

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

POSCO CO., LTD.,
Petitioner,

v.

ARCELORMITTAL,
Patent Owner.

IPR2025-00370, Patent 10,961,602 B2
IPR2025-00371, Patent 11,326,227 B2

Record of Oral Hearing
Held: April 22, 2026

Before: BARRY GROSSMAN, BRIAN D. RANGE, and
DEBRA L. DENNETT, *Administrative Patent Judges*.

IPR2025-00370, Patent 10,961,602 B2
IPR2025-00371, Patent 11,326,227 B2

APPEARANCES:

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The above-entitled matter came on for hearing on April 22, 2026,
commencing at 12:01 p.m., via video teleconference.

P R O C E E D I N G S

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COURT REPORTER: On the record, sir.

JUDGE RANGE: Thank you. Good morning. This is Judge Brian Range, and with me today are Judge Barry Grossman, who is with you locally in Alexandria, Virginia, and also Judge Debra Dennett. This is the hearing for two inter partes reviews.

The first inter partes review is numbered IPR2025-00370, and concerns U.S. Patent Number 10,961,602 B2. The second is IPR 2025-00371, and concerns U.S. Patent Number 11,326,227 B2. Each of these matters is captioned POSCO Company Limited Petitioner versus ArcelorMittal Patent Owner. Let's start by having Counsel make appearances. Who will be appearing for Petitioner today?

MR. MONALDO: Thank you, Your Honor. This is Jeremy Monaldo representing Petitioner POSCO. I'm joined by my colleagues, Sangki Park and Alexander Berg of Fish & Richardson, and we're also joined by Hun Jung, a client representative from POSCO.

JUDGE RANGE: Thank you. And who do we have for Patent Owner today?

MR. BUROKER: Your Honor, Brian Buroker, I'm lead Counsel in this matter, but my colleagues, Allen Kathir and Ray LaMagna will be presenting the argument today.

JUDGE RANGE: Thank you. Before we begin the arguments, I had just a couple of administrative matters. First, we have your demonstratives. For clarity of record and so that we can follow your

1 argument, we ask you identify what page of the demonstratives you're
2 talking about as you argue. I personally have a paper copy I like to follow
3 along with and take notes on as we go. Also, please state your name if you
4 start speaking for clarity of record, and to help the Court Reporter have a
5 clean transcript.

6 Second, I wanted to talk about timing. Per our order setting the
7 hearing, each side has 60 minutes to present argument concerning both inter
8 partes review matters. The two matters are very closely related, of course.

9 Also, we welcome Alexander Berg as a lead practitioner today.
10 And we grant Petitioner an extra 15 minutes, for 75 minutes total to
11 accommodate the lead practitioner argument. We will begin with
12 Petitioner's arguments regarding unpatentability, and Patent Owner may
13 respond.

14 Judge Grossman will try to keep track of time using the timer in
15 front of you, and we will try to indicate if you're running short on time, but
16 also try to keep track of your own time a bit yourselves. Petitioner, you can
17 reserve some of your time for rebuttal. How much time would you like to
18 reserve?

19 MR. MONALDO: We'd like to reserve 30 minutes, Your Honor.

20 JUDGE RANGE: And Patent Owner, how much time would you
21 like to reserve for surrebuttal?

22 MR. BUROKER: We can reserve five minutes. Five minutes
23 should be sufficient for rebuttal.

24 JUDGE RANGE: Excellent. Thank you. The last thing is that in
25 preparing for this hearing, I noticed that in September -- on September 26th,

1 2025, I think Petitioner emailed the Board to update us on ITC proceedings,
2 and mentioned that the parties would file public versions of the final, I
3 believe, the final determination in an ITC proceeding in the commissioner's
4 determination and I don't think those are in the record yet. Could y'all check
5 on that and add to the record if it's not there?

6 MR. KATHIR: Yes, Your Honor, that might have been a
7 miscommunication between the parties, but we'll work with Petitioner and
8 get that on file promptly.

9 JUDGE RANGE: Okay, great. And I don't want this next
10 question to turn into a long argument, but does the -- just at a high level,
11 does the ITC determination, does it have much relevance to the claim
12 construction of the intermetallic layer?

13 MR. KATHIR: In Patent Owner's view, it does not.

14 MR. MONALDO: In Petitioner's view also, no.

15 JUDGE RANGE: Okay, great. That's what I thought based on the
16 briefing that is in the record but thanks for confirming that. With that we
17 can start the argument. And Petitioner you may begin when you're ready.

18 MR. MONALDO: Thank you, Your Honor. May it please the
19 Board, Jeremy Monaldo, representing Petitioner. On Slide 2 of our
20 demonstratives, you'll see that we offer a table of contents that will allow
21 you to quickly identify the content in our slides that is relevant to each of the
22 different issues involved in this proceeding. I plan to present on issues 1
23 through 4 as they relate to the Takagi Grounds, and my colleague, Dr.
24 Alexander Berg, will present on the Suehiro Grounds in issues 5 through 7.
25 So, unless Your Honors have any questions at the outset, I'll move to Slide

1 12 and jump right into the first issue.

2 And Judge Range, to your question about the ITC, we don't believe
3 the decisions had any relevance. Opposing Counsel, confirm if I'm
4 incorrect, but in that proceeding, I believe, all of the asserted claims were
5 filed invalid over prior art system reference related to the Volkswagen
6 Passat.

7 That decision in my understanding was not appealed, but the
8 coverage of claims does not match the coverage of claims in this proceeding.

9 JUDGE RANGE: Good. Thank you.

10 MR. MONALDO: So, starting on Slide 12 --

11 JUDGE GROSSMAN: Can I ask you one question about the ITC
12 proceeding that the Trial Court proceeding has been completed and it's now
13 before the full commission. And have they issued their report or I think it's
14 coming up in June or July?

15 MR. MONALDO: I'm not sure I know the answer to that question.
16 I believe the proceeding has been resolved and it's not in appeal.

17 JUDGE GROSSMAN: Okay.

18 MR. MONALDO: So as shown in Slide 12, the first issue relates
19 to the construction of the term intermetallic layer. Moving to Slide 13, you
20 can see Patent Owner's proposed construction, which has actually evolved
21 over the course of several proceedings involving patents in this family that
22 claim an intermetallic layer.

23 So, recall, there was a prior IPR of a parent of the two patents
24 involved in these proceedings. In that prior IPR, the claims included the
25 same term, intermetallic layer. In that IPR, Petitioner proposed a

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1 construction of intermetallic layer, which you can see in the second column
2 of the table presented on Slide 13, "A layer composed of two or more
3 metals, a metal and a non-metal in an alloy."

4 Patent Owner did not dispute that construction in the prior IPR or
5 otherwise proposed a construction is now advancing. In fact, as shown in
6 the third column of the table presented on Slide 13, Patent Owner's expert in
7 the prior IPR offered his understanding of the term intermetallic layer.

8 And you can see that he stated that an intermetallic layer is a layer
9 that contains a compound of two different metals potentially in a matrix.

10 Now, I plan to discuss that testimony in a few minutes, but you might also
11 recall that there were two prior IPRs of the two patents challenged in these
12 proceedings that were terminated post institution.

13 In those IPRs Patent Owner filed a response but did not propose a
14 construction of the term intermetallic layer. So now for the first time after
15 several opportunities, Patent Owner proposes a narrow construction of the
16 term intermetallic layer. You can see that construction in the fourth column
17 of the table presented on Slide 13.

18 And that is, "A layer containing two or more metallic or metalloid
19 elements, atomically joined with defined stoichiometry in an ordered crystal
20 structure." As discussed in our Petitioner reply, there's simply no basis in the
21 intrinsic record for reading those limitations into the term intermetallic layer.
22 Moving to Slide 14, you can see --

23 JUDGE GROSSMAN: Before we move on to 14, is that claim
24 construction going to be outcome determinative. If we adopt the Patent
25 Owner's construction, do you concede that you lose or do you still think that

1 even under the Patent Owner's construction, your invalidity arguments will
2 hold up?

3 MR. MONALDO: Yes, that's a great question, Your Honor. And
4 no, we do not believe this issue is outcome determinative as we'll discussed.
5 And I'll discussed specifically with the Takagi reference, we certainly
6 believe it meets Patent Owner's construction. So, moving to Slide 14, you
7 can see the actual disclosure from the '602 Patent.

8 As shown in the upper text box at the center of Slide 14, you see
9 the background of the '602 Patent, which states that, "Thanks to an alloying
10 of the pre-coating with the steel substrate, which has the effect of creating
11 intermetallic alloys with high melting temperature."

12 Intermetallic alloys, consistent with the undisputed interpretation
13 from the prior IPR, a layer composed of two or more metals in an alloy.
14 What is missing from the intrinsic record? Any mention of crystals or an
15 ordered crystal structure, any mention of stoichiometry, and any mention of
16 the measurement techniques that Patent Owner contends are necessary to
17 determine that a layer is an intermetallic layer that meets its construction.

18 There's simply nothing in the claims, the specification, or the
19 Prosecution history that uses the terms that Patent Owner asked you to read
20 into the term intermetallic layer. And more, moving to Slide 15, you'll see
21 that the specification actually is at odds with Patent Owner's construction.

22 As shown at the top of Slide 15, you see Figure 2 of the '602
23 Patent. As shown by the yellow highlighting, Figure 2 is described by the
24 '602 Patent as having an intermetallic layer. As shown at the lower left of
25 Slide 15, you see an excerpt from the specification that reinforces the fact

1 that Figure 2 indeed includes an intermetallic layer.

2 Yet, at the bottom right of Slide 15, you see testimony from Patent
3 Owner's expert, Dr. Raabe, confirming that the layer in Figure 2 identified as
4 an intermetallic layer does not meet his construction. A layer described by
5 the '602 Patent as an intermetallic layer is not an intermetallic layer
6 according to Dr. Raabe.

7 From this testimony, it is clear that Patent Owner's construction
8 disagrees with the intrinsic record. Because Patent Owner's construction
9 does not cover the intermetallic layer clearly depicted in Figure 2 of the '602
10 Patent, it cannot be correct.

11 Moving to Slide 16, you see testimony from Patent Owner's expert
12 that I mentioned earlier that occurred in the prior IPR of the parent to the
13 patent's challenge in these proceedings. As shown in the testimony
14 presented on Slide 16, Patent Owner's expert in that case, Dr. DeArdo was
15 asked about his understanding of the term intermetallic.

16 You see his answer on Slide 16 where he gets a broad
17 understanding of the term consistent with Dr. Miles' understanding. As
18 shown by the uppermost highlighting on Slide 16, Dr. DeArdo confirmed his
19 understanding of the term intermetallic as a compound of different metals.

20 And like the intrinsic record, Dr. DeArdo makes no mention of an
21 ordered crystal structure or a defined stoichiometry. This evidence confirms
22 that a person of ordinary skill in the art would've had a broad understanding
23 of the term intermetallic layer that is not limited to the additions made in
24 Patent Owner's construction.

25 JUDGE RANGE: This is Judge Range. One thing that I've been a

1 little bit confused with about your position is I don't understand why
2 Petitioner is taking the view that it could be a metal and a non-metal in an
3 alloy. And also related to that, would it make any difference substantively in
4 the matter before if an intermetallic layer had to be two metals?

5 MR. MONALDO: Your Honor, it would make no difference if it
6 would be two metals. That is perfectly consistent with the prior art, which
7 all the layers have two metals in them. The non-metal language came
8 directly from a dictionary definition. So, we think that's okay to include in
9 the construction or the interpretation of intermetallic layer.

10 But it's certainly not necessary. And if we were limited to two or
11 more metals in an alloy, that is certainly consistent with the prior art and
12 disclosure, and certainly not what Patent Owner is proposing to read into the
13 term.

14 JUDGE RANGE: Thank you. Do you know offhand which
15 exhibit that was with the dictionary definition?

16 MR. MONALDO: I do not, but I'll find --

17 JUDGE RANGE: It's okay.

18 MR. MONALDO: I'll find that citation --

19 JUDGE RANGE: I'm sorry.

20 MR. MONALDO: -- for you and make sure we have it. It's a
21 dictionary definition that --

22 JUDGE RANGE: Okay. I could find it easily enough too, I'm
23 sure.

24 MR. MONALDO: It was cited in the prior IPR for the
25 construction, and then I think produced in the record of this case.

1 JUDGE RANGE: Okay, thank you.

2 MR. MONALDO: So as a final point on the construction of
3 intermetallic layer, I'd like to turn you to Slide 17, where you can see that
4 Patent Owner's construction is inconsistent with the prior decision rendered
5 in the IPR of the parent '683 Patent. But the top of Slide 17, you see an
6 excerpt of the Board's prior decision.

7 As shown, the Board found that Cornette discloses a coating
8 comprising an intermetallic layer. At the bottom of Slide 17, you see
9 testimony from Dr. Raabe when we asked him during deposition about
10 Cornette, and the Board's prior finding that Cornette discloses an
11 intermetallic layer.

12 What did he say? As shown by the highlighted testimony, Dr.
13 Raabe confirmed his opinion that Cornette is not showing an intermetallic
14 layer, and that the Board's prior decision is inconsistent with what he says.
15 This is a significant problem with Patent Owner's proposed construction as
16 this type of inconsistency is contrary to case law governing issue preclusion,
17 res judicata and Patent Owner rules related to Patent Owner estoppel.

18 The parties in public should be able to rely on the Board's prior
19 decision, and should not have to reconsider the scope of the term
20 intermetallic layer as it relates to Cornette. If Your Honors were to adopt
21 Patent Owner's construction and come to a different result here, there's
22 nothing to prevent Patent Owner from going back to the patent office,
23 inserting, securing claims substantially similar to the claims canceled in the
24 prior IPR under the guise of Cornette failing to disclose an intermetallic
25 layer.

1 That is not the law or how patent office rules work. Given the
2 prior Board decision, the construction here must be consistent with the prior
3 Board's finding that Cornette discloses intermetallic layer because Patent
4 Owner's construction is inconsistent with that decision, it cannot be correct.

5 So, for all of these reasons, the intrinsic record, the inconsistency
6 with the intrinsic record, additional testimony you saw from Dr. Deardo and
7 Dr. Miles, as well as the Board's prior decision that Cornette disclosed the
8 intermetallic layer, Patent Owner's' construction should be rejected.

9 And there's just no basis in the record or intrinsic record for
10 reading the limitations into the claim term intermetallic. So, unless Your
11 Honors have any questions on the construction of the term intermetallic, I'll
12 turn us now to the second issue related to the prior art disclosure of an
13 intermetallic layer.

14 So before taking a look at the disclosure of the prior art, I'll first
15 note that this issue falls with Patent Owner's construction of the term
16 intermetallic layer, to your question, Judge Grossman. So, Patent Owner
17 only contends that the prior art lacks in intermetallic based on its narrow
18 construction.

19 Without its construction, Patent Owner does not contend that the
20 prior art fails to disclose an intermetallic layer. Now, construction aside,
21 we'll see that Takagi discloses an intermetallic layer under any interpretation
22 of that term, including Patent Owner's. Moving to Slide 21, you see a
23 disclosure from Takagi.

24 As shown at the top of Slide 21, you see paragraph 16 from
25 Takagi, as shown by the highlighting added to the first sentence of paragraph

1 16. You see Takagi's disclosure that mutual diffusion between aluminum
2 coating steel substrate layer, produces various aluminum silicon iron ternary
3 intermetallic compounds, explicit disclosure of intermetallic compounds in
4 Takagi.

