tr><td>Fe</td><td>88.4</td><td>—</td><td>—</td><td>—</td><td>85.7</td></tr><tr><td>Hv</td><td>305</td><td>—</td><td>—</td><td>—</td><td>410</td></tr><tr><td rowspan="4">4</td><td rowspan="4">950</td><td rowspan="4">5</td><td>Al</td><td>6.0</td><td>27.8</td><td>51.9</td><td>30.4</td><td>47.4</td><td rowspan="4">440</td><td rowspan="4">280</td><td rowspan="4">400</td><td rowspan="4">59</td><td rowspan="4">385</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>1.5</td><td>4.3</td><td>0.6</td><td>5.3</td><td>2.2</td></tr><tr><td>Fe</td><td>90.7</td><td>66.7</td><td>46.8</td><td>63.1</td><td>49.8</td></tr><tr><td>Hv</td><td>280</td><td>340</td><td>720</td><td>690</td><td>800</td></tr><tr><td rowspan="4">5</td><td rowspan="4">900</td><td rowspan="4">4</td><td>Al</td><td>3.2</td><td>54.5</td><td>33.4</td><td>—</td><td>54.5</td><td rowspan="4">440</td><td rowspan="4">300</td><td rowspan="4">410</td><td rowspan="4">56</td><td rowspan="4">335</td><td rowspan="4">○</td><td rowspan="4">○</td><td rowspan="4">○</td></tr><tr><td>Si</td><td>0.4</td><td>2.5</td><td>15.3</td><td>—</td><td>6.8</td></tr><tr><td>Fe</td><td>94.3</td><td>42.7</td><td>51.4</td><td>—</td><td>38.4</td></tr><tr><td>Hv</td><td>300</td><td>740</td><td>700</td><td>—</td><td>810</td></tr></table>															No.	PRODUCTION		COATING LAYER STRUCTURE & COMPOSITION (%)						STEEL BASE HARDNESS (Hv)	COATING LAYER HARDNESS (Hv)			OXIDE WEIGHT (mg/dm ²)	FORMABILITY	CORROSION RESISTANCE	WELDABILITY	RAISED TEMPERATURE (°C)	HOLD TIME (min.)	COMPONENT & HARDNESS	INNER	INTER 1	INTER 2	INTER 3	OUTER	SOFTTEST	AVERAGE	SOFTER RANGE (%)	1	920	3	Al	7.7	31.0	48.4	31.6	54.8	450	310	415	51	300	○	○	○	Si	2.0	3.9	1.2	5.7	0.8	Fe	89.6	65.9	50.1	62.0	44.5	Hv	310	360	750	700	800	2	900	2	Al	27.2	48.4	31.6	—	54.9	415	380	455	22	275	×	○	○	Si	4.1	1.2	5.7	—	0.8	Fe	67.2	50.1	61.9	—	44.1	Hv	380	760	720	—	810	3	930	10	Al	9.4	—	—	—	11.6	400	305	385	78	550	○	×	×	Si	1.3	—	—	—	1.8	Fe	88.4	—	—	—	85.7	Hv	305	—	—	—	410	4	950	5	Al	6.0	27.8	51.9	30.4	47.4	440	280	400	59	385	○	○	○	Si	1.5	4.3	0.6	5.3	2.2	Fe	90.7	66.7	46.8	63.1	49.8	Hv	280	340	720	690	800	5	900	4	Al	3.2	54.5	33.4	—	54.5	440	300	410	56	335	○	○	○	Si	0.4	2.5	15.3	—	6.8	Fe	94.3	42.7	51.4	—	38.4	Hv	300	740	700	—	810
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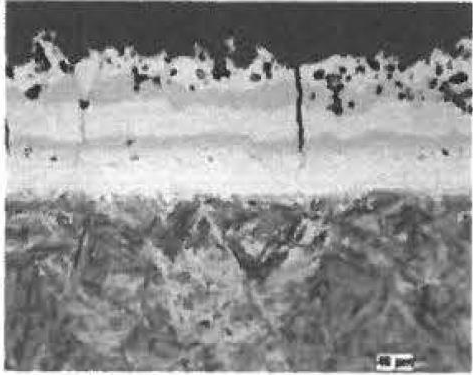
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	 Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Notably, Hein et al., “Pressharten von USIBOR 1500 P: Simulationsbasierte Bauteil- und Prozessanalyse” (2006), which is a German version of Hein, provides a higher-resolution color version of Figures 3-5.

