

NOTE: This disposition is nonprecedential.

**United States Court of Appeals
for the Federal Circuit**

VIRGINIA INNOVATION SCIENCES, INC.,
Plaintiff-Appellant

v.

**SAMSUNG ELECTRONICS CO., LTD., SAMSUNG
ELECTRONICS AMERICA, INC., SAMSUNG
TELECOMMUNICATIONS AMERICA, LLC,**
Defendants-Appellees

2014-1477

Appeals from the United States District Court for the Eastern District of Virginia in Nos. 2:12-cv-00548-MSD-TEM, 2:13-cv-00332-MSD-TEM, Judge Mark S. Davis.

Decided: June 9, 2015

TIMOTHY EDWARD GROCHOCINSKI, Nelson Bumgardner, P.C., Orlando Park, IL, argued for appellant. Also represented by JOSEPH P. OLDAKER; EDWARD R. NELSON, III, Fort Worth, TX.

GEORGE ALFRED RILEY, O'Melveny & Myers LLP, San Francisco, CA, argued for defendants-appellees. Also represented by BRETT JOHNSTON WILLIAMSON, CAMERON

WILLIAM WESTIN, Newport Beach, CA; BRIAN BERLINER, Los Angeles, CA.

Before WALLACH, TARANTO, and CHEN, *Circuit Judges*.

CHEN, *Circuit Judge*.

Plaintiff and appellant Virginia Information Sciences, Inc. (VIS) appeals from stipulated final judgments of non-infringement and invalidity entered in favor of Samsung Electronics, Co., Ltd., Samsung Electronics America, Inc., and Samsung Telecommunications America LLC (collectively, Samsung) by the United States District Court for the Eastern District of Virginia in two consolidated patent infringement actions. Because (1) the intrinsic evidence before us does not support the district court's construction of a claim term central to the parties' dispute, (2) the specification of the patents-in-suit suggests that the term has an established understanding in the art, and (3) the parties have not sufficiently developed the record with regard to that established understanding, we vacate and remand for further proceedings.

BACKGROUND

The patents-in-suit are directed to a device that converts compressed video content received by a mobile phone from a wireless network into a video signal format ready for display on a larger external display such as a television. At issue here are U.S. Patent Nos. 7,899,492 (the '492 patent), 8,050,711 (the '711 patent), and 8,145,268 (the '268 patent). The '711 and '268 patents are continuations of, and share a common specification with, the '492 patent. According to the specification, the claimed invention addresses the problem of diminished enjoyment of received video content displayed on a mobile phone's small screen by converting the received video content to a format that can be displayed on a larger screen. *Id.* at 2:1–15.

The common specification explains that in the preferred embodiment of the invention illustrated in Figure 3, a mobile phone (“mobile terminal”) receives a multimedia data stream, or “video signal,” from a mobile or wireless network. *See id.* at 3:14–18. This video signal is typically provided in a compressed format because of the high bandwidth and data throughput rates needed to stream real-time video and audio in an uncompressed format. *Id.* at 6:7–9, 6:21–25. Examples of compression formats include those provided by the MPEG standards (e.g., MPEG-4). *Id.* at 6:9–11.

After being received by the mobile phone, the compressed video signal is sent to a “signal conversion module,” which employs an appropriate compression/decompression (CODEC) algorithm to convert the compressed video signal into a decompressed video signal. *Id.* at 6:11–14. This decompressed video signal is sent to either a “Digital/Analog Video Encoder” (DAVE) or a “Digital/Digital Video Encoder” (DDVE) component within the signal conversion module that converts the decompressed video signal to a format and signal power level that can be displayed on an analog or digital display screen that is larger than the mobile phone’s screen. *Id.* at 6:26–36. The specification identifies a number of examples of such formats, including S-video (analog video) and HDMI (digital video). *Id.* at 6:37–40.

Each claim of the patents-in-suit recites a device with three general components: (1) an interface that receives a compressed video signal, (2) a processing module that converts the received compressed video signal to a “display format” for display on a different screen, and (3) an interface for outputting the converted video signal to that different screen. Claim 23 of the ’492 patent is representative of the asserted claims and recites:

23. An apparatus for processing signals to accommodate reproduction by an alternative display terminal, the apparatus comprising:

an interface module, which receives a video signal appropriate for displaying a video content on a mobile terminal, the video signal being received from a cellular network communication that is sent to the mobile terminal and then received by the interface module;

a signal conversion module, in operative communication with the interface module, which processes the video signal to produce a converted signal for use by the alternative display terminal, wherein processing by the signal conversion module includes converting the video signal from a compression format appropriate for the mobile terminal to a *display format* for the alternative display terminal that is different from the compression format, such that the *converted video signal* comprises a *display format* and a power level appropriate for driving the alternative display terminal; and

a device interface module, in operative communication with the signal conversion module, which provides the *converted video signal* to the alternative display terminal to accommodate displaying the video content by the alternative display terminal.