5 The next sentence then confirms that the aluminum silicon iron
6 alloy layer formed by the heat treatment has a layered structure made up of
7 these intermetallic compounds. Again, explicit disclosure of an alloy layer
8 with a layered structure made up of intermetallic compounds.

9 Clear disclosure of an intermetallic layer under any definition of
10 that term, if a layered structure of intermetallic compounds is not an
11 intermetallic layer, what is? Moving to Slide 22, you'll see --

12 JUDGE GROSSMAN: Before we move off that, I just want -- the
13 Claim 1, using Claim 1 as an example, uses the phrase intermetallic layer.

14 MR. MONALDO: Yes.

15 JUDGE GROSSMAN: Is there any difference between the
16 intermetallic layer as it's claimed, and an intermetallic compound as used in
17 the Takagi reference?

18 MR. MONALDO: I think there might be some difference between
19 a layer and a compound in itself. But what Takagi is telling you, and you
20 look at the languages, it says it's a layer structure of intermetallic compound.
21 In our opinion, that's covering both the layer with an intermetallic
22 compound. That is an intermetallic layer.

23 And if you look at the prior Board's decision, I think it's in Exhibit
24 1029, there was a construction of the term layer. It simply said, I have it
25 here. It said, Exhibit 1029, Page 22, we conclude that the term layer means

1 a thickness of material spread over or covering a surface.

2 It's just a thickness of material spread over a surface. When that
3 material is intermetallic compounds, you have intermetallic. So, moving on
4 to Slide 22, you'll see testimony that Dr. Raabe offered in a declaration
5 submitted in the prior IPR challenging these same patents.

6 As discussed earlier, the prior IPRs were terminated post
7 institution, but that was after Dr. Raabe submitted declarations to support
8 Patent Owner response. In that declaration, Dr. Raabe considered the
9 Takagi reference, and offered testimony related to Takagi's disclosure.

10 At the top of Slide 22, you see paragraph 166 from Dr. Raabe's
11 declaration in those proceedings. As shown by the highlighted text, Dr.
12 Raabe spoke to, quote, "Maintaining the intermetallic phase layering and
13 structure in Takagi." Those are Dr. Raabe's own words, intermetallic phase
14 layering and structure in Takagi.

15 These were not terms introduced or used in the petition to which
16 Dr. Raabe was responding, but rather his description of what in Takagi
17 needs to be maintained. The intermetallic phase layering and structure.

18 JUDGE GROSSMAN: Does the word phase as we've talked about
19 the nuances of intermetallic and the various uses, whether it's a layer or a
20 compound. Now we've got a third word stuck into the mix of phase. So
21 how does intermetallic phase relate to intermetallic compound and
22 intermetallic layer?

23 MR. MONALDO: I think you'll hear from Patent Owner that they
24 think the term phrase means something very narrow, and narrows the term.
25 We don't think it has much impact at all. It simply is referring to a phase of

1 the layer that has formed with intermetallics in it. That is our understanding
2 of the term.

3 And I'll note that the claims don't say an intermetallic phase layer,
4 they say intermetallic layer. So, it's something broader than a phase layer.
5 A phase is layer certainly covered, but the intermetallic layer claimed in the
6 patent actually does not have to be a phase layer.

7 JUDGE GROSSMAN: Okay. Thank you.

8 MR. MONALDO: So again, this is clear testimony that we think
9 recognizes the presence of an intermetallic layer in Takagi. This testimony
10 coupled with the clear disclosure that we just discussed on Slide 21 confirms
11 that Takagi discloses an intermetallic layer under any construction of that
12 term.

13 So, unless Your Honors have any questions on Takagi's disclosure
14 of an intermetallic layer, I would turn us to Slide 25 to talk about the
15 motivations for the combinations in advancing these petitions. So as shown
16 on Slide 25, we have two primary references, Takagi and Suehiro.

17 These primary references describe the layered coating structure
18 with the composition set forth in the claims. There is no dispute that these
19 references describe the claim compositions. So, what is missing from these
20 references? Just one thing, the coating thickness.

21 And that is where the secondary references come in to demonstrate
22 the coating thickness is described in the claims. You have the GM
23 specification, and Cornette, each of which motivates use of a coating
24 thickness after hot stamping that is greater than 30 microns. Now let's take a
25 look at that disclosure together on Slide 26.

1 I'll start with Takagi's disclosure related to coating thickness. At
2 the top of Slide 26, you see Takagi's paragraph 35, which tells you that it
3 uses a thickness of the aluminum coating layer of 10 to 20 microns.
4 Importantly, this thickness is a precoating thickness prior to Takagi's heat
5 treatment process.

6 Takagi does not disclose the thickness of the coating post heat
7 treatment. It doesn't say. But Takagi itself in supporting evidence
8 consistently describes that the coating thickness grows as part of a heat
9 treatment process. In various references, describes the desirability of
10 achieving a coating thickness that is greater than 30 microns.

11 At the lower left of Slide 26, you see disclosure from the GM
12 specification, which includes a table listing its coating requirements. The
13 GM specification is a document that sets forth the requirements needed for
14 GM to purchase steel from a supplier. You have to meet these requirements
15 if you want to sell steel to GM.

16 In the first row, you see GM's requirement for coating thickness
17 prior to hot stamping, a 20-to-33-micron precoating thickness. In the second
18 row, you see GM's requirement for coating thickness following hot stamping
19 greater than 35 microns.

20 So, you have a coating thickness of 20 microns prior to hot
21 stamping, the same as Takagi, that grows to greater than 35 microns
22 following hot stamping. From this disclosure, a person of ordinary skill in
23 the art would've found it obvious to design Takagi's 20-micron precoating
24 thickness and processes to grow the coating to greater than 35 microns
25 following hot stamping consistent with the disclosure in the GM

1 specification.

2 A person of ordinary skill in the art also would've been motivated
3 to increase the precoating thickness of Takagi within GM's range of 20 to 33
4 microns in an attempt to meet GM's requirement for a coating thickness
5 greater than 35 microns following hot stamping.

6 As shown by the testimony of Dr. Miles presented the left side of
7 Slide 26, a person of ordinary skill in the art would have been highly
8 motivated to follow GM's guidance and meet the requirements for GM's hot
9 stamped coating with a thickness greater than 35 microns.

10 Otherwise, you would not have a steel product acceptable for use
11 by GM. At the lower right of Slide 26, you see disclosure from Cornette.
12 That disclosure explains how an average precoating thickness of 25 microns
13 results in a coating that is about 40 microns after heating. 25 microns to 40
14 microns.

15 As set forth in the testimony from Dr. Miles on the right-hand side
16 of Slide 26, a person of ordinary skill in the art would've been motivated to
17 use Cornette's 25-micron precoating thickness in Takagi, because Cornette
18 describes that precoating thickness as being the best compromise between
19 corrosion protection and weldability.

20 In fact, Takagi and Cornette describes similar processes with
21 similar parameter values, such that a person of ordinary skill in the art
22 would've been motivated to achieve the benefits described by Cornette in the
23 similar process disclosed by Takagi. Yes, Your Honor.

24 JUDGE GROSSMAN: Is there any evidence in the record that the
25 GM spec was ever achieved? I know GM said, let's go to greater than 35 or

1 up 33. And that's a nice spec to -- that's their wish list, but did anybody ever
2 meet that? Did it ever was -- so was there not only the motivation or maybe
3 an obvious to try to get there, but was there any likelihood of success that
4 this really worked, that you could get it to those specs?

5 MR. MONALDO: Yes. Thank you, Your Honor. That's a great
6 question. I'd cite Cornette as an example. It tells you that 25 microns occurs
7 to 40 microns. That certainly meets the requirements of GM. We have
8 other references of the -- in record that show similar growth. And I turn you
9 to paragraph 39 of Dr. Miles' original declaration, Exhibit 1003.

10 It has a lot of discussion of these types of things, how you had
11 similar coatings and numerous references that would grow to these thickness
12 levels with similar compositions. Two references he cites in that paragraph
13 would be Exhibit 1056, it's a presentation by Laurent.

14 And that discloses similar compositions in a coating thickness of
15 about 30 microns following a hot stamping process. And then you have
16 Exhibit 1005 Anglés reference. Anglés has a thickness of 40 microns and
17 composition values that are similar to Takagi and Suehiro.

18 So, there are numerous examples of people being able to achieve
19 the coating thickness as described by GM. And I think the ITCs decision is
20 somewhat informative on that issue as well. Since you had a product, the
21 VW Passat that experienced similar characteristics in the claims. Some
22 person of skill could have and actually did achieve that level of coating
23 thickness in an actual product.

24 JUDGE GROSSMAN: Okay, thank you.

25 MR. MONALDO: So, for these reasons, and based on the

1 disclosure, both the GM specification and Cornette, it's our opinion in our
2 view that a person of ordinary skill in the art would've found it obvious to
3 design Takagi's 20 micron precoating thickness to grow to greater than 35
4 microns, and would've found it obvious to use a thicker precoating, such as
5 the 25 microns described by Cornette.

6 Now, moving to Slide 27, you see disclosure from Takagi
7 describing the benefits of its multi-layer structure and compositions. These
8 are benefits that a person of skill would have been motivated to retain in the
9 thicker coating. As shown on the upper left of Slide 27, you see Takagi's
10 paragraph 24, which describes the importance of its multi-layer structure.

11 Specifically, Takagi describes that, quote, "Thermal stability is
12 improved by alloying an aluminum silicon iron coating layer entirely into a
13 multilayer structure, such as a five-layer structure having five layers of
14 different alloy compositions." Takagi goes on to describe, "That a multilayer
15 structure, including a hard-outermost layer is advantageous or maintaining
16 good contact with a welding gun in spot welding even under great pressure
17 or high-tension material."

18 Benefits of thermal stability and advantages in spot welding based
19 in Takagi's multilayer structure and alloy compositions. At the lower right
20 of Slide 27, you see paragraph 25 from Takagi. In paragraph 25, Takagi
21 explains that it is possible to combine weldability and corrosion resistance
22 by making the iron concentration in the surface or outermost layer of the
23 coating in the range of 35 to 50 percent.

24 Benefits of weldability and corrosion resistance based on the
25 specific iron concentrations described by Takagi. Based on these

1 descriptions, a person of skill would've sought to retain Takagi's benefits and
2 multi-layer structure and constant compositions, while attempting to achieve
3 a coating with the thickness benefits described by GM and Cornette.

4 You can see this further on Slide 28. Slide 28 shows a table from
5 Takagi with five different examples for coating layer structures and
6 compositions as shown by the yellow highlighting at the right-hand side of
7 the table. Three of these examples are listed as exhibiting good formability,
8 good corrosion resistance, and good weldability.

9 To achieve these benefits of Takagi, a person of skill would've
10 been motivated to retain the multi-layer structure and composition set forth
11 in Takagi's examples 1, 4 and 5. So as we've discussed, we have two clear
12 motivations recognized by the prior art.

13 First, achieve a coating thickness of greater than 35 microns to
14 secure the benefits described by the GM specification and Cornette. And
15 second, achieve the layer structure and compositions described by Takagi as
16 experiencing good formability, good corrosion resistance, and good
17 weldability.

18 Clear motivations to achieve a coating thickness greater than 35
19 microns with the layer structure and compositions described by Takagi.
20 Now, unless you have a question, Your Honor.

21 JUDGE GROSSMAN: And if you didn't have the GM spec to rely
22 on, but is there -- could Dr. -- is there's other evidence in the record like Dr.
23 Miles' testimony that you could go up to 40?

24 MR. MONALDO: Definitely.

25 JUDGE GROSSMAN: So that your ground is based on GM,

1 maybe bolstered by the testimony of Dr. Miles, but even without the GM
2 spec, you've got some evidence in there that you could go as high as at least
3 40.

4 MR. MONALDO: Yes, absolutely, Your Honor. We have
5 testimony to that effect by Dr. Miles. We have Cornette showing that.

6 JUDGE GROSSMAN: And Cornette. Good.

7 MR. MONALDO: 25 to 40. There are two different Grounds
8 here, Cornette and GM specification. So certainly, we have evidence on the
9 record showing you could go up to as high as 40, for sure. And I point out
10 those other references that I mentioned earlier, Anglés and the Laurent
11 presentation also showing similar thicknesses.

12 There was a corpus of references that had very similar parameters
13 for hot stamping, very similar thicknesses, very similar compositions.

14 JUDGE GROSSMAN: Thank you.

15 MR. MONALDO: And so, moving to Slide 31. We've started the
16 discussion on this already, but I think I'll highlight a few additional points on
17 just the reasonable expectation of success and the prior art enablement
18 argument that Patent Owner makes.

19 So, in the briefing you'll see that Patent Owner argues that the prior
20 art is not enabling, and that the combinations lack reasonable expectation of
21 success. But as you'll see on Slide 32, the prior art describes the exact same
22 process and the same parameter values for that process as the '602 Patent.

23 As shown on the left side of Slide 32, you have a table showing
24 seven process parameters used as part of a hot stamping process. As the
25 table reflects for each of the parameters, the prior discloses values within the

1 ranges set forth in the '602 Patent. In the first row, you see precoating
2 thickness.

3 The '602 Patent describes a range of 20 to 33 microns. That range
4 overlaps with the 20-micron value we discussed in Takagi, and the average
5 layer thickness of 25 microns disclosed in Cornette. And although not
6 shown in the table, we just discussed the GM specification, which describes
7 the exact same range as a '602 Patent, 20 to 33 microns.

8 The next row in the table relates to heating rate. You see, the '602
9 Patent describes a range of 4 to 12 degrees Celsius per second. Takagi
10 describes values of 8 or 1 to 10. And Suehiro describes values of 8 and 10.
11 Both references describing a heating rate in the range described by the '602
12 Patent.

13 In the third row of the table, you see temperature. Again, Takagi,
14 Cornette and Suehiro describe values within the range specified. The same
15 is true for the other parameters: hold time, cooling rate, steel sheet thickness,
16 and silicon percentage in the precoating.

17 We can walk through each of these parameters, but in interest of
18 time, I'd ask Your Honor, just to take a look at this table and the
19 corresponding citations. And you will see that for all seven process
20 parameters, the prior art discloses values within the ranges described by the
21 '602 Patent.

22 In fact, Patent Owner does not dispute that these parameters match.
23 During deposition of Dr. Raabe, we walked him through each of the
24 parameters and secured testimony confirming that each of the ranges of
25 process parameters described by the '602 Patent overlap with process

1 parameters disclosed in the prior art.

2 So, the prior art has the same process, the same parameter values
3 as the '602 Patent. Judge Grossman, did you have a question?

4 JUDGE GROSSMAN: I do. But these parameters don't apply.
5 I'm again, using Claim 1 from the patent just as an example. But those
6 specific parameters are not in Claim 1.

7 MR. MONALDO: Absolutely not, Your Honor. And we cite
8 them simply for the reasonable expectation of success. So, to achieve these
9 coatings, you have to follow a hot stamping process with certain parameters.
10 The '602 Patent discloses to the public a certain set of parameters.

11 But as we demonstrated all of those parameters, all those process
12 steps, they're known in the prior art and a personal skill, if they were going
13 to be able to practice the '602 Patent, they'd be able to follow the same
14 process, the same parameters in the prior art, and have a reasonable success
15 in meeting the structure that is actually claimed in the patents, and that is
16 disclosed.

17 JUDGE GROSSMAN: Thank you.

18 MR. MONALDO: So, moving to Slide 33, you'll also see that the
19 prior art describes the same layer structure and compositions at the same
20 level of detail as the '602 Patent. At the top of Slide 33, you see, again,
21 Takagi Table 1, which discloses detailed compositions for each of the layers
22 in Takagi's example coatings.

