

United States Court of Appeals
for the Federal Circuit

VIZIO, INC. and AMTRAN TECHNOLOGY CO.,
LTD.,
Appellants,

and

TPV TECHNOLOGY LTD., TPV INTERNATIONAL
(USA), INC.,
TOP VICTORY ELECTRONICS (TAIWAN) CO.,
LTD.,
and ENVISION PERIPHERALS, INC.,
Appellants,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

and

FUNAI ELECTRIC CO., LTD. and FUNAI
CORPORATION,
Intervenors.

2009-1386

On appeal from the United States International Trade
Commission in Investigation No. 337-TA-617.

Decided: May 26, 2010

GREGORY A. CASTANIAS, Jones Day, of Washington, DC, argued for all appellants. With him on the brief for Vizio, Inc., et al were ERIC S. NAMROW and ISRAEL SASHA MAYERGOYZ, of Chicago, Illinois. On the brief for TPV Technology Ltd., et al were MARK A. SAMUELS and BRIAN M. BERLINER, O'Melveny & Myers LLP, of Los Angeles, California; and JONATHAN D. HACKER, of Washington, DC.

DANIEL E. VALENCIA, Attorney, Office of the General Counsel, United States International Trade Commission, of Washington, DC, argued for appellee. With him on the brief were JAMES M. LYONS, General Counsel, and ANDREA C. CASSON, Assistant General Counsel.

KARL J. KRAMER, Morrison & Foerster LLP, of Palo Alto, California, argued for intervenors. With him on the brief were G. BRIAN BUSEY and TERESA M. SUMMERS, of Washington, DC; HAROLD J. MCCELHINNY, of San Francisco, California; and MARK W. DANIS, of Chiyoda-ku, Tokyo, Japan.

Before MAYER, CLEVENGER, and DYK, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* DYK.

Opinion dissenting-in-part filed by *Circuit Judge*
CLEVENGER.

DYK, *Circuit Judge*.

Vizio, Inc. and Amtran Technology Company, Ltd. (collectively, "Vizio"), and TPV Technology, Ltd., TPV International, Inc., Top Victory Electronics Company,

Ltd., and Envision Peripherals, Inc. (collectively, “TPV”) appeal from the final determination of the International Trade Commission (“Commission”) that the importation and sale of certain digital television products violated section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337. The Commission issued a limited exclusion order and a cease and desist order. *In the Matter of Certain Digital Televisions and Certain Products Containing Same and Methods of Using Same*, Inv. No. 337-TA-617 (U.S.I.T.C. Apr. 10, 2009) (“Final Determination”). The Commission’s action was based on its finding that the accused products infringed claims 1, 5, and 23 of U.S. Patent No. 6,115,074 (the “’074 patent”), and that the ’074 patent was not invalid.

We affirm the Commission’s construction of the term “channel map information,” as well as the Commission’s determination that the ’074 patent is not invalid as anticipated or obvious. Furthermore, we affirm the Commission’s construction of the term “identifying channel map information . . . and assembling said identified information” in claims 1 and 23 as not precluding use of the Moving Picture Experts Group (“MPEG”) Program Map Table (“PMT”) and its determination that the ’074 patent is infringed by the “legacy products.” However, we find the Commission erred in its conclusion that the claims do not require that the channel map information be capable of being used, *see In the Matter of Certain Digital Televisions and Certain Products Containing Same and Methods of Using Same*, Inv. No. 337-TA-617, slip op. at 49 (U.S.I.T.C. Nov. 17, 2008) (“Initial Determination”), and we accordingly reverse the Commission’s determination that the “work-around products” infringe.

BACKGROUND

Funai Electric Company, Ltd. of Japan, and Funai Corporation of Rutherford, New Jersey (collectively, “Funai”) own the ’074 patent, entitled “System for Forming and Processing Program Map Information Suitable for Terrestrial, Cable or Satellite Broadcast.” The ’074 patent relates to apparatuses and methods by which television decoder devices identify and assemble specific “channel map” information carried in an MPEG compatible datastream in order to decode a digital television user’s selected program in a digital transmission. ’074 patent col.1 ll.11-13.