'492 patent, 10:6–29 (emphases added).

VIS filed two patent infringement actions against Samsung, both of which alleged that various Samsung mobile phones, tablets, and other devices that included a Mobile High-Definition Link (MHL) interface infringed

the '492, '711, and '268 patents.¹ The district court conducted a *Markman* hearing in the first action, and then consolidated the two cases for trial. See *Va. Innovation Scis., Inc. v. Samsung Elecs. Co., Ltd.*, 983 F. Supp. 2d 713, 721–22 (E.D. Va. 2014) (*VIS SJ I*). Samsung moved for summary judgment of invalidity of the patents-in-suit, contending that U.S. Patent No. 7,580,005 (Palin) anticipated the asserted claims of those patents. The district court granted Samsung's motion for claims 21, 22, 25, 28, and 29 of the '268 patent, and denied it for all the asserted claims of the '492 and '711 patents. *Id.* at 749. Samsung then moved for, and the district court granted, summary judgment of noninfringement of the remaining asserted claims of the patents-in-suit. *Va. Innovation Scis., Inc. v. Samsung Elecs. Co., Ltd.*, No. 2:13cv332, 2014 WL 1685932, *1 (E.D. Va., Apr. 11, 2014) (*VIS SJ II*). After denying VIS's motion for reconsideration, the district court entered stipulated final judgments of noninfringement. J.A. 234–40, 241–47. VIS appealed, and we have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

The district court's summary judgment determinations were based in part on the court's construction of two terms used in the asserted patent claims: "display format" and "converted video signal." On appeal, VIS challenges the district court's (1) construction of "display format," (2) conclusion that Samsung's accused MHL-enabled devices do not infringe the "display format" limitation, and (3) invalidity determination as to claims 21, 22, 25, 28, and 29 of the '268 patent. After careful review, we vacate the district court's construction of "display format," as well as a term closely linked to "display format"—"converted

¹ VIS also accused Samsung in each action of infringing U.S. Patent Nos. 8,135,398 and 8,224,381. Neither of these patents is at issue in this appeal.

video signal.” We also vacate the summary judgment determinations based on these constructions.

We turn first to the district court’s construction of “display format.” The ultimate question of claim construction is a matter of law that may rely on subsidiary factual findings. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 838 (2015). While we review this ultimate question of claim construction without deference, we review underlying factual findings supporting the construction for clear error. *Id.* at 841.

I

A

During *Markman* proceedings, the parties did not ask the district court to construe “display format,” seemingly agreeing that the term should be understood according to its ordinary meaning. To resolve Samsung’s motion for summary judgment of noninfringement, however, the district court construed “display format” to be a video signal in an uncompressed or decompressed video format “ready for use” by the alternative display. *VIS SJ II*, 2014 WL 1685932, at *10. The district court further explained that for the signal to be “ready for use,” no “deconstruction and reassembly” could occur after transmission of the signal from the claimed apparatus to the external screen. *Id.* For its interpretation of “ready for use,” the district court relied on the patentee’s insistence during prosecution of the ’492 patent that its “claimed invention deal[t] not only with mere decoding of a compressed video signal, but a conversion from a mobile terminal format to a different display format for the alternative display terminal.” J.A. 5304, 5328–29, 5354. The district court characterized these statements as “arguing against an interpretation of ‘display format’ as merely involving decompression.” *VIS SJ II*, 2014 WL 1685932, at *10. Samsung embraced this additional level of interpretation of “display format” and argued that the MHL signal

transmitted by its accused products did not meet this limitation because that signal was not ready for use—*i.e.*, an external display was required to first “reassemble” the underlying video data from the received MHL signal before it could display the video.