23 Patent Owner does not dispute that these compositions meet the
24 ranges described and claimed in the '602 Patent. So, you not only have the
25 same process and the same process parameters, but you also have disclosure

1 of the same layer structure and the same elemental compositions.

2 And moving to Slide 34, you see disclosure of the same coating
3 thickness as described by the '602 Patent as we've already discussed. At the
4 top of Slide 34, you see again Takagi's paragraph, which describes
5 precoating thickness, 20 microns. The precoating thickness falls within the
6 range of 20 to 33 microns described by the '602 Patent.

7 In the paragraph in the middle of Slide 34, you see the disclosure
8 in the GM specification. Again, a precoating thickness in the range of 20 to
9 33 microns, same range as the '602 Patent. That precoating thickness results
10 in a coating thickness of greater than 35 microns following hot stamping.

11 And as discussed earlier, the art suggests an increase in coating
12 thickness that occurs when hot stamping is performed. At the bottom left of
13 Slide 34, you see the Laurent reference, which describes an increase of 50
14 percent from a hot stamping process that is similar to Takagi's hot stamping
15 process.

16 With an increase of 50 percent, for Takagi's 20-micron pre-coating
17 thickness, you would achieve a coating thickness of 30 microns, followed by
18 hot stamping per Laurent's disclosure. And the GM specification actually
19 suggested an even greater range, an increase to greater than 35 microns.

20 And if you had the same percentile increase as Cornette, 25 to 40,
21 that coating, 20 microns, would grow to 32 microns. So, the prior art tells
22 you that these thicknesses in the '602 Patent were known. So, as we
23 discussed, the prior art discloses the same process, same parameter values as
24 '602 Patent, same layer structure, same compositions as the '602 Patent, and
25 discloses the same thicknesses as the '602 Patent.

1 And the prior art does this at the same level of detail as the '602
2 Patent. In re Epstein and similar cases, tell you that when the prior art has
3 the same level of disclosure as a challenge patent, that prior art is enabling
4 and demonstrates a reasonable likelihood of success when considered a
5 combination.

6 Because the prior here discloses the same process and the same
7 results as the challenge patents, the prior art renders the challenge claims
8 obvious with a reasonable likelihood of success. Unless Your Honors have
9 any questions, I'd ask my colleague, Dr. Berg to present on the remaining
10 issues in these proceedings.

11 JUDGE GROSSMAN: I don't have any further questions.

12 JUDGE RANGE: Same here. Thank you.

13 JUDGE DENNETT: Nothing from me.

14 MR. BERG: Thank you, Your Honors. This is Alexander Berg on
15 behalf of Petitioner POSCO. Before I get started with issue five here, I
16 wanted Judge Grossman briefly to respond to something you mentioned.
17 You were asking about, we started with intermetallics, and now we're
18 talking about compounds phases.

19 Just kind of wanted to emphasize the extent to which we're sort of
20 departing from the intrinsic record, right? When we get that far. The word
21 compound is not found in the '602 Patent. The word phase is used once in
22 reference to the, I guess, visual appearance of the intermetallic layer.

23 It says it appears as a pale phase in the specification. So really in a
24 reference to its visual appearance as opposed to any sort of connection to the
25 crystal structure or defined stoichiometry, right? In Patent Owner's

1 construction.

2 JUDGE GROSSMAN: So would it be your view that the phrase
3 that -- I think the phrase that's used consistently in the claims is intermetallic
4 layer. So, the word intermetallic layer, we get the idea of what a layer is.
5 But intermetallic is just would be -- is it your position that it's generic
6 enough to cover intermetallic compounds, intermetallic phases --

7 MR. BERG: Yes, it can be described as intermetallic.

8 JUDGE GROSSMAN: -- anything that would qualify as an
9 intermetallic?

10 MR. BERG: Correct. Yes. That's our position. And of course, as
11 Mr. Monaldo mentioned, even adopting Patent Owner's construction, right,
12 we argue that the art nevertheless meets the claim language. So, starting on
13 Slide 35 here, I'll begin by discussing Suehiro's disclosure of a superficial
14 layer.

15 As an initial note, Petitioner did not make an explicit construction
16 of the term superficial layer. The plain and ordinary meaning of the term
17 appears to be surface layer. And this does agree with Patent Owner's
18 construction of surface layer that was set forth in their Patent Owner's
19 response.

20 Turning to the next slide, Slide 36, I'll draw your attention to
21 Suehiro's Figure 13 at the top of the slide. So, this is a plot showing
22 concentrations of iron, aluminum, and silicon across five layers in Suehiro's
23 coating. You can see those layers are numbered one through five.

24 And then at the right-hand side of the plot, there's a number six
25 that refers to the underlying base steel of the structure. The highlighted x-

1 axis in Figure 13 is distanced from the surface. And you can see that
2 highlighted at the bottom left of the diagram, the edge of layer one has a
3 distance from the surface of zero microns.

4 Zero microns from the surface is the surface. This means that
5 layer one is at the surface, or phrased another way, layer one of Suehiro is a
6 surface layer, or yet another way, it's a superficial layer. I'll note that Figure
7 13's illustration of five layers is fully consistent with Suehiro's
8 corresponding description.

9 As shown in the middle of Slide 36, Suehiro describes that the
10 alloy phase consists of five layers. And Figure 13 indeed does show five
11 layers. As Dr. Miles notes in the paragraph at the bottom of the slide, all
12 five layers are accounted for in Figure 13.

13 So, to the extent Patent Owner may argue or suggest the presence
14 of some sort of extra layer, there's no basis for that in Suehiro. All five
15 layers are shown in Figure 13, and Figure 13 also shows the entire coating
16 structure from the base steel on the right side to the surface on the left side.

17 JUDGE DENNETT: Counsel, this is --

18 JUDGE GROSSMAN: Before we go off that on 36, while we're
19 talking of Slide 36 about the superficial layer. Superficial is not a pejorative
20 term in the structure of this device. But I think if I understand what you're
21 saying, it's just a -- the top layer is the superficial layer, and it could be
22 anything. The word superficial is not a term of art that imposes any specific
23 function or structure for the top layer.

24 MR. BERG: Yes, that's correct. It doesn't, for example, require
25 any particular composition. It seems to require a presence at the surface. So

1 just the positioning.

2 JUDGE DENNETT: Counsel, this is Judge Dennett. What about
3 Figure 12? There appears to be something, a black layer. And I know you
4 may not have that, a Slide of that, but there does appear to be a black layer
5 on top of what -- oh, there. There we go. What has been identified as the
6 superficial layer.

7 MR. BERG: Right.

8 JUDGE DENNETT: What is that?

9 MR. BERG: So yes, turning to the next slide, Slide 37. So that's
10 the Figure 12 you were referring to.

11 JUDGE DENNETT: Okay. We'll get to it.

12 MR. BERG: The black layer itself, Patent Owner has not
13 discussed that or argued that that is a layer. My understanding is that it
14 might be some sort of like coating applied for purposes of obtaining the
15 microscope images or something like that. But the black layer itself is not
16 really a subject of dispute here.

17 What is a subject of dispute is the pale region immediately
18 underlying that black layer. So, at the top of Slide 37, that's Figure 12 of
19 Suehiro. The red labels were added by us in our petition, and you can see
20 that there are arrows pointing to sort of a darker region and labeling that
21 layer one or the superficial layer.

22 And then there's yellow annotations added by Patent Owner, and
23 those are pointing to the pale region at the top of the coating. And so Patent
24 Owner's argument essentially here appears to be that there's been a
25 mislabeling in Figure 12.

1 And that the red arrows that currently point at the darker region
2 should instead be pointing at the lighter region above it, immediately under
3 the black layer that you noted, Judge Dennett. Now, in the petition, Figure
4 12 was labeled like this to illustrate the presence of multiple layers, to
5 illustrate the coating, and as an example of a mapping between those layers
6 and the corresponding layers in Figure 13.

7 But the substance of the petition's arguments, by which I mean the
8 composition measurements, the layer positioning, the coating thickness, all
9 of that substance was derived from Figure 13, not from Figure 12. So,
10 Patent Owner focuses on Figure 12, that's true, but they do not dispute the
11 layer structure that is shown in Figure 13, which does show all the five
12 layers that Suehiro discusses, including the superficial layer right at the
13 surface. So, we don't believe discussion about Figure 12 detracts from the
14 disclosure in Figure 13.

15 JUDGE GROSSMAN: But the Patent Owner has added the
16 yellow arrows to indicate what Patent Owner perceives as -- thinks is the
17 superficial layer. But the lighter color to which the yellow arrow was
18 pointing, seems to be composed of not only a layer that's not a solid or
19 continuous layer, but it seems to have little dots that rise above that layer,
20 and a dot that's all by itself in the black area, which we don't know what that
21 is.

22 Whether it's a layer or something else. But so, if the yellow arrows
23 are pointing to the lighter color, does that include all the separate little dots
24 that look to be just -- I don't know what it is in the black area?

25 MR. BERG: Yes. You'd have to ask Patent Owner. I agree that

1 there's a lot of disorder in that structure, in that lighter region. And as you
2 note, the lighter region does not even cover the entire surface, right? There
3 does appear to be a portion where the darker region that the red arrows point
4 to, that is also at the surface, actually where they've drawn the yellow line.

5 So fundamentally, there are probably multiple ways to make this
6 mapping from Figure 13's layers to Figure 12's layers. But Figure 13 has no
7 ambiguity, right? There's really only one way to interpret that. If there's no
8 further questions about Suehiro, we'll turn to the next slide, Slide 38.

9 And I'll discuss the prior art status of three of the references, the
10 GM specifications, Suehiro, and Cornette. The next slide, Slide 39.

11 JUDGE RANGE: This is Judge --

12 MR. BERG: As we discussed --

13 JUDGE RANGE: Pardon. This is Judge Range. I had one more
14 question about that. Which is, I guess turning back to Page 37 you're read
15 red labeling accounts for five layers in Suehiro, and Suehiro said it had five
16 layers, right? So, if the yellow was pointing at another layer, that would be a
17 six layer, which would be inconsistent with the text.

18 MR. BERG: So, the red layers, the red arrows as you said, account
19 for five layers. There's sort of an ambiguity that seems to be present in a lot
20 of the art, and indeed in the '602 Patent itself about exactly how one maps
21 and defines layers. So, the '602 Patent discusses that the interdiffusion layer,
22 which we've been talking about as a layer, is actually composed of two
23 sublayers, right?

24 So, the '602 Patent could just as easily describe their layer structure
25 as having five layers and perhaps even more if you wanted to define further

1 sublayers in the other layers. So, I guess I would say that the mapping we
2 see there is one way of doing it, but there are certainly others. And that
3 certainly there's no disclosure in Suehiro that would suggest six layers.

4 JUDGE RANGE: Thank you.

5 MR. BERG: So, turning to Slide 39. As we discussed, the GM
6 specification is a material specification that sets requirements for hot
7 stamped steel products that are going to be supplied to General Motors. So,
8 to quote the reference directly, it covers the requirements for low carbon
9 heat treatable boron steel used in the manufacture of structural parts. So, to
10 demonstrate the public accessibility of the GM specification, we initially
11 presented a signed declaration from Shannon Schuster.

12 A portion of that is reproduced at the top right of the slide. Ms.
13 Schuster is an employee of Accuris, which is a successor company to
14 Information Handling Services, or IHS. Ms. Schuster explains that in the
15 year 2000, so several years before the time we're discussing, IHS launched
16 its online standard store through which technical standards were available
17 for purchase.

18 In the excerpt of her declaration shown at the top right, Ms.
19 Schuster explained that she consulted Accuris' internal database, which she
20 said includes listing stretching back to the standards store launched by IHS.
21 And then in the second paragraph of that excerpt, she says that based on her
22 review, the GM specification has been listed in their database and available
23 to the public for purchase online since December 1st, 2005.

24 So as of December 1st, 2005, an interested person of ordinary skill
25 in the art could have accessed the standard store to purchase the GM

1 reference. We've also presented evidence of searching and indexing
2 functionality at that standard store.

3 So, the screen capture at the top left of the slide is an archive
4 screen capture of the standard store from August 2003. It's maybe a bit
5 difficult to tell in the resolution you have available there, but there's a
6 highlighted box that allows users to search by title or by keyword.

7 And there's a separate highlighting on a link that allows a user to
8 browse specifically automotive standards. And the GM reference is an
9 automotive standard. We've separately presented a capture of the same page
10 from August -- sorry, April 2006, and that shows the same searching
11 functionality and the same indexing functionality.

12 At the bottom left of the slide is an excerpt from a librarian's
13 reference guide called How to Get It. It describes itself as a guide to assist
14 librarians and information specialists, as well as other individuals who need
15 to identify or acquire government published, government sponsored, or
16 defense related information resources.

17 So, this book is not limited to defense material, but broadly covers
18 many government affiliated documents and sources. This reference book
19 includes a number of pointers to the IHS Standard Store, including as shown
20 on the bottom left of the slide. It lists the specific website URL,
21 global.ihs.com, as the source for standards, including specifically for GM or
22 General Motors.

23 Global.ihs.com is the URL of the standard store homepage shown
24 at the top left of the slide. So, this is a book for librarians, people whose job
25 it is to direct people to sources of data. And this book not only points people

1 to the IHS Standard Store, but it also points them to the standard store
2 specifically to access documents from General Motors. As further
3 corroboration --

4 JUDGE RANGE: This is Judge Range. I just wanted to note, I
5 think you're starting to eat into your rebuttal time a little bit, which is fine.
6 You're allowed to do that. But just wanted to note that.

7 JUDGE GROSSMAN: Yes, you'll notice the yellow light is on.
8 So, you're into the rebuttal about four minutes, and I try to remind you, but
9 I'm usually looking at documents and listening to what you're saying and not
10 watching the lights so much. But you're welcome to continue and --

11 MR. BERG: Yes, of course.

12 JUDGE GROSSMAN: -- just so you know, you're about four
13 minutes into your 30-minute rebuttal.

14 MR. BERG: Yes, I appreciate the note. And maybe I'll try to
15 move relatively quickly here. The bottom right of the slide, I won't belabor
16 the point, but that's another archived webpage that also points users to the
17 IHS Standard Store through a direct link that's an archived webpage.

18 So, there's sort of a broad evidence suggesting that the standard
19 store wasn't private, it wasn't obscure, it was a generally known source for
20 standards through which a POSIDA exercising reasonable diligence could
21 have accessed the GM specification.

22 Turning to the next slide, Slide 40, I'll briefly touch on the public
23 accessibility of the Cornette reference. So, we presented a signed
24 declaration from Mel DeSart, who was head of the engineering library at the
25 University of Washington, and was also an employee there at the relevant

1 time in 2001.

2 His declaration provides some background on practices at the
3 library. And in the highlighted portion at the top left, he notes that the
4 paper, Cornette, was publicly available at the library within a few weeks of
5 March 13th, 2001. So, this by itself is a strong indication of public
6 accessibility.

7 We've also presented a declaration from June Munford, an expert
8 in library of practice. And she explains that when Mr. DeSart refers to
9 shelving, which he mentioned in a portion of his declaration not shown in
10 the slide, he does not just mean the physical act of putting an item on the
11 shelf, but generally refers to a broad suite of library practices that would've
12 included making materials discoverable and cataloged, and generally making
13 them available to the interested public.

14 Turning to the next slide, Suehiro. Suehiro was also publicly
15 accessible. Suehiro was not, I don't believe it's addressed in Patent Owner's
16 demonstratives, so I'll move through this relatively quickly. But we
17 presented strong evidence demonstrating that Suehiro was available on the
18 Nippon Steel homepage through a pretty clear series of clicks that a person
19 of ordinary skill in the art could have done.