In the digital television era, television networks broadcast programs by transmitting encoded streams of digitized data. Unlike in analog transmission, digital transmission allows for the transmission of multiple programs over one physical transmission channel (“PTC”). For example, the 6 megahertz broadcast bandwidth previously allocated to a single analog broadcast channel, such as Channel 13, may now be used to carry many digital programs on different channels and subchannels (for example, channels 13-1, 13-2, 13-3, 13-4, and 13-5).

In the early 1990s, the MPEG set forth rules governing the compression and packetization of digital data for transmission and subsequent decoding. A “packet” is the basic unit of digital data transmission. Each television program has a set of video packets, audio packets, and data packets. Each of these sets of packets in a program constitutes an “elementary stream,” and the elementary streams of all the different programs on a broadcast channel are multiplexed together to form a single stream for transmission by the broadcaster—the MPEG transport stream. To achieve an MPEG-compliant digital broadcast, datastreams in the broadcast must carry information to identify and assemble the packets that constitute a

program, so that the “decoder” can disaggregate the desired program information from the multiple programs transmitting on the same broadcast channel.

The MPEG-2 standard, developed by the MPEG and published in 1994, is the standard currently used for digital television broadcasts in the United States. The MPEG-2 standard defines a PMT, which is essentially a map instructing the decoder which packets need to be extracted for a given program. The PMT includes a number of different data fields, including: 1) the “program number,” a unique sixteen-digit number associated with a particular television program, 2) the elementary packet identifier (“elementary_PID”), which defines the packets that constitute an elementary stream, 3) a “stream_type” identifier that identifies the type of data carried by the packet (such as audio or video), and 4) the Program Clock Reference packet identifier (“PCR_PID”), which contains timing information that the decoder needs to coordinate the various content streams in time. A broadcaster sends the PMT scattered throughout the transport stream. The prior art systems operating under the MPEG-2 standard relied on the MPEG PMT for information critical to decoding a program.

In connection with the MPEG-2 standard, the American Television System Committee (“ATSC”) published several standards that added additional layers of information to facilitate decoding of the MPEG transport stream, namely the A/55 and A/56 standards. These standards were apparently not entirely satisfactory, and were eventually replaced by another standard, the A/65 standard.

The large quantity of information transmitted in digital broadcasts pursuant to the MPEG-2 standard and the use of the MPEG PMT for decoding resulted in a delay in the acquisition of a particular program. Receivers were forced to wait to receive the PMT data each time before

the decoders could be configured to decode a program. This phenomenon is known as “channel latency.” The A/55 and A/56 standards were not addressed to this problem. The inventors of the ’074 patent sought to address the problem by developing a system that identified and assembled a “channel map” that replicated from the MPEG PMT all of the information necessary to identify and acquire a program being transmitted on a selected subchannel. ’074 patent, Abstract. By requiring the replication and storage of this information instead of waiting to receive the MPEG PMT each time as it appeared in the datastream, “the time required by [the] decoder . . . to identify and acquire a program being transmitted on [a] selected sub-channel . . . is advantageously reduced.” *Id.* col.7 ll.40-42.

At the suggestion of the lead inventor of the ’074 patent and after the ’074 provisional patent application was filed, the ATSC adopted the A/65 Standard, which incorporated the requirement of a channel map, or Virtual Channel Table (“VCT”), the replicated channel map being a central feature of the ’074 patent. That standard replicates the MPEG program number, PCR_PID, stream types, and elementary PIDs that are carried in the MPEG PMT. The A/65 Standard requires that broadcast signals carry a VCT. The Federal Communications Commission (“FCC”) mandated that, effective May 29, 2008, transmission of digital broadcast television signals comply with the ATSC A/65 standard. 47 C.F.R. § 73.682(d). Furthermore, beginning on March 1, 2007, all digital televisions (“DTVs”) sold in the United States must be capable of receiving broadcasts compliant with the ATSC A/65 Standard. See 47 C.F.R. § 15.117(a), (b), (h), (i).

The asserted claims of the ’074 patent relate to the replication of this “channel map information.” Claim 1 provides:

1. Apparatus for decoding a datastream of MPEG compatible packetized program information containing program map information to provide decoded program data, comprising:
 - means for identifying channel map information conveyed within said packetized program information; and
 - means for assembling said identified information to form a channel map for identifying said individual packetized datastreams constituting said program, wherein said channel map information replicates information conveyed in said MPEG compatible program map information and said replicated information associates a broadcast channel with packet identifiers used to identify individual packetized datastreams that constitute a program transmitted on said broadcast channel.