VIS argues that the district court’s construction cannot be correct because it necessarily excludes High-Definition Multimedia Interface (HDMI), a preferred “display format” expressly identified in the specification. *See* ’492 patent, 6:37–40. According to VIS, HDMI signals require deconstruction and reassembly after being received by standard monitors, and thus would be excluded by the district court’s construction of “display format.” Appellant’s Br. 28. VIS also argues that the district court erred in finding that statements made during prosecution of the ’492 patent narrowed the scope of the patent claims so as to exclude “display formats” such as HDMI; rather, these statements merely emphasized that the claimed “display format” must be “different” from the compressed video signal originally received by the mobile phone. VIS concludes that the ordinary meaning of a “display format” is simply a decompressed encoded video signal in a format different from the format originally received by the mobile phone.

Samsung contends that the district court’s construction is consistent with the ordinary meaning of “display format.” Samsung explains that the district court’s construction actually adopted an argument VIS made in opposing Samsung’s summary judgment motion on invalidity—that conversion to a “display format” occurs at the mobile phone, and not at the alternative display. In Samsung’s view, VIS advocated a construction of “display format” for validity purposes that excluded signals requiring “decompression” or “reassembly” of underlying video content. Samsung also contests VIS’s characterization of the HDMI format, arguing that none of the video signals in a “display format” listed in the specification requires

further decompression, deconstruction, or reassembly—the claimed “conver[sion]”—before they can be displayed by a standard monitor.

Samsung further argues that VIS’s proposed construction would render the “display” in “display format” meaningless, because any uncompressed video signal would satisfy the term, even signals that could not be “displayed.” Samsung contends that the specification does not support such a broad reading of that the term, instead disclosing that the uncompressed video signal is further “convert[ed] . . . to format(s) and signal power level(s) required for the terminals to which [those signals] interface.” ’492 patent, 6:26–36. Specifically, because the specification explains that the uncompressed/decompressed video signal is “converted” by a video encoder (the DAVE or DDVE), Samsung argues that an uncompressed/decompressed video signal must undergo further processing to become a video signal in a “display format.”

B

To begin, we agree that a video signal that is decompressed/uncompressed is a necessary feature of a “display format.”² As discussed above, the specification explains that the “Video Compress Decoder” component of the claimed apparatus “is configured to include the appropriate compression/decompression (CODEC) module to accommodate decompression of the received multimedia signal.” *Id.* at 6:11–14. The specification explains that this “Video Compress Decoder [] outputs a decompressed digital multimedia signal” that is converted to a “format[] and signal power level[] required for the terminal to

² Neither party contends that the disputed terms should be construed differently in any asserted claim of the patents-in-suit at issue in this appeal.

which [it] interfaces” by the analog or digital video encoder (DAVE or DDVE). *Id.* at 6:26–36. Thus, the specification makes clear that a “display format” entails a video signal that is uncompressed.

The extrinsic evidence is consistent with the intrinsic evidence. In deciding Samsung’s summary judgment motion on invalidity, the district court gave weight to declarations from the parties’ experts and disclosures from relevant treatises available at the time of the claimed invention to conclude that (1) video signals must be decompressed before they can be displayed, and (2) when decoding video signals, CODECs and decoders “convert compressed video signals into raw, uncompressed video signals.” *VIS SJ I*, 983 F. Supp. 2d at 728. The district court found this to be “compelling evidence” that a “video [signal] in a display format must be uncompressed.” *Id.* As a result, the district court concluded that conversion to a “display format” requires decompression of the compressed video signal to an uncompressed video signal. *Id.* We find no error with this part of the district court’s analysis.

While briefing its summary judgment motion for non-infringement, Samsung successfully petitioned the district court to further narrow the construction of “display format” in two ways. Here, VIS challenges the district court’s construction, arguing that the district court should not have departed from the understanding of “display format” it used when ruling on Samsung’s summary judgment motion on invalidity—that a “display format” is simply an uncompressed video signal. We address each subsequent narrowing of the district court’s construction of “display format” in turn.

First, Samsung argued that during prosecution, VIS had repeatedly characterized its invention as “deal[ing] not only with mere decoding of a compressed video signal.” Samsung contended that these statements mandat-

ed a construction of “display format” involving something more than an uncompressed video signal. *VIS SJ II*, 2014 WL 1685932 at *10. The district court agreed with Samsung. *Id.* So do we.