20 And that it was also publicly available at the National Diet Library
21 in Japan. Turning now to the next slide, if there's no questions on the prior
22 art, I'll briefly run through a few of the dependent claims that have been
23 subjects of dispute here. Turning to Slide 43, Claim 10 of the '602 Patent
24 says that layer A has a thickness less than 10 micrometers.

25 And at the top left of the slide, you can see a measurement of

1 Cornette's Figure 22 showing that their innermost layer corresponding to
2 layer A has a thickness less -- sorry, has a thickness of 10.7 micrometers.
3 So, this is a 0.7 micrometer difference, less than one micron.

4 In this context, a difference of 0.7 microns is obvious. As Dr.
5 Miles notes in the top right excerpt on Slide 43, the '602 Patent does not
6 describe any criticality or unexpected results for the specific range of less
7 than 10, compared to the prior art's thickness of 10.7.

8 And he explains that a POSITA would've expected there to be no
9 qualitative difference between such layers. At the bottom left of the slide, is
10 an excerpt from the GM specification, and this excerpt demonstrates that
11 General Motors required precoating thickness to be measured to within plus
12 or minus one-micron accuracy.

13 That is the difference between 10.7 microns and 10 microns would
14 be so small that it would be within the measurement tolerance for this
15 measurement method defined by the GM specification.

16 JUDGE GROSSMAN: And Claim 10 says it's got to be less than
17 10?

18 MR. BERG: Yes.

19 JUDGE GROSSMAN: So, I take it that your argument is that the
20 difference between 9.99 or no matter whatever the right number of decimal
21 points we're going to put on it would be -- it's within the plus or minus one
22 micron?

23 MR. BERG: Yes, I think that's correct to the extent I misspoke
24 that that was our intention. Yes.

25 JUDGE GROSSMAN: And the evidence that says that it's a

1 critical parameter is you're relying on Dr. Miles' testimony or Dr. Raabe's
2 testimony to say that it's basically agreeing that plus or minus one is
3 probably a reasonable tolerance.

4 MR. BERG: Well, I think primarily we're relying on the '602
5 Patent on the record. Right? Which doesn't have any evidence that there's
6 criticality or unexpected results there. Right? And as you note, Dr. Raabe
7 was also asked about this at his deposition.

8 And at the bottom right of the slide, he dismisses it as a minor
9 thickness variation, something like a second or third order point that might
10 translate into minor chemical variation, but wouldn't be a game changer. So,
11 there's nothing in the record to suggest any sort of particular importance or
12 physical qualitative difference between 10.7 and less than 10.

13 JUDGE RANGE: So, Counsel, this is Judge Range. I'd say that
14 criticality is one thing, but I think it's still Petitioner's burden in the first
15 instance to show that it would be obvious. And it seems like at least for here
16 you're doing that by saying that Cornette is 10.7 and that should be
17 understood as meeting plus or minus one. Is that right?

18 MR. BERG: Certainly, at least as meeting plus or minus one. I
19 think that the way Dr. Miles framed this in his declaration is kind of useful
20 for us. He said, this is paragraph 37 of declaration Exhibit 3. He described
21 that there's a wide class of coatings that are rendered obvious by the
22 combinations of the references. Right.

23 So, we have the embodiments of the references, and then there's
24 sort of similar coatings that one could obtain and would've been obvious to
25 obtain through reasonable experimentation, right? And optimization of

1 these variables. And so, the question is whether a difference between 10.7
2 and less than 10 falls within that range of obviousness. And we argue that it
3 does.

4 JUDGE GROSSMAN: Is there any evidence that would tell us
5 why Cornette was so specific in saying 10.7 rather than about 10, or between
6 9 and 11? But Cornette was pretty specific in saying 10.7. Is there some
7 reason that Cornette identifies why that extra decimal point is critical to
8 Cornette's disclosure?

9 MR. BERG: Yes, so the 10.7 wasn't verbatim from Cornette.
10 That's a measurement that Dr. Miles took in Figure 22 of Cornette, which
11 has a scale bar. In fact, in the prior IPR, their expert measured it and got
12 10.5, and you can also just see visually that the thickness of the layer
13 fluctuates, right? Across Figure 22. So, there's significant variation in the
14 thickness of these layers, even within that image.

15 JUDGE GROSSMAN: Was the 10.7 measurement that it must be
16 in -- it's got to be an estimate of some kind, but is that at the low point of
17 Cornette, is that the finished part of the Cornette, or are there areas where
18 you could have drawn that red arrow differently and it would've been 10,5 or
19 10,4 or 10,3?

20 MR. BERG: Yes. Well, looking visually, it seems to be on the
21 thinner side there, but as I mentioned in the prior IPR, there was a 10.5
22 measurement. So potentially you could get thinner. Turning to the next
23 slide, and I'll run through this quite quickly. There's also dispute over the
24 compositions recited in some of the dependent claim.

25 So, in this chart at the top of the slide, green boxes are places

1 where the arts composition exactly meets the claimed limitations. And then
2 orange boxes are where there's a difference. But if you actually look at the
3 differences between the claimed ranges and those in the orange boxes, the
4 differences are really quite small, right?

5 We're talking a few percentage points, if that, in many cases less.
6 Dr. Miles' testimony again, notes that there's no even assertion of criticality
7 or unexpected results for any of these compositions. And he also notes that
8 there's a very widespread recognition in the art that these coating parameters
9 are result effective, right?

10 So, Takagi talks about iron composition as being determinative of
11 hardness for a layer, but aluminum composition being determinative of
12 corrosion resistance, and that's corroborated in other references as well. He
13 also notes at the bottom right of this slide that these differences would've
14 been within manufacturing tolerances for this sort of micron scale layer in a
15 thin multi-layer coating.

16 So, it's generally established that acclaimed parameter, especially
17 if it's recognized as result effective, that is close to a prior art value is
18 obvious, absent mitigating factors and no mitigating factors have been
19 proposed for these compositions. And so, they're obvious.

20 JUDGE GROSSMAN: And just for your information, you're
21 down to about half of your rebuttal time.

22 MR. BERG: Yes.

23 JUDGE GROSSMAN: You've got about 16 --

24 MR. BERG: Yes, thank you.

25 JUDGE GROSSMAN: -- plus minutes left.

1 MR. BERG: I'll wrap it up there, in that case.

2 JUDGE GROSSMAN: Okay.

3 MR. BERG: Thank you, Your Honors.

4 JUDGE RANGE: Okay. Thank you, Counsel. Unless anyone
5 needs a short break, we could move on to Patent Owner's argument.

6 MR. LAMAGNA: I'm sorry, did you want take a short break,
7 Your Honor?

8 JUDGE RANGE: I'm okay. I think -- we're okay.

9 MR. LAMAGNA: Yes, we can move forward.

10 JUDGE RANGE: Great.

11 MR. LAMAGNA: Thank you, Your Honor. This is Raymond
12 LaMagna on behalf of Patent Owner ArcelorMittal. Just as a preface, I
13 wanted to start off by noting on the ITC ArcelorMittal did not appeal that
14 decision because the patent expires later this year.

15 Given the remedy that's available at the ITC, the federal circuit
16 would've lost jurisdiction before we could -- the argument could have been
17 heard. Just to clarify that point. Let's start at Slide 12. This is a case where,
18 frankly, we think the patent office and the skilled examiner that reviewed the
19 art got it right in the first instance.

20 As we see in Slide 12, the primary reference we're dealing with
21 here, Takagi, was before the office during examination. Slide 13, the
22 primary reference Suehiro, was in front of the examiner. Slide 14, the key
23 secondary reference that they're referring to GMW, also in front of the
24 examiner. Slide 15 key secondary reference Cornette, also in front of the
25 examiner during Prosecution. Let's go on to --

1 JUDGE GROSSMAN: Were these just in front of the examiner
2 through an information disclosure statement that got initialed or were they
3 sort of discussed by the examiner and part in the proceeding?

4 MR. LAMAGNA: There was a family of patents, Your Honor,
5 that were obviously through a series of continuations. And I believe at least
6 some of these references, I believe Takagi in particular was discussed as part
7 of the office action process. I don't recall if that was in the instant
8 application or in the prior application, but I believe it's the same examiner.

9 There's a review in all of these claims. So, turning to Slide 16,
10 here I think we'll talk about the construction of the intermetallic layer. We
11 disagree with the Petitioner's position that we do think claim construction
12 here is outcome determinative. The Petitioner has not put forth any
13 argument in the record under our -- under Patent Owner's view.

14 In fact, Petitioner's argument, as we will go through in my slides,
15 relies on the notion that intermetallic can cover two metals that are not
16 atomically bound, that are not any compounds. Two metals that are not
17 sharing electrons, however you want to describe it.

18 Let's go on to Slide 17. So, the key question here is whether the
19 two base references here disclose the intermetallic layer. We have two very
20 different approaches from two different experts. On the Patentee side, we
21 have Dr. Raabe, and he takes the position that an intermetallic layer, and
22 again, as you noted Judge Grossman, we are talking about an intermetallic
23 layer.

24 That is the claim term, not an intermetallic compound, not an alloy
25 with intermetallics in it, not just two metals in the same area. An

1 intermetallic layer would contain two or more metallics, which I think the
2 parties agree on. And those would be atomically joined, they would be in a
3 compound.

4 And then they would have an ordering too when they do that, when
5 they form a compound, they then form a lattice with an ordered crystal
6 structure and a defined order to how the atoms are presented. For
7 Petitioner's part, they take the position that you just need two metals. Those
8 metals don't have to be joined, they can be just anywhere. Let's go to Slide
9 18.

10 JUDGE GROSSMAN: Okay. Before we go off that, in the Patent
11 Owner's proposed construction, which includes the atomically joined, is
12 there -- we know from the federal circuit that they always tell us that
13 specification is the best source of what the claims mean, or should be the
14 best source. Does the specification mention atomically joined in any place?

15 MR. LAMAGNA: Well, I think the term atomically joined is
16 being used here by our German expert to refer to being in a compound.
17 Whether I think that he's being more specific as to what that means when
18 two atoms form a compound, they are atomically joined.

19 But I think that we would argue, yes, the specification does include
20 that because the specification refers to intermetallics. And as we go through
21 the presentation, you will see that it was widely understood in the industry
22 that intermetallics, that word, it is a term of art that means that these two
23 metals are atomically joined.

24 And as we'll go through the presentation, we'll see there actually
25 isn't any understanding in the industry to support the notion that

1 intermetallic could be some iron over on the left and some aluminum over
2 on the right not joined.

3 Whether you want to call it as a compound or atomically joined,
4 whatever phrase you want to use. We're not drawing a distinction between
5 saying atomically joined and compound. But Dr. Raabe, let's go on to --

6 JUDGE GROSSMAN: Does intermetallic require that you have
7 two different metals?

8 MR. LAMAGNA: They have to be two metals or a metalloid.
9 And I think the metalloid would count for silicon in this instance. But I
10 don't think there's a dispute whether we're talking aluminum, iron, or silicon,
11 those count. And that's principally what we're dealing with here.

12 Moving on to Slide 18, Dr. Raabe, Patent Owner's expert is
13 undisputably a preeminent expert in the field. He has 40 years of experience
14 working in this area. Slide 19, Dr. Miles, who has conducted extensive
15 research -- we're going to the next slide. Dr. Miles, who's conducted
16 extensive research in other areas, has not actually worked in the areas related
17 to the patents.

18 He has not worked on or researched the formation of intermetallics
19 in aluminum alloy coatings. He has not worked on diffusion to create phase
20 layers like what we're looking at here in aluminum alloy coatings, or process
21 parameters to obtain specific phase structures in aluminum alloy coatings.

22 That's what this patent is about. And he does not actually have any
23 personal experience as an expert, as a professor in the field doing that work,
24 as he said in his deposition. Let's go to Slide 19.

25 JUDGE GROSSMAN: And should we understand that argument

1 to mean we're just weighing the weight of the evidence, the credibility of the
2 experts? We usually, our typical case is always an expert on one side says
3 yes, and the expert on the other side says no.

4 But here you're saying you think that we should consider the
5 experience of the two experts based on their experience in this area. And
6 because Dr. Miles, as you say on your Slide 19, lacks the expertise that you
7 think he should have, we should weigh his testimony less than -- give less
8 weight to his testimony than to Dr. Raabe's testimony.

9 MR. LAMAGNA: Yes. And you'll see -- thank you, Your Honor.
10 Yes. And you'll see in the Petitioner's reply, and in Dr. Miles' subsequent
11 deposition, there is no disagreement on the scope of his experience. We
12 state what it is, you can read the citations that we have here on Slide 19, and
13 no one's disputing that.

14 Let's go on to Slide 20. As a result, Dr. Miles uses a sweepingly
15 broad, and we think unsupported construction, where layer simply means, I
16 mean, an intermetallic layer is just two metals, somewhere in the same
17 material. They don't have to be atomically joined, there doesn't have to be
18 any order to how those atoms are arranged, or any specific structural
19 requirements.

20 JUDGE GROSSMAN: If I understood what you said a couple of
21 minutes ago, that the anatomically joined related to compounds. But the
22 claim never says compound. And this gets back to my earlier question to
23 Petitioner, and the difference between the claim language of intermetallic
24 layer and an intermetallic compound or an intermetallic phase.

25 But we just have to have an intermetallic layer and whatever that

1 may mean to meet the claim limitation. Or are we to understand that layer
2 really always means a compound, which then in turn applies the atomically
3 joined?

4 MR. LAMAGNA: I think we're looking at intermetallic layer
5 together, which is what Dr. Raabe is talking about. And that the term
6 -- when the patent refers to intermetallics, it is referring to something that is
7 understood to be a compound of metals, not free-floating metals.

8 When these materials start, these materials start as you have a base
9 metal that's primarily iron, on top of it you have something that's primarily
10 aluminum. Through the diffusion process, those atoms percolate up and
11 down, and they at that point are in the same space together.

12 As that process goes on, they can form what are called
13 intermetallic compounds. Those compounds can then coalesce into, in some
14 instances we may see globules, little islands, little bubbles of these materials,
15 or they can form into a layer, into a stratification.

16 And so that last point that we can contend, that's what the patent is
17 referring to. Put the other way, there is no intrinsic record at all or any other
18 scientific reference at all that says that an intermetallic would be two metals
19 not joined in some way. And we'll get to this a little bit later. Their only
20 reference for that is a lay dictionary, and I think that they've been a little
21 misleading on how they've cited that. So, if I could continue on --

22 JUDGE RANGE: So, Counsel, when I was sorting through this
23 issue in preparation for today's hearing, I was looking at Exhibit 2037, which
24 is a textbook you had called Intermetallics: Structures, Properties, and
25 Statistics. And I don't know if either party cited the glossary of that

1 textbook.

2 But the glossary on Page 514 of that textbook defines
3 intermetallics. And it's interesting because I'm looking at your Slide 21, it
4 says, no reference defines intermetallic layers a certain way. Which I think
5 your slide is technically correct based on what I've seen. But the word layer
6 is doing a lot of work there.

7 But this glossary definition, I don't know if you can pull it up very
8 easily, but it's Page 514 of Exhibit 2037. And it says, intermetallic
9 compounds are chemical compounds between metallic elements with well-
10 defined stoichiometry.

11 So that's consistent with what you're saying. But then it says,
12 comma, while intermetallic phases are the generic term for phases consisting
13 of two or more metallic elements, which may have a narrower extended
14 compositional stability range. And the term intermetallics may be used as a
15 short form for either of them.