'074 patent col.11 ll.27-42. Claim 23 recites “[a] method for decoding MPEG compatible packetized program information,” comprising the steps of “identifying channel map information” and “assembling said identified information to form channel map suitable for use in identifying said individual packetized datastreams constituting said program.” *Id.* col.14, ll.9-17. Claim 5, which depends from claim 1, incorporates a “means for tuning to receive said program transmitted on said broadcast channel using said channel map information for acquisition of said program.” *Id.* col.11 ll.56-58.

On October 15, 2007, Funai filed its complaint alleging that fourteen respondents violated 19 U.S.C. § 1337 through importation or sale of certain digital televisions that infringed claims 1, 4, 5, 8, 9, and 23 of the '074

patent, and various claims of U.S. Patent No. 5,329,369 (the “369 patent”).¹ Funai argued that the accused televisions infringed due to incorporation of a chip manufactured by a third party that processes information received in the ATSC-compliant broadcast signal. After an evidentiary hearing, the Administrative Law Judge (“ALJ”) construed the term “channel map information” to include, at a minimum, the program number, PCR_PID, stream_types, and elementary_PID information, concluding that the “evidence of record shows that in order for the claimed apparatus and method to operate under an MPEG standard, one must use certain PMT information.” *Initial Determination*, slip op. at 41. The ALJ considered whether the inventors clearly disavowed any use of the PMT information during prosecution, and concluded that they did not. *Id.* at 46. The ALJ also held that the language of claims 1 and 23 was limited to “identifying” and “assembling” channel map information to form a channel map, and did not require actual use of the channel map once created. *Id.* at 49. The ALJ furthermore concluded that simply receiving and storing the VCT was sufficient to satisfy the requirements of claims 1 and 23. *See id.* at 61.

The ALJ also considered respondents’ argument that certain DTVs that included recent design changes did not infringe the ’074 patent. These “work-around products,” in contrast to the “legacy” products that appellants were importing when Funai first filed its complaint, use third-party chips having a software modification that “skip[ped] over” parts of the VCT and left parts of the VCT in transmission (encoded) format, thus preventing its use.

¹ During the investigation, Funai withdrew its assertion of claims 4, 8, and 9 of the ’074 patent; the claims of the ’369 patent are not at issue in this appeal.

The ALJ concluded that these “work-around” products nonetheless infringed under its claim construction.

The ALJ concluded that respondents directly infringed claims 1 and 5 of the ’074 patent,² and induced infringement of claim 23 of the ’074 patent. *See Initial Determination*, slip op. at 61-63. The ALJ also held claims 1, 5, and 23 of the ’074 patent to be valid and enforceable, rejecting respondents’ contention that the asserted claims were invalid as anticipated and obvious. *Id.* at 76.

On April 10, 2009, the ITC issued a Final Determination, in which it in large part affirmed the ALJ’s findings of infringement and validity, and accepted the ALJ’s recommendations of a limited exclusion order and cease-and-desist orders. In its partial review, the Commission had asked the parties to address specific questions regarding direct infringement by virtue of testing activities in the United States,³ as well as induced infringement of claim 23 of the ’074 patent. *See Final Determination*, slip op. at 3. All other findings of fact and conclusions of law made in the Initial Determination were adopted. *Id.* at 3, 19. The ITC rejected the respondents’ contention regarding the work-around products, stating that “[r]espondents’ position that its design change leads to non-infringement . . . relied primarily on a claim construction of ‘suitable for use’ that is clearly incorrect.” *Id.* at 8-9. Furthermore, the Commission rejected respondents’ contention that they could not infringe the ’074 patent

² The investigation was terminated with respect to numerous respondents who settled with Funai.

³ The ITC reversed the ALJ’s finding of direct infringement via product testing as to TPV, but affirmed it as to Vizio. *See Final Determination*, slip op. at 6. The issue of infringement of the ’074 patent through product testing is not raised on appeal.

because the work-around products were required to use the MPEG PMT, and the respondents' contention that the inventors had disclaimed devices and methods that utilized the PMT. The Commission's determination became final on June 10, 2009, at the conclusion of the sixty-day presidential review period. *See* 19 U.S.C. § 1337(j)(4). An appeal to this court was timely filed, and we have jurisdiction under 28 U.S.C. § 1295(a)(6).