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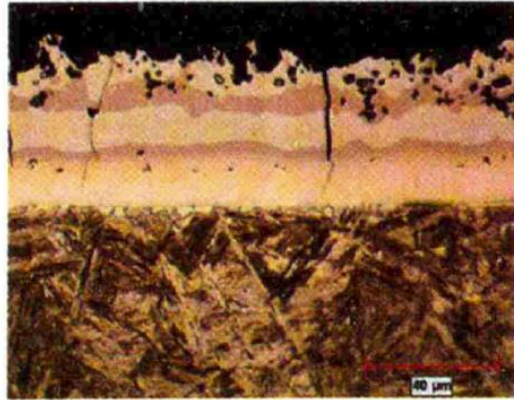
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 (“Takagi”) alone and/or in view of One or More Prior Art References
	 Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
Claim 26	
[26] The precoated steel product as recited in claim 24 wherein the layer (a) has a thickness less than 15 micrometers.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant’s infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 24 wherein the layer (a) has a thickness less than 15 micrometers. For example:

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	“The mechanism of formation of the layered structure is not fully evident. Currently, the presumption by the inventors of the present invention is as follows: (1) The retention of a specimen at an elevated temperature causes the diffusion of Fe, and produce a concentration gradient in Fe and Si in the coating layer. (2) In this case, the coating alloy phase is urged to transform into a stable compound phase determined by the composition at each depth, so that there are formed different compound layers in different regions of depth. (3) Therefore, by controlling the raised temperature of the heating and the holding time at the raised temperature, the diffusion quantity of Fe is varied and the degree of transformation into a stable compound is varied.” Takagi at [0019] “[Test Procedure] From the above-mentioned hot-dip aluminum-coated steel sheet, a flat plate having a width of 160 mm, and a length of 160 mm was cut out, heat-treated under the following conditions and formed into a shape shown in FIG. 1. Then, investigation was conducted on the composition of the alloy coating layer, hardness, formability, corrosion resistance and weldability. [0037] <Conditions of Heat treatment> <table> <tr> <td>Heating rate:</td><td>8° C./sec</td></tr> <tr> <td>Heating temperature:</td><td>900~950° C.</td></tr> <tr> <td>Holding time:</td><td>2~10 min</td></tr> <tr> <td>Rate of Primary cooling:</td><td>7° C./sec</td></tr> <tr> <td>Temperature at a start of forming:</td><td>720° C.</td></tr> <tr> <td>Temperature at a start of rapid cooling:</td><td>720° C.</td></tr> <tr> <td>Rate of Secondary cooling (quenching):</td><td>30° C./sec</td></tr> <tr> <td>Temperature at an end of cooling:</td><td>100°</td></tr> </table> [Results of Testing] Table 1 shows the results of the test. In all the cases in Table 1, a softest layer in a coating is a layer contiguous with a steel substrate layer of steel base material. Table 1 includes a column of production conditions, divided into a column of raised temperature and a column of hold time; a column of coating layer structure and composition (%), divided into a column of component	Heating rate:	8° C./sec	Heating temperature:	900~950° C.	Holding time:	2~10 min	Rate of Primary cooling:	7° C./sec	Temperature at a start of forming:	720° C.	Temperature at a start of rapid cooling:	720° C.	Rate of Secondary cooling (quenching):	30° C./sec	Temperature at an end of cooling:	100°
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	and hardness, a column of inner layer (INNER), a column of first intermediate layer (INTER1), a column of a second intermediate layer (INTER2), a column of a third intermediate layer (INTER3), and a column of outer layer (OUTER); a column of hardness of steel base material (Hv); a column of hardness of coating layer (Hv), divided into a column of softest layer, a column of average, and a column of a range (%) softer than the base material; a column of oxide weight (mg/dm²); a column of formability; a column of corrosion resistance; and a column of weldability.” Takagi at [0036]-[0038]. Further, the measurements indicate that the deepest layer of the Hein FIG. 4 coating (and, accordingly, the Inner layers of the modified Takagi coatings) has a thickness of 15 micrometers or less. To the extent any uncertainty in this measurement may permit arguments that the recited thicknesses are not explicitly disclosed, it would have been obvious to try varying the thickness of the layer to obtain a very-slightly thinner layer, thereby satisfying the recited thickness ranges.