16 So, I was wondering if you could address that glossary definition.
17 To me, it seems to suggest that both of you are right, in the sense that in
18 some context intermetallics are referring to well-defined stoichiometry, but
19 in other context they are not.

20 MR. LAMAGNA: Well, and I think as to the other sections of that
21 Exhibit 2037 that Dr. Raabe cites, I think it's in our briefing as well. The
22 point here is that when the intermetallics come together and they form this
23 lattice, that provides a certain strengthening and a higher melt point, that has
24 certain efficacy that is what the patent is about.

25 So, I think that a person of skill in the art, and this is what Dr.

1 Raabe testifies to, is looking at if you're simply talking about two metals
2 together somewhere, that definition applies to the material when it comes in
3 the door, before it goes through heat treatment, it applies to every level that
4 is after heat treatment, because that is so broad that it applies to almost
5 everything.

6 Like we said in our briefing, if you cut my wrist, you're going to
7 find at a cross section, it'll be intermetallic under that definition. If you slice
8 open a loaf of bread, it'll be intermetallic at the slice under that definition.

9 JUDGE RANGE: But is there anything in this specific -- like you
10 just said, that's what the patent is about, is there anything in the patent, the
11 specification that spells out that intermetallic compounds are what's
12 important here, or that it's this well-defined stoichiometry is what's
13 important here?

14 MR. LAMAGNA: They don't refer to the stoichiometry
15 specifically, but they refer to the properties of having the benefits that derive
16 from the intermetallic layer, which is specifically the weldability, which
17 comes from having a higher melt point, the durability of the corrosion
18 resistance by having something that is harder or less likely to crack, et
19 cetera.

20 I don't have the citations right in front of me, but I believe that
21 those benefits are in a specification, and that is the difference here between
22 this and the prior art, is the formation of specifically this intermetallic phase
23 layer.

24 JUDGE RANGE: Do we have evidence of record that those
25 benefits would not arise if instead intermetallic layer was phases consisting

1 of two or more metallic elements, just more generally?

2 MR. LAMAGNA: Well, I think in the record, you do, if you look
3 at the distinction between claim -- I'm sorry, Figure 1 and Figure 2, you have
4 the Figure 2 not reflecting as it says the invention, and saying that you get
5 bad results. That's the intrinsic record. Extrinsically, again, I'm not the, the
6 Petitioner here. It's the Petitioner's burden to come and point out why the
7 patent is not novel in some way.

8 JUDGE RANGE: Figure 2 is also prior art in this specification,
9 right?

10 MR. LAMAGNA: No Figure 2 of the patent on if we look at -- for
11 example if we draw a Petitioner's slide, I think it's 23 has Figure 2 in it.

12 JUDGE RANGE: Okay.

13 MR. LAMAGNA: And if you look at Figure 2, you have to keep
14 in mind in looking at the '602 Patent, for example, Exhibit 1001 in the 370
15 case at column 3, line 57 to 59, Figure 2 is identified as quote, something
16 that does not correspond to the invention. So, you heard a lot from
17 Petitioner about how somehow we're trying to -- when we say Figure 2
18 doesn't practice that that's somehow conflicting with the specification.

19 The specification itself says at column 3, line 57, that Figure 2
20 illustrates a coating that does not correspond to the invention. And when we
21 look at that coating, we see that this intermetallic material that like I said,
22 has basically broken apart. We don't have a cohesive layer. We have at the
23 very, very top a very, very, very thin layer.

24 And as Dr. Raabe points out, that doesn't meet the construction of
25 intermetallic layer, because for one reason, it's at the top. There is three

1 requirements in the patent claims for the intermetallic layer. It has to have a
2 positional requirement. It has to have, shall we say, a composition, it has to
3 be an intermetallic layer, not a layer of frosting or something else.

4 It has to be housed underneath the superficial layer. And so, if we
5 see this very thin, thin, thin, thin intermetallic layer at the top, it doesn't fit
6 that criteria. It also has to be the product of interdiffusion which we'll get to.

7 JUDGE RANGE: Figure 2 has two little lines pointing from the
8 intermetallic layer, so it's not -- it doesn't seem like it's that then.

9 MR. LAMAGNA: Well, again, Figure 2 is described as not the
10 invention. And among other reasons it's not the invention is it doesn't have a
11 superficial layer in -- the intermetallic material here, doesn't meet the
12 requirements of the patent claims because it doesn't fall into the position it
13 needs to fall into, as you can see.

14 And I think that this is open to debate, while there is part of it that
15 is continuous across the top, a great part of the material itself is broken apart.
16 It hasn't coalesced into a layer wherein there is a superficial layer above it. I
17 don't know whether this is a half-baked example or an over baked example,
18 but it is not within the patent claims.

19 JUDGE RANGE: I wanted to turn back to my original question
20 which was going to Exhibit 2037 at Page 514. It looked like you were close
21 to getting there. It's way at the end in the glossary. Oh, go to, I'm looking at
22 514 of the textbook instead, I'm sorry.

23 MR. LAMAGNA: And just for the record, I don't believe that this
24 is -- this section is cited or addressed specifically in the record.

25 JUDGE RANGE: Right. Anyway, I just, I guess I wanted to see

1 what you think about how this glossary frames the word intermetallic. Like
2 it makes sense to me that an intermetallic compound, like because it's a
3 compound, sure, that it's going to be bound, right? The atomic binding,
4 that's what a compound is. That makes sense to me.

5 But then it says that the word intermetallic phase can be more
6 generic. And I guess the way I'm seeing it, the word, the phrase
7 intermetallic layer, it strikes me as being more similar to the word phrase,
8 intermetallic phase, than it does similar to the phrase, intermetallic
9 compound.

10 MR. LAMAGNA: And respectfully, we don't have that coming
11 from any expert in the record or position that the parties have taken. But if
12 what you're suggesting here is that there is some ambiguity in how this
13 should be construed or understood, and Petitioner has -- that hasn't been
14 addressed by the experts, then again, I don't think that that's supportive of
15 Petitioner's position.

16 In other words, I believe that if you look at the context of what the
17 patent is talking about, what it's achieving, and as Dr. Raabe, our expert has
18 confirmed, there is a reason why this intermetallic layer has to be
19 compounds that are joined.

20 And if I could get through some other examples, I can illustrate
21 that in the art. And the Petitioner would have the burden of establishing a
22 construction under which that is not true. And I would present that they
23 have not -- that they have not done. So, let's go back to slide --

24 JUDGE RANGE: Yes, I guess like I know you want to get into
25 some of the examples, but I guess where my head is at, like I don't doubt it.

1 I don't doubt that the art has places that talk about intermetallic compounds
2 consistent with kind of the first part of this glossary definition.

3 But then the second part where it talks about intermetallic phases is
4 still hanging out here. And I think seems like our task is to determine when
5 the patent claims says intermetallic layer, which of these two realms are we
6 in? Is intermetallic compounds or is it in metallic phases more generally?

7 MR. LAMAGNA: Well, and if I could just jump ahead -- let me
8 jump ahead to Slide 34.

9 JUDGE RANGE: Okay.

10 JUDGE GROSSMAN: Is that Patent Owner's Slide 34?

11 MR. LAMAGNA: Yes, Patent Owner's Slide 34 if I could. So,
12 Patent Owner's Slide 34, as a result of Dr. Miles' view, he takes an extreme
13 reading of the intermetallic layer that basically renders the claim
14 meaningless. As I said, all of the steel coming in, all of the parts in it to
15 begin with, have multiple metals in them.

16 Under Dr. Miles' and Petitioner's construction, those would all be
17 intermetallic layers to start with, before we've ever done anything to it or
18 committed any processes. As the patent states in -- for example, if you take
19 the '602 Patent Exhibits 1001 in the 370 case at column six, starting at line
20 31, each of the four layers contains more than one of iron, aluminum, or
21 silicon.

22 So, under Patentee -- I'm sorry, under Petitioner's construction,
23 under the very, very broad construction where the stuff doesn't have to be
24 atomically joined at all, then all of the layers are intermetallic layers, every
25 layer. So that essentially reads out the term intermetallic from the -- it

1 doesn't have to say intermetallic, it just says layer because they're all
2 intermetallic to start with.

3 There's no distinction then between the intermetallic layer, the
4 interdiffusion layer, the surface layer, it's just layer. And I think the Federal
5 Circuit is pretty clear on that, that we can't construe the claim so broadly as
6 to render it meaningless.

7 JUDGE GROSSMAN: You've also submitted, I know we've
8 talked about your Exhibit 2037, but you have another Exhibit 2038, which
9 gets into what is a metallic. But I'm not sure that it was cited in any of your
10 briefing. It's in the record, but I don't know that you relied on it. But it says,
11 a section that says, definition of intermetallics, Page 11 of that document, of
12 Exhibit 2038.

13 And it the definition of intermetallics, they say is the short and
14 summarizing designation for the intermetallic phases and compounds, which
15 result from the combination of various metals. And then they have a more
16 simplified definition that says intermetallics are compounds of metals whose
17 crystal structures are different from those of the constituent metals.

18 And thus, intermetallic phases and ordered alloys are included.
19 Which seems to support where the distinction that you're drawing, that
20 intermetallics has a much more specific definition. But I didn't see any
21 citation to this Exhibit 2038 in your briefing. And I don't know whether it's
22 there and I didn't find it or -- but if you are aware of it, of your reliance on it
23 or reliance on it by Dr. Raabe.

24 MR. LAMAGNA: Yes. So, let's look at Slide 29, for example, if
25 we could. Patent Owner Slide 29 is what you're talking about. And here at

1 Slide 29, we have, again, our reference you're referring to unequivocally
2 stating that intermetallics are characterized by, number one atomic bonding,
3 number two, and I'll quote, particular crystal structures with ordered atom
4 distributions, which is exactly, I mean, in slightly different wording what Dr.
5 Raabe said, i.e., that is a defined stoichiometry and an ordered crystal
6 structure. We will double check our --

7 JUDGE GROSSMAN: But that is the -- and maybe there's some
8 confusion. I think if I'm reading your Slide 29, you're indicating that that's
9 Exhibit 2043 in the record?

10 MR. LAMAGNA: I'm sorry. Slide 29.

11 JUDGE GROSSMAN: Your Slide 29.

12 MR. LAMAGNA: Is --

13 JUDGE GROSSMAN: That's on this your screen now.

14 MR. LAMAGNA: Yes, it's coming from Exhibit 10 38. And in
15 our reply, we cite to Dr. Raabe at Exhibit 2040, which is his declaration at
16 paragraph 118, which cites this passage as the basis for his construction.

17 JUDGE GROSSMAN: Right. So, 2038 is the reference that I was
18 referring to. And that's what it's marked on the left side of your Slide 29.
19 But on the right side, is that a quote? It's marked as Exhibit 2043, I think, if
20 I'm reading it correctly.

21 MR. LAMAGNA: I'm sorry, I'm looking at the slide right now,
22 I'm not seeing the 2043 on our slide footnote on Slide 29. I'm seeing a
23 reference to Exhibit 2038, and also citing to where that's in Dr. Raabe's
24 record in the testimony he provided. And also, the testimony on this point
25 that Dr. Miles gave, which is Exhibit 2041 if you look at Page 342 of that,

1 lines 2 to 6, and also -- sorry, in lines 24 through to Page 343, line 23.

2 Where again Dr. Miles agrees with this point. So, I think rather
3 than speculate on the issues to what poses, would or would not agree, I think
4 it's helpful to actually look at Dr. Miles' testimony. Because Dr. Miles, the
5 Petitioner in their reply, made a bit of a kerfuffle about our construction.

6 When we actually asked Dr. Miles about the construction, he
7 walked back fairly dramatically and agreed that the construction that we
8 were providing was scientifically accurate. Let's look at Slide 22 for a
9 second. So, Slide 22, the only evidence that they have, they provide no
10 affirmative evidence of their position.

11 The only evidence in the record by them other than Dr. Miles's
12 testimony is Webster's dictionary, a lay dictionary. And what they don't do,
13 and I think this is a bit misleading, they don't separately address that
14 intermetallic compound is defined below that and defined in a way, again,
15 that's in accord with what Dr. Raabe says.

16 They simply look at one definition and don't look a quarter inch
17 down the page to the next entry. And when I asked Dr. Miles, "Why did you
18 do that?" He said, "Well, I was looking for something a little bit more
19 general,." as in something a little broader. It was objective driven to try to
20 broaden the claims. Let's look at Slide 23.

21 JUDGE GROSSMAN: Okay. And I'll just comment, I think the
22 source of my confusion was your Exhibit 2043 is your demonstrative slides.
23 So, what I'm looking at on the screen is the marking --

24 MR. LAMAGNA: I apologize.

25 JUDGE GROSSMAN: -- of 2043.

1 MR. LAMAGNA: And the --

2 JUDGE GROSSMAN: And it's you're referring to 2038.

3 MR. LAMAGNA: Correct. Thank you, Your Honor. Yes. The
4 stamps sometimes make it a little confusing there. So, if we look at Slide
5 23, as a result, what Petitioner and Dr. Miles find as a basis for finding an
6 intermetallic layer, is merely the presence of separate elements. There is
7 nothing here in this line scan for example in Takagi, and if we look at the
8 next slide, Slide 24, the lions scan for Suehiro, other than the identification
9 of singular elements.

10 If we go to Slide 26, we see that after examining in his deposition,
11 this case we were questioning him about Exhibit 2038 as it says in the
12 footnote at the bottom, Dr. Miles agreed that the scientific literature defines
13 intermetallics as in substance being number one, atomically joined, and
14 having defined stoichiometry and an ordered crystal structure. In his
15 deposition, he concurred with us.

16 If we go to the next, number 27, Dr. Miles agreed that the
17 construction that Patent Owner is offering was a, quote, standard quote,
18 textbook definition, that it was not unreasonable, that it was not wrong.
19 Let's go to Slide 28. He agreed that the sources that we're citing for that are
20 authoritative, that they're reliable, that they're accurate.

21 He retracted his position that they conflicted with -- which is cited
22 in the Petitioner's reply, that they conflicted with the Patent Owner's
23 construction. He retracted his opinion that POSITAS would not have looked
24 at these kinds of texts and agreed that they would've.

25 If we go to the next slide, Slide 29, Patent Owner's -- well, we

1 already saw it. Apologies. We already saw something similar to this. And
2 this is also on Exhibit 2038, showing you where it's noting in the citation
3 where we're citing. But as you point out, Exhibit 2038, again, presents
4 exactly what Dr. Raabe is saying, intermetallics should be understood
5 -- would've been understood at the time to be.

6 Let's look at Slide 30. In sum, Dr. Miles had to agree that it was
7 -- that the elements that Dr. Raabe identified, atomic bonding, a pattern to
8 the elements, and/or the crystal structure were how someone would've
9 understood what it means to be an intermetallic at the time, an intermetallic
10 layer.

11 Let's go to Slide 31. Here we have an excerpt from Exhibit 2039.
12 And again, Dr. Miles agreed that it was understood at the time that -- the
13 understanding was, and I'll quote, alloys and solid solutions should clearly
14 be distinguished from intermetallic compounds. Close quote.

15 That is exactly the distinction that Petitioner are not making. And
16 again, here you have in Exhibit 2039, the identification of, and I'll quote
17 again, a stoichiometric ratio of the elements. And those are being found in
18 an ordered arrangement, specifically, it says in a lattice. So again, the
19 elements that Dr. Raabe said are identified. Let's go to Slide 32.

20 JUDGE GROSSMAN: Okay. But before we move on, just related
21 to the nuances of the construction of intermetallics, we're looking at how a
22 person of ordinary skill in the art would understand that term based on the
23 claim language, the intrinsic evidence, as well as extrinsic. Is there any
24 dispute about what is the level of ordinary skill?