After oral argument, we requested supplemental briefing, including briefing on the issue of whether claims 1 and 23 of the '074 patent are properly construed so that the claims are infringed even if the accused product has the ability to use only some, but not all, of the VCT data.

DISCUSSION

We review the Commission's final determination of a violation of section 337 under the standards of the Administrative Procedure Act ("APA"). *See* 19 U.S.C. § 1337(c). Under the APA, this court reviews the Commission's legal determinations *de novo*, and its factual findings for substantial evidence. *See* 5 U.S.C. § 706(2)(A), (E); *Honeywell Int'l, Inc. v. Int'l Trade Comm'n*, 341 F.3d 1332, 1338 (Fed. Cir. 2003). Claim construction is an issue of law and is subject to *de novo* review. *See Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1451 (Fed. Cir. 1998) (*en banc*).

I Claim Construction

As described above, the problem addressed by the patent is the issue of channel latency. *See* '074 patent, col.1 ll.42-67. The object of the invention is to accelerate the decoding process through a system that identifies and assembles a "channel map" that replicates from the MPEG-2 PMT all of the information necessary to identify and acquire a program. By requiring the replication of this information instead of waiting to receive the PMT as

it appears in the datastream, “the time required by [the] decoder . . . to identify and acquire a program being transmitted on [a] selected sub-channel . . . is advantageously reduced.” ’074 patent col.7 ll.40-42.

Resolution of the issues of infringement and invalidity requires that we address three issues of claim construction at the outset. First, we address the construction of “channel map information.” We must determine whether the “channel map information” must replicate the four data fields constituting the program number, PCR_PID, elementary_PID, and stream_type data from the MPEG PMT. The Commission found that the channel map must replicate these four data fields. Funai advocates the Commission’s reading of the claims in order to avoid invalidity on the basis of anticipation and obviousness, whereas appellants advocate a broader reading of the claims so as to support their invalidity arguments.

The ’074 patent does not define the term “channel map information,” nor does this term appear to have any ordinary English meaning. To locate a user’s selected program, claims 1 and 23 require identification and assembly of channel map information, and require that

said channel map information replicates information conveyed in said MPEG compatible program map information and said replicated information associates a broadcast channel with packet identifiers used to identify individual packetized datastreams that constitute a program transmitted on said broadcast channel.

’074 patent col.11 ll.36-41, col.14 ll.19-24 (emphases added). Funai argues that the claim language here references “MPEG compatible program map information,” and that “channel map information” must be construed with reference to the MPEG-2 standard. Appellants challenge the Commission’s reliance on the MPEG-2

standard, and argue that there are several MPEG standards and that the '074 patent does not expressly limit itself to the MPEG-2 standard. In appellants' view, the claims only require that packet identifiers (or elementary_PID), one of the four data fields, be part of the channel map.

The claim language referring to "MPEG compatible program map information" must refer to the MPEG-2 standard. As the Commission noted, the '074 patent appears to define the term "MPEG standard" as the MPEG-2 standard. *See* '074 patent col.1 ll.18-21 ("One such widely adopted standard is the MPEG2 . . . image encoding standard, hereinafter referred to as the 'MPEG standard.'"). The MPEG-2 standard is specifically referenced in numerous places in the specification, and the specification makes no reference to any other MPEG standard. *See, e.g., id.* col.1 ll.18-25, col.2 ll.55-59, col.7 ll.49-57. Appellants' own expert, Dr. Wechselberger, acknowledged that the multiple references in the '074 patent to the "MPEG standard" refer to the MPEG-2 standard. Moreover, we agree with the Commission that the fact that the MPEG-2 standard was the standard used for digital television broadcasts in the United States at the time of the filing of the patent itself suggests that one of ordinary skill in the art would understand the disputed claim terms of the '074 patent to refer to the MPEG-2 standard. *See LG Elecs., Inc. v. Bizcom Elecs., Inc.*, 453 F.3d 1364, 1375 (Fed. Cir. 2006) ("Although we have concluded that the patentee did not expressly adopt the . . . industry standard, that standard remains relevant in determining the meaning of the claim term to one of ordinary skill in the art at the time the patent application was filed, and it is treated as intrinsic evidence for claim construction purposes"), *rev'd on other grounds*, *Quanta Computer, Inc. v. LG Elecs., Inc.*, 553 U.S. 617 (2008).