The limitations of the asserted claims suggest that a “display format” is more than an uncompressed video signal. In particular, the wording of “display format” itself suggests that a “display format” is not just any uncompressed video signal, but a signal in a format that—per the claims—“accommodate[s]” the display of video content on an external monitor. Further, the claims recite that a “signal conversion module” not only decompresses the received compressed video signal, but also converts that signal to a specific video signal comprising “a display format for the [external monitor]” and a power level appropriate for driving the [external monitor].” See ’492 patent, 10:9–24. VIS’s desired construction would essentially read the word “display” out of the term and is inconsistent with the surrounding limitations of the asserted claims.

The specification also reinforces the conclusion that conversion to a “display format” involves additional processing beyond simply decompressing a compressed video signal. As we have long held, the “specification is always highly relevant to the claim construction analysis,” and often “the single best guide to the meaning of a disputed term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc). Here, the specification explains that the decompressed video signal output by the Video Decompress Decoder is passed to an analog or digital video encoder (DAVE or DDVE), which then further converts that uncompressed signal to formats such as “S-video, RGBHV, RGBS, and EIA770.3” (analog), or “DVI, DVI-D, HDMI, and IEEE1394” (digital). ’492 patent, 6:26–40; see also *id.* at 6:33–36 (“The [video encoders] receive the decompressed multimedia signal and convert the signals to the format(s) and signal power

level(s) required for the [external monitors] to which they interface.”). Thus, the specification underscores that a “display format” is more than a decompressed video signal, because further “conver[sion]” of the uncompressed video signal is necessary for the signal to be in a format “required for the [external monitor].” *Id.*

Second, in briefing its motion on noninfringement, Samsung characterized the district court’s partial denial of its summary judgment motion on invalidity as a determination that a video signal in a “display format” needed no further “decoding” and “reassembl[y]” by the external monitor. J.A. 4349. Samsung used this position as a springboard to argue that the MHL video signal transmitted by its accused products was not in the claimed “display format” because external monitors must first decode and reassemble the content within that MHL signal before it can be displayed. J.A. 4351–52. The district court adopted Samsung’s reasoning, narrowing its construction of “display format” to exclude signals in formats that required further deconstruction or reassembly at the external monitor in order to be displayed by the monitor. *VIS SJ II*, 2014 WL 1685932 at *10.

This was error. Nothing in the specification mentions—much less prohibits—the “deconstruction” or “reassembly” of video signals at the external display, key components of the district court’s ultimate construction of the term “display format.” Nor do the parties identify anything in the prosecution history suggesting that the meaning of “display format” is tied to the absence of any “deconstruction,” “decoding,” “reassembly,” or other processing of the converted video signal by the external monitor. Indeed, these terms appear to have been introduced by VIS when analogizing a pre-assembled nursery crib to compressed video signals in its summary judgment briefs. J.A. 2813, 4919–20.

Nor does the extrinsic evidence in the record resolve the question of whether a signal is in a “display format” if it must undergo further decoding or reassembly at the external monitor. The parties’ expert declarations submitted for summary judgment focus on whether HDMI and MHL video signals were “decoded”³ and “reassembled” in accordance with the district court’s construction, rather than on what “display format” means to one of skill in the art. *See* J.A. 4345, 4349–52 (Samsung); J.A. 4919–27, 4930–31, 4954–60 (VIS). For example, Samsung’s expert testified that before an external monitor can display an MHL signal, it must be decoded, rearranged, and reassembled into an HDMI signal—a “display format” that is “ready for use” by a monitor. *See* J.A. 4345, 4352. VIS’s expert did not dispute that MHL signals must be translated into HDMI signals before they can be displayed. J.A. 4957–58; *see also* J.A. 4930–31. Instead, VIS’s expert suggested that HDMI signals—like MHL signals—must also be “decoded” and “reassembled” by the external monitor in order to be displayed. J.A. 4955–56, 4958. In particular, VIS’s expert declared that to translate the video content in an HDMI signal to the pixels on a monitor, the HDMI signal must be processed through a Low Voltage Differential Signaling (LVDS) interface to an LCD controller, components commonly incorporated into digital televisions. J.A. 4956. Relying on this declaration, VIS argued that the district court could not have been correct in concluding that a “display format” would not be “decoded” or “reassembled” by an external monitor, because HDMI signals—which both parties agreed were encompassed by the claimed “display format”—were also

³ While the parties’ described the “decoding” of video signals in their briefing, the district court referred to this decoding step as a “deconstruction” of the video signal. *VIS SJ II*, 2014 WL 1685932, at *10. We express no opinion on whether these terms are interchangeable.