25 I know the Petitioner says at the -- it would be an undergraduate

1 degree in material science, manufacturing, engineering, mechanical
2 engineering equivalent knowledge, and two years of experience.

3 MR. LAMAGNA: Right. I think that where that comes up is on
4 the reasonable expectation of success and motivation to combine. The
5 disagreements are at the margins and not material I think under either party's
6 views. Our view is that there wouldn't be a reasonable expectation of
7 success. But I'll let my colleague address that.

8 JUDGE GROSSMAN: But do you have any dispute as to what
9 that level of skill is? A bachelor's degree in a relevant technology with two
10 years of experience?

11 MR. LAMAGNA: We're using what Petitioner has said, which is
12 essentially what you said. And then, so going on to Slide 32. So, the
13 question comes up, well, then why is Dr. Miles disagreeing with Dr. Raabe?
14 He seems to be in heated agreement during his deposition on the science.
15 So, scientists are not disagreeing on the science.

16 Well, he understood evidently that Dr. Raabe was saying that the
17 layer, the intermetallic layer, had to require an atomic absolute, it had to
18 require that the -- it comprises exclusively of these intermetallic compounds
19 to an atomic perfection.

20 Slide 33. What in sum happened, and he conceded in his
21 deposition, he misunderstood the word containing as essentially the same as
22 comprising or consisting solely of -- he didn't follow the distinction in those
23 terms. And so, he was creating a construction for himself in his mind of
24 Patent Owner's construction that isn't what we were saying.

25 Importantly, the experts are in agreement that a person skill in the

1 art would understand that there's some deviation that's allowed. There isn't
2 absolute homogeny to the atom. There can be -- it's largely homogenous
3 from a compositional standpoint, the phase layer, but it doesn't have to be
4 absolutely perfect.

5 And that's what's important is what a POSITA would understand.
6 Let's go to 34. Oh, we already looked at 34, my apologies. Let's address a
7 couple of minor criticism points that they've raised. They say that Dr.
8 DeArdo in the prior IPR that was Patent Owner's expert.

9 Somehow that conflicts. What Dr. DeArdo testified to, was that he
10 said it had to be in a compound. Dr. Raabe said it has to be atomically
11 bound. He said it had to be in a -- it was in a matrix, Dr. Raabe said it's an
12 ordered crystal structure. These are basically what -- slightly different levels
13 of abstraction for saying the same thing, using different terminology.

14 Dr. Miles, in reviewing that during his deposition, retracted his
15 objection and confirmed that the two do not contradict, that they were just
16 talking at slightly different levels of specificity, because the two cases
17 involve different issues necessitating a different lens to be looking at claim
18 construction.

19 You also saw them suggest that -- or in their briefing they say that
20 Dr. Raabe is contradicting the idea that there can be these so-called
21 amorphous intermetallics that don't fit the same rules. But amorphous
22 intermetallics as again, Dr. Miles testified to are something called metallic
23 glasses.

24 And Dr. Miles testified unequivocally that those are not at issue in
25 this patent. It is a type of formation that does not occur in the realm that we

1 are talking about in the patent. So of course, it's not as a part of the
2 construction. You also heard Petitioner --

3 JUDGE RANGE: This is Judge Range again. And I was just
4 reviewing the '602 Patent again, and I was noticing a column 2, line 53, and
5 it says intermetallic alloying is insufficient and the precoating melts. And
6 then at column 3, it's really the sentence that spans columns 2 and then into
7 column 3.

8 But at column 3 at the top, there you go. The second line there on
9 column 3, it says, and this is something -- it says the inventors discovered
10 this, a fully homogeneous martensitic structure. Can you explain that fully,
11 homogeneous martensitic structure?

12 MR. LAMAGNA: The martensitic structure occurs in the base
13 steel. That is really not what we're concerned about here. It does have to
14 -- I think both the parties are not really focused on the martensitic structure,
15 which is in the base steel, not in the coating.

16 JUDGE RANGE: Okay, got it. I was just trying to -- I don't
17 know, I was just trying to find something in the spec. Because you've been
18 making this point that the strength of this bonding is very important to the
19 patent, and I'm just trying to find like what in the spec best supports that.

20 MR. LAMAGNA: And yes, let us look in that. Perhaps we can
21 get that to you in a little bit later.

22 JUDGE RANGE: That'd be great. Thank you.

23 MR. LAMAGNA: And so, going back to what I said, there was an
24 issue as to whether that we're inconsistent with the prior IPR. The IPR for
25 the '683 Patent involved a different patent, different counts and different

1 arguments against the petition. That petition, what's being litigated now is
2 whether Takagi or Suehiro have the intermetallic layer, which was not at
3 issue before.

4 What was at issue before was Cornette. And specifically, in
5 Cornette, it was whether or not -- it was whether or not Cornette provided
6 -- was subject to just heat treatment, or whether it was also subject to heat
7 treatment and hot stamping. The presence or absence of the intermetallic
8 layer was not litigated in that matter.

9 So, in fact, you have, if you look at Exhibit 1029 at 23, which is
10 cited in the Petitioner's reply at Page 7, and I'll read you what the Board
11 there wrote. "The party's dispute does not center on whether the prior art
12 discloses the terms modifying layer. Thus, we need not construe those
13 terms."

14 So, this notion that somehow we're conflicting with a claim
15 construction, there was no claim construction of intermetallic in the prior
16 IPR. That somehow there should be some determination about Cornette on
17 an issue that was not being disputed in that case, that somehow should
18 virally apply to all other prior art.

19 I don't know of any legal PTAB Federal Circuit precedent for
20 taking the concepts of estoppel and so forth to that, stretching it. And I think
21 you heard them make reference to that. But I think you would probably
22 want to look at what's actually cited by the parties, and not just the hand
23 waving suggestion that there is something wrong that occurred there,
24 because there isn't.

25 Let's go to whether or not Suehiro discloses the intermetallic layer

1 in Slide 37. It's undisputed that Suehiro does not mention intermetallic.
2 Slide 38. Suehiro shows only one-line scan. And that line scan is from an
3 undisclosed part. Both experts agree that to characterize a composition in
4 two or three dimensions, you need more than one dimensional line scan data.

5 Dr. Miles testified to that. You have them talk about what it means
6 to be a layer, and they said, layer is material that's spread out over the
7 product. Well, it's spread out in three dimensions. You have a singular line
8 scan in Suehiro that tells you only what's happening on that line.

9 You can't characterize what is happening in two dimensions as a
10 layer or three dimensions across the product. Let's go to Slide 39. The
11 claims require -- well, basically this is an extension of what I just said. The
12 claims require a layer and not a line.

13 And Petitioner's expert himself agreed that we basically have to
14 make assumptions when we're looking to try to characterize what's inside the
15 layer. To respond to some of the arguments that they're going to make, I
16 think it's really important, they raise -- they say Suehiro paragraph 15 says
17 that there's intermetallic layer.

18 Well, Suehiro paragraph 15 says that there's an alloy that is formed
19 from aluminum, iron, and silicon. It doesn't say intermetallic layer. It
20 doesn't say that those are joined in a compound. Again, I submit that a
21 solid-state solution of metals, where those metals are not joined is not an
22 intermetallic layer.

23 Now, they list in their briefing several other references including I
24 think it's Exhibit 2025, 2019, 2035 as basis suggests somehow that people
25 would read Suehiro as presenting intermetallics, even though it doesn't say

1 that. But that again is impermissible.

2 Those other references are not part of the Grounds; they were not
3 submitted in the petition as the basis for the intermetallic -- the presence of
4 intermetallics in Suehiro. It is as we talked about earlier, intermetallic
5 compounds and layers are not synonymous. The former does not necessarily
6 rise to the latter.

7 You can look at Dr. Raabe's testimony that we cite in our surreply
8 on Page 12, which is Exhibit 1078 at Pages 10 -- at Pages 126 and also 346
9 to 348. Dr. Miles himself said that -- give me one second. Well, let me skip
10 by that. If you look at the references of their sighting, for example, I think
11 that they are wrong because, number one, like I said, it's not in the Grounds.

12 But I think I forgot to mention, so let me just go back a step.
13 There's also a question here of whether or not we're relying on express
14 disclosure versus inherency. What they're trying to do in their surreply as
15 we pointed, I mean, in their reply, as we pointed out in our surreply, is to try
16 to gain new ground with a new argument that while somebody would've
17 understood it, which is an inherency argument.

18 It's not there in expressly, but we should import it in because that
19 would inherently be the case. I think that's wrong for two reasons. First of
20 all, legally it's wrong. They didn't raise that argument, they're barred from
21 that argument.

22 Secondly, it's factually wrong because if you look at the material
23 that they suggest, there is a difference between there being two materials,
24 not in a compound, them forming a compound, and then those coalescing
25 into an intermetallic layer like we see in Figure 1 of the patent.

1 You have in, for example, Exhibit 2025 that they cite, 2019. You
2 have alloy material being referred to just generically, not as an intermetallic
3 layer in 2035. It talks about the entire plate, the entire top coating as a
4 whole, which it refers to as an alloy aluminum system plated layer.

5 It's not talking about in any of these a sublay or strata that is
6 identified or constitutes or described in any way as an intermetallic phase
7 layer. Let's look at Slide 41 and move on to whether or not Takagi discloses
8 an intermetallic layer. The Petitioner relies again on one dimensional data.

9 Slide 42. Here is again what they cite in the petition. They are
10 again barred from making an inherency argument. This is not saying -- this
11 is saying that you need to look to Takagi Table 1 to determine if there is an
12 intermetallic layer. And if we go back a slide, you can't -- well, actually,
13 let's go -- apologies. Let's go to Slide 43.

14 JUDGE RANGE: Counsel, maybe you may be getting there, so if
15 you are, that's fine. But I'm curious how you address Takagi paragraph 16,
16 where it says its layer structures made up of these intermetallic compounds.

17 MR. LAMAGNA: Yes. Well, it's the same issue, is we're not
18 disputing that there can be intermetallic compounds that conform. The
19 question is whether one of those layers is -- I don't think it means made up as
20 in entirety of, as in consisting of that and no other.

21 Because if you -- again, when you start, this material all consists of
22 aluminum or iron that is not bound to each other. I don't think either side is
23 suggesting that the entire coating becomes one big block of intermetallic
24 material. So, what you have in paragraph 16, is them saying that Takagi is
25 talking about, again, that they're being intermetallic compounds that are in

1 the layer overall.

2 But it doesn't say that one of those sublayers constitutes an
3 intermetallic phase layer. The way our expert put it is, what it's describing is
4 that you have, shall we say, intermetallic hazelnuts that are in a pudding.
5 That is very different than saying that you have a layer of hazelnut cake that
6 is in a layer cake. So, we're not disputing --

7 JUDGE RANGE: Well, this kind of goes to issue of -- I guess
8 you're reading Claim 1 is it has to -- the entire thing has to be intermetallic
9 compound, that entire layer?

10 MR. LAMAGNA: No, we're not saying that the entire layer has to
11 be it. But what we're definitely saying is what Petitioner is saying is wrong.
12 So again, Petitioner is saying that so long as you've got two atoms, one in
13 that layer, you've got an atom of iron, you've got an atom of aluminum, they
14 can be three inches apart, we're good.

15 That's Petitioner's construction. That's the bounds of Petitioner's
16 construction. We think that that's wrong. We think that the layer needs to
17 be characterized by the intermetallic phase. So, the issue here is like, for
18 example, let's say I went to Starbucks and I order a hot chocolate.

19 And the hot chocolate comes with a layer of whipped cream on
20 top. Now, maybe I get more whipped cream, I get less whipped cream, but
21 you would expect a certain -- you would expect a certain layering. There
22 may be some air holes, there may be some bubbles, or there may be some
23 places where there's no whipped cream, but by and large you have an
24 expectation that there'd be -- it'd be characterized for the most part by that.

25 And so, we're not asking for atomic exclusivity, but we are saying

1 that it going the other direction and adopting their construction where
2 nothing has to be joined, there doesn't have to be one atom in their
3 construction that is atomically bound to another atom, and that cannot be
4 right.

5 JUDGE RANGE: But even if, even under your construction, what
6 -- like if a person of skill in the art would understand intermetallic
7 compound to mean what you're saying, which I think you're right as far as
8 intermetallic compounds go, intermetallic layers are where things get messy.
9 But like why wouldn't I think that a layered structure made up of these
10 intermetallic compounds would be -- would not be an intermetallic layer?

11 MR. LAMAGNA: Well, because in order to do that, again, you
12 have to presuppose a definition. If we take you -- if we accept that, then all
13 of the layers are intermetallic layers. There isn't anything special about the
14 claim language that says this one, number three, needs to be an intermetallic
15 layer.

16 JUDGE RANGE: Yes, but in Takagi, we know it has a layered
17 structure made up of these intermetallic compounds. Like so even under
18 your construction, why wouldn't that paragraph 16 meet that?

19 MR. LAMAGNA: We know that the -- first of all, we are not
20 -- you're connecting paragraph 16 in Takagi to -- and if we don't -- I don't
21 know that we get to cherry pick our disclosure. We have to look at one
22 embodiment and one disclosure. Paragraph 16 is talking overall about the
23 process.

24 They've cited to, again, if we go back to the slide that shows their
25 claim basis, Slide 42. If we see Slide 42, we don't have paragraph 16 here

1 on Slide 42. I don't think we should be cherry picking, but if we do cherry
2 pick, the point is that the paragraph 16 says that there are intermetallic
3 compounds in the layers.

4 It doesn't say that one of the layers is essentially a -- has coalesced
5 into an intermetallic phase layer. So, I think there is a distinction of degree
6 in this instance. Let me continue on from here. As I was saying, I don't -- if
7 we go --

8 JUDGE DENNETT: Excuse me.

9 MR. LAMAGNA: Yes.

10 JUDGE DENNETT: This is Judge Dennett. I just need to ask,
11 you're criticizing Takagi and Suehiro on their disclosures. How does the
12 disclosure in the '602 Patent regarding intermetallic layer differ from what
13 these prior art references say about it?

14 MR. LAMAGNA: Well, one thing that is -- we don't know what is
15 in some -- what the -- how these layers in the prior art are composed. We
16 have to make inferences. And that I think takes us right out to begin with,
17 out of being an express disclosure. And they don't have the expert support
18 for making that inference and raising what is essentially an inherency
19 argument.

20 Within the intrinsic record to go to your point, within the intrinsic
21 record, the inventors say that what is in that layer, and they characterize it as
22 being comprising intermetallic materials, that it is an intermetallic layer. So,
23 they've gone and identified it as such, whereas the prior art doesn't.

24 And if we want to take something that is a non-express disclosure
25 in the prior art as a matter of law, and say, hey, we really think even though

1 it doesn't say it, it means a certain thing, then we have an additional high
2 burden under the federal circuit. Because it may not be that thing, it may be
3 something else.

4 It may be something that falls short of an intermetallic layer. It
5 doesn't necessarily, and Petitioner has not shown that it necessarily
6 constitutes an intermetallic layer. That's not what Takagi paragraph 16 says
7 at a high level. Because I need to yield some time to my colleague. And I'm
8 sorry, we've run over a little bit.

9 JUDGE GROSSMAN: You're down to about eight minutes.

10 MR. LAMAGNA: Yes, I know we're a little bit short on time. I
11 think the same problem is it occurs here with respect to Suehiro. We don't
12 need to look at the slides. Suehiro likewise relies on line scan data. In
13 Suehiro we have an additional issue that you saw where you do have a layer
14 that is the lighter white material.