EXHIBIT B-07

Invalidity of U.S. Patent Nos. 10,961,602 in View of U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References

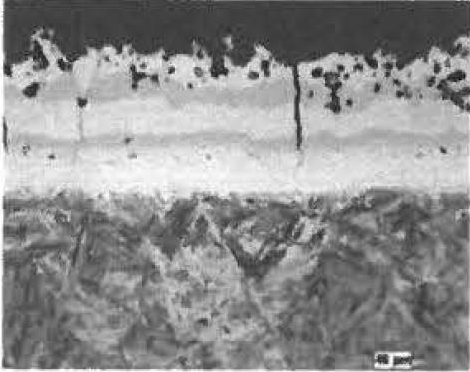
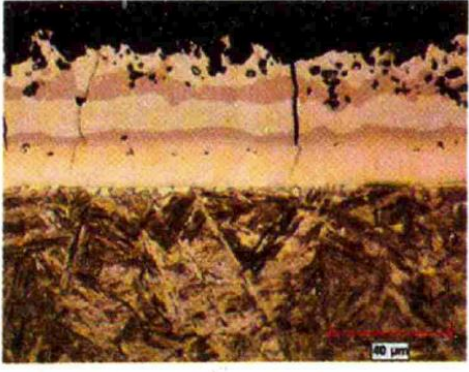
'602 Patent	U.S. Patent Application Publication No. 2004/0009366 ("Takagi") alone and/or in view of One or More Prior Art References
	  Figure 4. Structure of the alloyed layer Al-Fe-Si after hot-stamping Abb. 4: Struktur der legierten Al-Fe-Si-Schicht nach der Warmumformung
Claim 28	
[28] The precoated steel product as recited in claim 24 wherein the intermediate layer comprises the following components by weight based on total weight: 39 to 47% Fe, 53 to 61% Al, and 0 to 2% Si.	The ALJ has not yet construed the claims and therefore the meaning of the terms in the claims has yet to be resolved by the ALJ. The support identified here for this limitation is responsive to Complainant's infringement contentions, which Respondents disagree with. Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 24 wherein the intermediate layer comprises the following components by weight based on total weight: 39 to 47% Fe, 53 to 61% Al, and 0 to 2% Si. For example:

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	Takagi and/or one or more prior art references disclose the precoated steel product as recited in claim 1 wherein the intermediate layer comprises the following components by weight based on total weight: 39 to 47% Fe, 53 to 61% Al, and 0 to 2% Si. For example, as taught in Takagi Table 1, the Inter 2 layers of modified Takagi coating Nos. 1 and 4 have compositions of, or similar to, 50.1% Fe, 48.4% Al, 1.2% Si, and 46.8% Fe, 51.9% Al, 5.3% Si, respectively. These values are within the recited ranges except for No. 1 Al% (deviation of 4.6%), No. 1 Fe% (deviation of 3.1%), and No. 4 Al% (deviation of 1.1%). Despite slight deviations, it is well established that a claimed amount that does not overlap with, but is close to, a prior art amount, is obvious absent evidence of unexpected results or teaching-away. <i>See, e.g., Titanium Metals Corp. of America v. Banner</i>, 778 F.2d 775 (Fed. Cir. 1985) (prior art disclosing 0.25% Mo/0.75% Ni and 0.31% Mo/0.94% Ni was found to render obvious a claimed composition of 0.3% Mo/0.8% Ni because “[t]he proportions are so close that prima facie one skilled in the art would have expected them to have the same properties”); <i>Haynes Intern., Inc. v. Jessop Steel Co.</i>, 8 F.3d 1573 (Fed. Cir. 1993) (“when the difference between the claimed invention and the prior art is the range or value of a particular variable, then a prima facie rejection is properly established when the difference in range or value is minor”); <i>In re Becket</i>, 88 F.2d 684 (C.C.P.A. 1937) (in relation to alloy steels, “[w]here the component elements of alloys are the same, and where they approach so closely the same range of quantities as is here the case, it seems that there ought to be some noticeable difference in the qualities of the respective alloys [to achieve patentability]”). Here, the '602 Patent describes no criticality or unexpected results for a range of 53-61% Al compared to the very similar art value of 51.4% Al. For at least this reason, the disclosed composition of Engels' phase 3 renders obvious the claimed composition of the Intermediate layer.