“decoded” and “reassembled” by the LVDS interface and LCD controller within many external monitors. *See* J.A. 4919–27. But beyond conclusory statements that “MHL is [or is not] a display format,” *see* J.A. 4958, 4352, none of this testimony before us offers insight into the relevant inquiry: whether one of ordinary skill in the art would understand the claimed “display format,” which encompasses standard formats such as HDMI and S-video, to necessarily exclude decoding/deconstruction and reassembly of that signal by the external monitor before displaying the signal’s underlying video content.

In short, although the intrinsic evidence strongly suggests that the claimed “display format” must be a video signal that is “ready for use” by a conventional external monitor, the intrinsic evidence before us does not provide a complete understanding of the term. Thus, while review of the intrinsic evidence is commonly dispositive in understanding the ordinary meaning of a claim, such is not the case in this particular instance. For example, the specification does not provide an explanation of what separates a video signal that is “ready for use” by an external monitor from a video signal that is not. Nor does the specification explain what type of additional processing an external monitor may perform on a signal in a “display format” in order to display the video content within that signal. Instead, the specification lists examples of standard “display formats” without elaborating on the term’s meaning, suggesting that those of skill in the art would understand the term’s meaning simply by reference to the listed examples and standards. *See* ’492 patent, 6:39–40 (listing examples of “display formats” to include “standards such as DVI, DVI-D, HDMI, and IEEE1394”). As a result, our review of the record suggests that one of skill in the art understood a “display format” to have particular technical characteristics describing its compatibility and operational interaction with

an external monitor. What those characteristics are, however, has not been established in the record on appeal.

VIS's expert testified that even a signal in a "display format" that is "ready for use" by the monitor might require further processing to translate the video content in the signal to physical pixel locations on the monitor. This testimony appears to be consistent with the specification, which cites a digital RGB signal as an example of a "display format" that is transmitted to an external cathode-ray-tube (CRT) monitor and then further processed to "drive a set of electron guns" in order to "produce a controlled stream of electrons to display red, green and blue light respectively on a CRT screen." '492 patent, 6:50–58. While Samsung disputes the relevance and significance of any such additional processing at the external monitor, it does not persuasively explain with supporting evidence how such processing differs from the precluded "deconstruction" and "reassembly" of the video signal in the district court's construction.

Thus, extrinsic evidence in this instance must be consulted concerning "the meaning of technical terms, and the state of the art." *Phillips*, 415 F.3d at 1314. The parties did not ask the district court to construe the term during *Markman* proceedings, and Samsung did not offer its proposed construction until briefing for its summary judgment motion on noninfringement. As a result, the record before us is not sufficiently developed to discern the skilled artisan's understanding of the relevant aspect of a video signal in a "display format." To the extent the district court's construction relied on the parties' arguments introducing the notion of signal deconstruction and reassembly at the external monitor, attorney arguments are not relevant intrinsic or extrinsic evidence. We therefore remand to the district court with instructions to further develop the record and to determine the meaning of the "display format" to one of skill in the art at the effective filing date of the patents-in-suit, whether by

further examination of the prosecution history, evaluation of direct and cross-examination testimony from experts showing and explaining usage in the field, or consultation of other relevant sources as set forth in *Phillips*.

II

We turn next to VIS's challenge to the grant of Samsung's summary judgment motion of noninfringement. In determining that Samsung's accused products do not infringe the asserted claims of the '492, '711, and '268 patents, the district court relied on the now-vacated construction of "display format." *VIS SJ II*, 2014 WL 1685932 at *10–11. Therefore, we also vacate the district court's summary judgment grant of noninfringement.

III

We turn last to VIS's challenge to the district court's grant of summary judgment of invalidity of claims 21, 22, 25, 28, and 29 of the '268 patent. Because "display format" appears in each of the asserted claims of the '268 patent, we also vacate the district court's finding that Palin anticipates those claims and its corresponding grant of summary judgment of invalidity.