15 We're not contending it's the darker material in that slide. Maybe
16 we can pull up one of those, like slide 52. Oh, there we are. Where it's that
17 light band above the darker gray band. The experts there, Dr. Miles, their
18 expert, agrees that that is a layer.

19 And if we go a couple of slides down to where we have our yellow
20 line, it is not inconsistent with Figure 13 because Figure 13 is a line scan. It
21 is not a horizontal sweep. It is entirely possible that Figure 13 is taken from
22 either the same sample or a different sample at a place where that top layer is
23 not well formed.

24 And if that is the case, then it's not going to pick up in the
25 chemistry, in the elemental line scan. Critically, you see Petitioner now

1 trying to shift a little bit and argue that, well, this extra layer does -- doesn't
2 matter because maybe it would be the superficial layer. They have no
3 argument in the record to support that.

4 And you can see this in our reply at Page 16, and this is a critical
5 section citing Dr. Raabe at Exhibit 1078, Page 230, line 9 to 231 line 7. It
6 isn't necessarily the case that that top layer could qualify as a superficial
7 layer. Because if you look back at Claim 1, all of the patent, all of the layers
8 have to be the product interdiffusion.

9 If that layer that's at the top is ephemera left over from the original
10 alloy, that is not the result of interdiffusion, then it does not meet the
11 requirement for the superficial layer. And they haven't shown otherwise.

12 JUDGE GROSSMAN: Okay. I just want to clarify, I'm not sure I
13 heard you say it, but we're looking at your Slide 56.

14 MR. LAMAGNA: Yes, apologies. We're looking at my Slide 56.

15 JUDGE GROSSMAN: And for the record, so yes. When we're
16 talking about the layers as we're on Slide 56.

17 MR. LAMAGNA: Yes. Let me let my colleague --

18 MR. KATHIR: Good afternoon, Your Honors. It's Allen Kathir
19 for the Patent Owner. I'm going to jump right in and hit a couple of high
20 points, but I'm obviously happy to talk about any questions you have about
21 any of the issues that I'm going to discuss. So, I'm going to turn to Slide 59.

22 And this issue is really about Petitioner's motivation to combine
23 and reasonable expectation of success. They have to show both prongs, and
24 they have it in this case. And so, turning to Slide 60, the Federal Circuit is
25 clear, I think we all know this. You can't base obviousness on hindsight.

1 A determination of obviousness cannot be based on the hindsight
2 combination of components selectively called from the prior art to fit the
3 parameters of the patented invention. And that's exactly, unfortunately what
4 Petitioner did here. Let me go to Slide 61. When

5 JUDGE GROSSMAN: When you're talking on your Slide 59,
6 you're talking about the art taught away from thicker coatings?

7 MR. KATHIR: Yes.

8 JUDGE GROSSMAN: Are we focused on the parameter -- the
9 thickness of the coating, let's say in use in Claim 1 again, using that? I think
10 it refers to 30 micrometers.

11 MR. KATHIR: Yes, that's right, Your Honor. The overall
12 thickness of the post hot stand coating.

13 JUDGE GROSSMAN: And so, your point would be that the
14 number 30 in Claim 1 is a thicker coating --

15 MR. KATHIR: Correct.

16 JUDGE GROSSMAN: -- than had been used in the prior art?

17 MR. KATHIR: Yes, Your Honor. And let me actually just jump
18 straight to that point and skip ahead to Slide 66.

19 JUDGE RANGE: And Counsel, this is Judge Range. I know you
20 have limited time, so one thing I'm interested in hearing from you on is I'm
21 not sure if you're briefing squarely addresses Petitioner's position that for
22 -- I think especially for Takagi, I understand Petitioner is saying that Takagi
23 would've been thicker than 30, once you had the coating on.

24 And the other references are essentially just evidentiary references
25 proving that point. In which case, the reason to combine is not really the

1 same, it'd just be more evidentiary.

2 MR. KATHIR: Yes. Let me address that. So, let's go to Slide 74.

3 So just to be very clear, I think Petitioner concedes this Takagi, excuse me,
4 does not disclose an overall thickness of greater than 30. That claim
5 limitation, claim element is completely missing. They're also not asserting a
6 102 ground that this is anticipated by Takagi, or that this is inherently
7 disclosed it in Takagi.

8 So, what they try to do is try to establish a universal relationship.
9 They say, well, if you look at FR Laurent, that reference establishes that if
10 you have a certain precoating thickness, the post coating thickness is going
11 to be approximately 50 percent higher. And that's what Dr. Miles says.

12 But if you actually look at Laurent, which is what we have on the
13 right side of that screen, it's very expressed in that reference that that
14 relationship is not a universal relationship, it's just specific to the exact test
15 the FR Laurent described. And we asked Dr. Miles about this at his
16 deposition, and that's on the next slide at Slide 75.

17 And he agreed that that 50 percent relationship that Petitioner
18 ascribes to try to say Takagi discloses this greater than 30, is not universal,
19 it's specific to what FR Laurent was disclosing. And there's no evidence in
20 the record or any testimony that what FR Laurent was disclosing is
21 somehow similar to anything that Takagi was disclosing.

22 And then the other key issue with motivation to combine is it's just
23 not increasing the overall thickness. And I'll go to Slide 76. It's increasing
24 the thickness and retaining the claimed microstructure, right? There's sort of
25 an assumption presumption in Petitioner's argument that once you have a

1 microstructure, you can just modify just the size at will.

2 You can supersize it, you can decrease it. The microstructure is
3 going to stay the same, but not just the microstructure, but the attributes of
4 that microstructure. And that's just not the case. There's no evidence that if
5 you were to supersize one of Takagi's microstructures, that you would still
6 retain the benefits that Takagi ascribes to its microstructure.

7 GMW, which they use for a motivation to get to 30, there's no
8 evidence -- or sorry, GMW doesn't require any specific microstructure. So,
9 if a POSITA were to look at GMW, there's no reason for them to retain the
10 microstructure of Takagi and somehow try to make that work.

11 As you heard from Petitioner, they already had a -- Cornette was
12 above 40, There was no reason to then try to upsize Takagi while getting
13 everything else to work. It also just would've been -- wouldn't have been
14 -- it would've been too difficult for a POSITA. And finally, Dr. Miles, he
15 doesn't offer any evidence.

16 There's no testimony in the record that if you were to upsize any
17 one of these microstructures, that the benefits that are ascribed to the
18 microstructure at a specific height, thickness, would somehow still apply at
19 that upsized level. And let me just, I guess go to the next slide, Slide 77.

20 JUDGE GROSSMAN: And just so you're not surprised by it,
21 you've got about 20 seconds left of your time, including the rebuttal.

22 MR. KATHIR: Oh, well then let me just save 10 seconds for the
23 rebuttal. Thank you. Your Honors.

24 JUDGE RANGE: Okay. Petitioner, you may proceed with your
25 rebuttal. Judge Grossman.

1 JUDGE GROSSMAN: I've got 16 minutes and 36 seconds on the
2 clock for your rebuttal.

3 MR. MONALDO: Thank you, Your Honor.

4 JUDGE RANGE: Thank you.

5 MR. MONALDO: Just getting the computer set up here.

6 JUDGE GROSSMAN: You can just begin when you're ready.

7 MR. MONALDO: Thank you, Your Honor. And I'll start, Judge
8 Range, you asked me for a citation for the dictionary definition. That would
9 be Exhibit 1079 in our record during the first stanza. I want to first start by
10 addressing Patent Owner's contention that our construction of intermetallic
11 is just two metals in a space.

12 They contend it's to be in a human body, in sliced bread, and you
13 get to our construction. That's just not true. Our construction requires two
14 or more metals in an alloy. That is consistent with the prior arts -- or the
15 description in the '602 Patent. You can see that on Slide 14, intermetallic
16 alloys. That's what the patent describes, that's intrinsic record.

17 It's also consistent with how the prior art describes this process and
18 the formation of intermetallic alloys during hot stamping. You can see this
19 on Slide 18, where we present a French version, a Lauren reference. You
20 can see in the upper text box where the coating combines with the substrate
21 to form an intermetallic alloy.

22 It's also consistent with the Hein reference shown at the bottom of
23 Slide 18, that tells you the intermetallic alloy reaction between the aluminum
24 silicon coating in the iron substrate of the blank. So, the patent tells you,
25 you have intermetallic alloying. The prior art is telling you it's intermetallic

1 alloying. Our construction is two or more metals in an alloy. Perfectly
2 consistent. Now, yes, Your Honor.

3 JUDGE RANGE: This is Judge Range. Where in the patent do we
4 think it's intermetallic alloying?

5 MR. MONALDO: Yes, it's shown on our Slide 14. You can see at
6 the top, this is the background, just discussion in the patent, just what was
7 known. An alloying of the precoating with the steel substrate, which has the
8 effect of creating intermetallic alloys. So right there in intrinsic record.

9 And then you see another citation here we have a column 5, lines
10 54 to 61. Thus, the alloying reaction forming the intermetallic alloy may
11 take place to an insufficient degree. So, what these layers are achieving are
12 what's in our construction, two or more metals in an alloy, intermetallic
13 alloy.

14 JUDGE RANGE: Could you address where it says the alloy may
15 be insufficient and what --

16 MR. MONALDO: Yes.

17 JUDGE RANGE: How that relates to the '602 Patent?

18 MR. MONALDO: Sure, sure. And I think they're talking about
19 Figure 2 or they're talking about -- oh, a thinner precoating there. So, they're
20 talking about what happens when you have too thin of a precoating. And so,
21 in that case, the alloying action -- alloying reaction is efficient to form the
22 intermetallic alloy to an insufficient degree.

23 It's not saying you don't have an intermetallic alloy at all, it's just
24 saying it's formed to an insufficient degree. And I think that kind of -- and
25 I'd like to address Patent Owner's comments on Figure 2 not being part of

1 the invention. Our position is that it's not part of the invention because it
2 doesn't show the succession of layers shown in Figure 2.

3 If you look at the patent's description of it, the clear difference
4 between Figure 2 and Figure 1, is that Figure 1 has four layers, an
5 interdiffusion layer, an intermediate layer, and intermetallic layer, and a
6 superficial layer. And Figure 2 only has two layers, an interdiffusion layer
7 and an intermetallic layer. That's the difference.

8 It's a succession of the layers in the coating and its formation. Not
9 whether or not Figure 2 has an intermetallic layer. It clearly does. The
10 patent tells you that, it shows you that in Figure 2, and it has that in the
11 description that we cite on Slide 15. So, for those reasons, Figure 2's
12 depiction and description as an intermetallic layer is actually highly relevant
13 to how that term would be used in the '602 Patent.

14 JUDGE GROSSMAN: Right. And did I -- looking at the patent,
15 the patent says the description of Figure 2 does not correspond to the
16 invention.

17 MR. MONALDO: That's right.

18 JUDGE GROSSMAN: Okay.

19 MR. MONALDO: Yes. It does not correspond to the invention,
20 but it's not because it doesn't have an intermetallic layer. It doesn't
21 correspond to the invention because it doesn't have the four layers shown in
22 Figure 1. That's the difference between Figure 2 and Figure 1. The
23 invention is four layers, Figure 2 shows two.

24 One of those is an intermetallic layer, but it's not part of the
25 invention because it doesn't have all four layers. Does that make sense? It's

1 not saying that it's not the invention because it doesn't have an intermetallic
2 layer. Quite to the contrary, it clearly has an intermetallic layer.

3 It just doesn't have these other two layers that are part of the claim
4 and what the inventor's thought was invention. Does that make sense?

5 JUDGE GROSSMAN: Yes.

6 MR. MONALDO: And so just at a high level, I want to address
7 Patent Owner's contention that this case is a battle of the experts. That's
8 kind of the first slide in construction battle of the experts. This case is not a
9 battle of the experts. This case is a case where you look at the intrinsic
10 record.

11 The intrinsic record makes no mention of the terms that Patent
12 Owner seeks to read into the claims. And it also shows you explicitly an
13 intermetallic layer in Figure 2, that Patent Owner emits falls outside of its
14 construction. Phillips tells us a construction that finds no support within the
15 intrinsic record is incorrect.

16 And that's particularly true when the intrinsic record, the
17 specification is contrary to the proposed construction. That's exactly the
18 situation we have here. And there's no reason to move beyond the intrinsic
19 record to resolve the dispute of the parties.

20 I think it's telling that if you look at Patent Owner's slides on claim
21 construction, there isn't one citation to the intrinsic record. No citation of
22 specification, no citations of the Prosecution history. All third-party sources.
23 That's not how claim construction works. And Phillips and the Federal
24 Circuit repeatedly told us that.

25 JUDGE DENNETT: Counsel, this is Judge Dennett. Could you

1 address Patent Owner's position regarding intermetallic layer that with the
2 construction you're urging that you could have essentially no relationship
3 between the various atoms. You could have, I think it was -- and this was
4 obviously an exaggeration, but an iron atom one place and a silicon atom
5 three inches away.

6 MR. MONALDO: Yes. Your Honor, that is not our position. As
7 mentioned at the start of the rebuttal, our position --

8 JUDGE DENNETT: Oh, I know, but --

9 MR. MONALDO: -- is that you have two or more medals in an
10 alloy. There's a relationship, there's an alloying relationship that occurs and
11 you have an intermetallic alloy within this intermetallic layer. That's our
12 position. Does that make sense?

13 JUDGE DENNETT: Yes. Thank you.

14 MR. MONALDO: And as mentioned, that's consistent with the
15 '602 Patent and the other references we've cited in our slides. So, I'd also
16 like to briefly address the glossary definition that, Judge Range, that you
17 raised during Patent Owner's presentation. And actually, I'll turn us to Slide
18 19 on this point.

19 So, we do not cite that glossary definition on Slide 19, but instead
20 we cite to Exhibit 2038, Judge Grossman, that you raised. And you see here
21 what Exhibit 2038 is telling you. It says intermetallic -- or intermetallics are
22 compounds of metals whose crystal structures are different from those of the
23 constituent metals.

24 So crystal structures are different. It doesn't say ordered crystal
25 structure. And importantly it says, and thus intermetallic phases and ordered

1 alloys are included. So, you have two things, intermetallic phases and
2 ordered alloys that are included. Two things, just like the glossary
3 definition, Judge Range, that you cited, where the term intermetallics is
4 broad to cover these two types of things.

5 Whether they're phases, whether they're ordered alloys, the term is
6 broad and covers both of those types of situations. You also see here
7 citation to amorphous intermetallic phases in the same textbook 2037 with
8 the glossary definition that we cited in our briefing. And Dr. Raabe's
9 admission, that amorphous means you don't have a crystal structure.

10 Now, in our Petitioner reply at Pages 5 to 6, you see what Dr.
11 Raabe did. And we asked him about the definition of intermetallics that he's
12 defining, and where is this in the literature? And Dr. Raabe told us, he said,
13 "I didn't pull one piece out of one literature. I looked at a bunch of things
14 and I pulled several things together, and what coalesced in my mind was this
15 definition that I'm offering you."

16 That's not how the law works. And you see that at Petitioner's
17 reply at five to six, Page 6 citing Exhibit 1078, which is testimony from Dr.
18 Raabe at Page 112 and 113 where he mentioned this. And he said, "I just
19 pulled these things together. I looked at that and I came up with this
20 definition."

21 But as we've discussed, Philips tells you to look at the intrinsic
22 record. None of that's in the intrinsic record. We don't go to multiple third-
23 party sources and just kind of pull things into a claim term. That's just not
24 how claim construction works. And the Philips case tells you that that
25 would be inappropriate.

1 I'd also like to spend a minute just talking about the testimony that
2 Dr. Miles offered during his deposition. There's a couple of places I'd like to
3 point you to. And this is in his deposition transcript -- let's see, I don't have
4 this. Exhibit 2021. And so, on Pages 47 to 49, you can see testimony from
5 Dr. Miles where he confirms that -- I'm sorry, this is not -- sorry, wrong
6 exhibit.

7 This is the rebuttal deposition, the second deposition. That is
8 Exhibit 2041, apologies for that, Your Honors. And I would turn you to
9 Pages 47 and 49 at the bottom of the page. And you can see testimony at
10 Page 47 where Dr. Miles says, "I'm saying he's using a textbook definition of
11 intermetallic, and that the terms he's using in the definition did not appear in
12 the specification.

13 And some I'm focused more on what's actually in the patent, rather
14 than the sort of reading into what I find in the patent." Additional terms,
15 consistent with the law. You also see on Page 56 at the bottom, testimony
16 from Dr. Miles addressing Dr. DeArdo's definition.

17 So, Counsel asked him about that definition, he said, "So the way I
18 view that is that Dr. Raabe's construction is more strict because it seems to
19 leave less leeway for levels of disorder that might exist in an intermetallic
20 material or layer. And Dr. DeArdo is a little more general and would seem
21 to allow for a broader class of material structures."

22 That's his point. Dr. DeArdo's construction is more general, Dr.
23 Raabe's is more specific. And if you look at the redirect testimony at Pages
24 113 to 116 in that deposition, you'll see that Dr. Miles confirms that he is not
25 reading that term as limited to the construction that's offered by Dr. Raabe,

1 but acknowledges that that is a potential example.

2 So, with that, I would just turn back to Dr. DeArdo's testimony on
3 Slide 16. So, we heard Patent Owner's Counsel say this definition
4 essentially is what their definition is. It aligns with what they're saying.
5 There's just a compound, and you see at the bottom it says, a layer of
6 compound two different mentals.

7 There might be a matrix there or two. Might be, maybe, could be a
8 series of compounds in a matrix. But if you go to Slide 21, how does that
9 differ from Takagi? If their construction is consistent with DeArdo who
10 says there's intermetallic compounds potentially in a matrix, we have Takagi
11 paragraph 16 that says there's layer structure made up of intermetallic
12 compounds, the exact same term used by Dr. DeArdo.

13 So, if their construction is consistent with what Dr. DeArdo said,
14 Takagi clearly discloses that. And then I just wanted to speak briefly on Dr.
15 Miles' experience. I think it's well known that Dr. Miles was an expert in the
16 first proceeding between these two parties in the '683 Patent.

17 So, Dr. Miles has already been accepted by the Board as an expert
18 in prior art, IPR, and his testimony credited. There's been no allegation that
19 Dr. Miles is not a person of ordinary skill in the art or that his testimony
20 should otherwise be excluded in these proceedings.

21 And if you look at his declaration paragraphs 5, 6, 62, he's talking
22 about his nearly 20 years of experience as a professor in metallurgy,
23 advanced degrees. And if you look at his testimony in his first deposition at
24 Exhibit 2021, there's multiple references to, at Page 10, a feasibility study
25 using these types of steels.

1 Page 12, dealing with fully modernistic steels with aluminum
2 coatings. Page 14, observation of hot stamping in a factory. Dr. Miles is
3 clearly a steel guy, he knows steels, his testimony should be credited.

4 JUDGE GROSSMAN: My understanding of the Patent Owner's
5 argument with Dr. Miles was not whether he was qualified to offer the
6 testimony. There's no motion to exclude his testimony. It was just a
7 credibility determination in terms of weighing the evidence as we do when
8 there's always conflicting evidence in every case. And we just weigh the
9 evidence and see if one side has established a preponderance or not.

10 MR. MONALDO: Yes, exactly. And I think if you look at the
11 record, which expert cited to more evidence to support their opinion, it's
12 going to be Dr. Miles. If you go through Dr. Raabe's declaration, there's
13 very limited citations through it, and Dr. Miles will see a ton of citations,
14 various references.

15 One we discussed in paragraph 39 of Dr. Miles where you have a
16 presentation showing you structures of safe compositions, layer thicknesses.
17 Cornette, showing you the relevant compositions with the relevant layer
18 thicknesses. The Anglés reference Exhibit 1005.

19 Throughout the record, Dr. Miles is citing to sources to support his
20 opinions. Whereas if you look at many of the statements that are made in
21 Dr. Raabe's declaration, they're bold, there's no citations, nothing to back
22 him up. And so, then it's just a final point.

23 I wanted to briefly address the Lauren reference. I heard co-
24 Counsel on their Slide 74 talked about that reference. Said, well, that 50
25 percent increase is limited to Laurent's process. But if you look at Laurent's

1 process, it's very similar to Takagi. Same temperature ranges, same heating
2 time, same cooling rate, very similar process.

3 And also note that Cornette, as explained at Pages 10, or 11 and
4 12, of the petition, we explain how if you take the ratio of Cornette's
5 expansion, which again as we showed in our table has very similar
6 properties to Takagi, you'd reach a thickness of 32 microns, right? So, with
7 that, I just leave the 45 seconds for my Counsel to offer any thought.

8 MR. BERG: Okay. Well, I see the timer ticking. A couple quick
9 points. Mr. LaMagna made the point that we can't read the term
10 intermetallic out of the layer because by our construction, all layers would
11 be intermetallic. He also said that all layers have to be the product of inter
12 diffusion. That's a direct quote.

13 So that would by the same standard read interdiffusion out. Now
14 turning to Slide 24 here, Suehiro describes that a layered alloy phase is
15 formed. The question is really what would a person of ordinary skill
16 understand that to mean? And the art is consistent, the alloying means
17 intermetallics, right? When a person of ordinary skill reads that they get
18 intermetallics out of it. Thank you.

19 JUDGE RANGE: This is Judge Range. Maybe, I don't know
20 which one of you wants to address this question, but -- oh, so your claim
21 construction, it says, in an alloy. Is in an alloy broad enough to include
22 situations where you would have an ordered crystal structure.

23 MR. MONALDO: Yes, Your Honor. An order crystal structure
24 certainly would be met by our construction. We're not disputing that their
25 construction is not encompassed within the claims, it is. It's just whether it's

1 limited to that, we don't think it is.

2 JUDGE RANGE: I got it. Another question. If we were to
3 modify your construction to say, to eliminate of a metal and a non-metal, is
4 that something you want more briefing for?

5 MR. MONALDO: We would not want more briefing. We'd be
6 okay with that. I think as Mr. LaMagna mentioned, we're all talking about
7 the same things. Iron, aluminum, or silicon coating.

8 JUDGE RANGE: Right. Okay. Thank you.

9 MR. LAMAGNA: My time is short. I didn't see petition justify
10 their construction. And that's because at bottom it reads out the intermetallic
11 requirement. Recall again, that each of the layers has, is an -- they're all
12 alloys at every layer, and they're all have different metals in them, so that
13 they would all be intermetallic layers under their definition.

14 To answer a couple of questions that came in from the Board, I
15 think there was a question about Exhibit 2038 which is cited on Page 10, I
16 believe, of our Patent Owner response. And I believe it's on Pages 3 and 4
17 also of the surreply.

18 I think there was a question also about just the general value that
19 comes out of the specific layering, including the intermetallic layer. There's
20 a discussion of that in using the numbering of the '370 Patent at column 6,
21 lines 8 to 60.

22 I think there's a short discussion around column 8 line 65, column
23 2 line 60 to 64, column 3 line 51 to 56. I'll generally talk about the added
24 benefit that was ascribed to having this very particularized layering
25 structure. And last point, Figure 2 does not have an intermetallic layer as

1 required by the claims.

2 Because among other reasons, what intermetallic material or
3 layering that we do see there doesn't meet the positional requirement. When
4 Dr. Raabe says, this doesn't meet the claims, that layer doesn't meet the
5 claims because it is not in the correct location.

6 In addition, like I said, it appears to be falling apart. But setting
7 that aside, it's also a positional problem. So, Dr. Raabe is not applying some
8 outside construction for it to achieve that result. It's just looking at the
9 claims. If there are --

10 JUDGE RANGE: What portion of column 6 were you looking at
11 again? Did you cite there?

12 MR. LAMAGNA: I was looking at column -- I'm looking at the
13 '602 Patent line -- sorry, line 8. And again, I was just trying to find -- there
14 may be other examples in the patents, I was just trying to look quickly in the
15 few minutes I had there. There's a discussion about the weldability that goes
16 on when you have, and like I said, it's a long discussion because it is the
17 -- it's not just the intermetallic layer, of course, it is the claim as a whole,
18 including the specific orientation of where the intermetallic layer falls.

19 It has to fall, for example, above softer material like at the
20 interdiffusion layer because that softer material, this is what Takagi points
21 out. The softer material gives it a certain flexibility to avoid cracking. So,
22 Takagi talks about the interdiffusion layer.

23 And now we're going to an extra layer in an extra step, and we're
24 defining what harder material needs to be above. Which is something
25 Takagi doesn't, as we said, doesn't get into. Were there any other questions?

1 JUDGE RANGE: Okay. The same question I had for you, which
2 is, we have your arguments about which of your two constructions. If we
3 were to side more with Petitioner, but change their construction to eliminate
4 of a metal and a non-metal, is that something you'd want more briefing on?

5 MR. LAMAGNA: I think so, yes. But again, I'm not following
6 exactly what the -- you are saying that their construction is presupposing a
7 metal and some non-metal in the alloy?

8 JUDGE RANGE: Yes, so their construction is, as it currently
9 stands, their proposed construction was composed of two or more metals or
10 of a metal and a non-metal in an alloy. And what I was asking was, it seems
11 to me your claim construction arguments would be essentially the same as
12 what you've already presented. If instead the claim construction were
13 composed of two or more metals in an alloy, essentially removing that non-
14 metal possibility.

15 MR. LAMAGNA: Yes. I think what they're referring to, I'm not
16 -- to help them out perhaps a little bit here is the non-metal would have to be
17 a metalloid, specifically something like silicon, which is this sort of
18 somewhat metal material, depends on how one looks at it.

19 So, I think that if you look at the technical definition of
20 intermetallics, you have metals or metalloids like silicon that can be joined
21 into these to form intermetallics. But again, the definition presupposes that
22 the intermetallics are joined, they don't serve -- the material coming in is not
23 -- doesn't have the -- we we're doing the heat treatment to achieve
24 something. If the material coming in the door, which has an alloy met those
25 requirements, the claims that we made --

1 JUDGE RANGE: I understand all that. I was just saying in your
2 construction, actually your construction also says metallic or metalloid,
3 right? So, I guess both of you agree that at least some non-metals are
4 possible and it could be a metalloid.

5 MR. LAMAGNA: I think the disagreement is on compound on
6 which we call, again, Dr. Raabe says atomically joined, but compound
7 whatever you want, whatever phrase you want. That's the disagreement.
8 The extent to which that is present as a stoichiometric pattern of atoms or
9 defined crystal structure is really not what the disagreement is about.

10 The disagreement is we say these things have to be formed
11 together. They say that they don't. And they say that because their evidence
12 is elemental composition, which does not tell you whether they are formed
13 or not. So that's why if the formation into a compound is required, their
14 evidence falls short. If their construction is adopted, then we would -- then
15 of course, you would have intermetallic layers, but that's because everything
16 in the steel would be an intermetallic alloy. So, it would be so broad as to
17 subsume the whole.

18 JUDGE RANGE: Yes. I understand all that. I'm just trying to
19 -- we're going to have to go back and think about this and decide which we
20 agree with. And my impression is that that issue that you were just talking
21 about has been fully briefed. I don't think we need more briefing on that.

22 I do think that, I don't like the word non-metal in Petitioner's
23 construction. I think that's too broad. So, if I was to side with them, I would
24 have to change their construction a little bit in that respect, which doesn't
25 seem to be an issue you guys even care about.

1 MR. LAMAGNA: I think we would agree that metalloid is an
2 appropriate, but again, our dispute is with compound.

3 JUDGE RANGE: Instead of non-metal?

4 MR. LAMAGNA: Yes. Instead of non-metal.

5 JUDGE RANGE: Got it.

6 MR. LAMAGNA: Our dispute, and I don't think that requires in
7 and of itself briefing, our dispute is on the notion that the alloy simply be
8 enjoined material.

9 JUDGE RANGE: Right.

10 MR. LAMAGNA: That we you think --

11 JUDGE RANGE: You think alloy is too broad. I understand that.
12 But if their constructions are just changed to, composed of two or more
13 metals or a metal and a metalloid in an alloy, that substantively wouldn't
14 matter to you? You still wouldn't like that construction because of the alloy
15 part.

16 MR. LAMAGNA: Right. We'd still disagree to the construction,
17 but not with the metalloid part. Yes. Right.

18 JUDGE RANGE: Got it. Okay. Got it. Thank you.

19 JUDGE GROSSMAN: But my understanding in the spec is that
20 the word metalloid doesn't appear.

21 MR. LAMAGNA: Correct.

22 JUDGE GROSSMAN: That silicon appears.

23 MR. LAMAGNA: Correct.

24 JUDGE GROSSMAN: But in your sort of analogy about silicon is
25 a metalloid, so that it ought to include other metal metalloids, even though

1 silicon is the only one that's disclosed?

2 MR. LAMAGNA: Correct. And I think compositionally
3 speaking, where our disagreement is, what the composition that they're
4 showing is iron, aluminum, and silicon. And so, and really the silicon
5 doesn't matter because in all these layers, we have iron and aluminum too.

6 So again, going back to their construction, sure. If you have iron
7 and aluminum, and you have something that is solid material that's been
8 alloyed, then it would meet their construction. And so, would my computer
9 and this microphone.

10 JUDGE GROSSMAN: Okay.

11 MR. MONALDO: Can I offer just one point of clarification?

12 JUDGE GROSSMAN: Any other questions, judge, or --

13 JUDGE RANGE: Yes, you can offer your point of clarification.
14 That's fine.

15 MR. MONALDO: Thank you. Just briefly, I wanted to just
16 clarify that we were not posing of instruction, we're posing plain and
17 ordinary meaning, setting examples of what would be following within that
18 plain and ordinary meaning of it in an intermetallic alloy. I also just say
19 Counsel has recognized that compound falls within their construction.
20 Takagi clearly describes the intermetallic compound. So, there's really no
21 dispute whether that's --

22 JUDGE RANGE: And to clarify with you, you would -- if we
23 were to adopt your construction, but change it to composed of two or more
24 metals or a metal and a metalloid in alloy, you'd be okay with that?

25 MR. MONALDO: Absolutely. That would be covered within the

1 plain and ordinary meaning of the term.

2 JUDGE RANGE: Got it. Thank you. Thank you.

3 MR. LAMAGNA: Could I just add one sentence?

4 JUDGE RANGE: Sure. Sure.

5 MR. LAMAGNA: Again, a compound, the formation of a
6 compound, which can require as little as two or three atoms is not what we
7 think of as sufficient to form an intermetallic layer.

8 JUDGE RANGE: I got it. I understand your position on that.

9 Thank you. Both sides did a really great job explaining things. This was a
10 really productive oral argument. Appreciate everything. We've got a lot to
11 think about. We'll take the case under advisement. And with that, we'll go
12 off the record. Thank you.

13 COURT REPORTER: Off the record.

14 (Whereupon, the above-entitled matter went off the record at 2:20
15 p.m.)

IPR2025-00370, Patent 10,961,602 B2
IPR2025-00371, Patent 11,326,227 B2

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