We also note that VIS challenges the district court's determination that Palin discloses a "converted video signal," a term closely linked to "display format" in each of the asserted claims of the patents-in-suit. For example, claim 21 of the '268 patent recites that the claimed apparatus "convert[s] a signal format appropriate for the mobile terminal to a display format for the alternative display terminal that is different from the signal format" and that the "converted video signal produced by the processing unit comprises [a] high definition digital format." '268 patent, 10:18–24. Similarly, claim 23 of the '492 patent recites that the claimed apparatus "convert[s] the video signal from a compression format appropriate for the mobile terminal to a display format for the alter-

native display terminal” and that the “converted video signal comprises a display format and a power level appropriate for driving the alternative display terminal.” ’492 patent, 10:18–24. Thus, the claim language itself makes clear that these terms cannot be understood in isolation—the meaning of one term affects and informs the meaning of the other.

During *Markman* proceedings, the district court construed “converted video signal” to require only a “change to the video signal” received from the mobile network and not a change to “the underlying video content” carried by the signal. *Va. Innovation Scis., Inc. v. Samsung Elecs. Co., Ltd.*, 976 F. Supp. 2d 794, 814–15 (E.D. Va. 2013) (*VIS Markman*). In other words, a “conver[sion]” to the video signal could encompass any alteration to the video signal, such as a change to an informational data packet accompanying the actual video content contained in the signal. *See id.* at 815.

VIS argues that Palin discloses only the conversion of a file transport protocol, not the conversion of the underlying video signal format contained within that file transport protocol. VIS thus contends that Palin does not disclose a “converted video signal” and therefore does not anticipate the asserted claims of the ’268 patent. VIS attempts to bolster its argument by asserting the United States Patent and Trademark Office (Patent Office) “reached th[e] same conclusion” in rejecting a petition for *inter partes* review of the ’492 patent. Appellant’s Br. 33; J.A. 5516–17 (IPR2013-00572). VIS fails to mention, however, that the Patent Office found the broadest reasonable interpretation of the term “convert” in “converted video signal” to be “to change the representation of data from one form to another.” J.A. 5516. As the Patent Office explained, this was how the IEEE dictionary defined “convert” at the time of the claimed invention. *Id.* (citing Institute of Electrical and Electronics Engineers, *The Authoritative Dictionary of IEEE Standard Terms*

238 (7th Ed., IEEE Press 2000)). The Patent Office found the treatise definition consistent with the specification, which it found to “differentiate[] repeatedly between converting signal formats and routing via a communications protocol.” J.A. 5516.

Although the district court stated that its construction for “converted video signal” was based on the term’s “use in the claim terms themselves and [in] the specification,” *VIS Markman*, 976 F. Supp. 2d at 819, it did not explain how the claims or specification provided a clear understanding of “converted,” either as it was intended to be understood in context of the patent or as it was understood in the art. *Id.* at 813–19. Nor do we see anything in the intrinsic evidence before us that provides guidance on what appears to be a term with an established technical meaning in the art. While we emphasize that the district court is not bound by determinations of the Patent Office, our review of the record suggests that the Patent Office’s approach to rely on relevant treatises and other extrinsic evidence may be more illuminating than the specification in this particular instance.

Because the claim limitations make clear “that converted video signal” and “display format” must be evaluated together, the district court’s seemingly erroneous construction of “converted video signal” may bear on the construction of “display format.” Therefore, as with “display format,” we vacate the district court’s construction of “converted video signal” and remand with instructions to evaluate the term in context of the surrounding claim limitations, and in particular its relationship to “display format,” and to further develop the record as to the meaning of the term to those of skill in the art at the relevant timeframe. *Cf. Frans Nooren Afdichtings-systemen B.V. v. Stopaq Amcorr Inc.*, 744 F.3d 715, 725 (Fed. Cir. 2014) (“In enumerating problems relevant to arriving at a proper construction, we do not mean to be exhaustive or to suggest the absence of solutions. . . .

Rather, we are identifying at least some of the problems that require attention in a more focused and systematic claim-construction analysis than the parties and the record currently supply.”).

* * *

We have considered the parties’ remaining arguments and find them unpersuasive.

CONCLUSION

The record does not shed sufficient light on the meaning of the claim terms central to the dispute on appeal. We therefore vacate the district court’s construction of “display format” and “converted video signal” and remand to the district court to construe these terms after further developing the record as to their meaning to those of skill in the art at the relevant timeframe. Because the district court’s grant of summary judgment of noninfringement of the asserted claims of the ’492, ’711, and ’268 patents and its grant of summary judgment of invalidity of claims 21, 22, 25, 28, and 29 of the ’268 patent are based on its now-vacated construction of these terms, we also vacate these two grants of summary judgment.

VACATED AND REMANDED

COSTS

No costs.