Thus, we agree with the Commission that the claims require associating the program with all of the identifiers conveyed in the MPEG-2 program map information that are necessary to “constitute a program.” ’074 patent col.11 ll.36-41, col.14 ll.19-24. At the evidentiary hearing, the expert witnesses agreed that the MPEG-2 standard requires, at a minimum, four data fields—the program number, PCR_PID, stream type, and elementary_PID data—in order to “identify individual packetized data streams that constitute a program.” *See* App. 28,438-39, 28,467-68, 31,841-43, 32,431.⁴

Appellants cryptically argue that dependent claims 2 and 10 demonstrate that the channel map information in independent claim 1 does not include all four data fields. Claim 2 recites that the “channel map information further associates an individual program with a corresponding program clock reference (PCR) value.” ’074 patent col.11 ll.42-45. Appellants state that “the presence of a dependent claim that adds a particular limitation gives rise to the presumption that the limitation in question is not present in the independent claim.” Appellants’ Br. 43 (quoting *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005)) (en banc). Thus, because dependent claim 2 adds the limitation that the channel map information associates an individual program with a PCR value, the presumption is that independent claim 1 must not require “channel map information” to include the PCR value. Appellants assume that the PCR value and the PCR_PID are the same. However, the Commission points out that the PCR value (referenced in claim 2) and the PCR_PID are not the same. *See Initial Determination*, slip op. at 42 (“[T]he PCR_PID field constitutes a ‘packet identifier.’ The Program Clock Reference values identified by the

⁴ The ALJ also examined the text of the MPEG-2 standard itself, and concluded the same. *See Initial Determination*, slip op. at 44.

PCR_PID constitute a datastream of program specific information that relates to a particular program.”). The reply brief does not disagree. We conclude that claim 2 states an additional limitation beyond the claim limitations of independent claim 1.

Likewise, claim 10, which depends from claim 1, requires that the

channel map information further associates a
datastream type indicator

with an individual packetized datastream,
said datastream type indicator identifying
whether said individual packetized data-
stream contains at least one of a) audio in-
formation, and b) video information.

Id. col.11 l2.10-15 (emphasis added). Appellants argue that because dependent claim 10 adds the limitation that the channel map information associates an individual program with a datastream type indicator, the presumption must be that independent claim 1 does not require “channel map information” to include the stream_type identifier. However, claim 10 merely adds an additional claim limitation, requiring the apparatus to identify whether the datastream includes audio or video information. Neither of these claim differentiation arguments undermines the Commission’s construction of the claimed channel map information. We conclude that the Commission properly construed “channel map information” to include the program number, PCR_PID, stream_type, and elementary_PID data.

The second issue of claim construction is whether the claims preclude the use of information other than channel map information, and in particular whether they preclude the use of the MPEG PMT (i.e., the data used for decoding in the prior art). Appellants argue that the language “identifying channel map information . . . and assembling

said identified information” in claims 1 and 23, ’074 patent col.11 ll.31-33, col.14 ll.12-14, excludes use of the MPEG PMT, because the patentees disavowed any and all use of the PMT during the prosecution of the ’074 patent. The Commission found no disavowal in either the ’074 patent or the prosecution history. We agree with the Commission that there was no broad disclaimer of any and all use of the PMT. The inventions disclaimed only systems that require the use of the MPEG PMT.

Appellants cite first to the patent specification in support of their disavowal argument. For example, the specification describes how the processor receives a selected subchannel “without acquiring and using the Program Map Table (PMT) information in the MPEG compatible transport stream.” ’074 patent col.7 ll.49-53. This, according to appellants, is sufficient to constitute an unambiguous disavowal of any and all use of the PMT. However, it appears from the rest of the paragraph that the invention merely enables the system to acquire the program without waiting for the PMT in the MPEG transport stream:

However, by incorporating the [channel map information], the time required by decoder 100 to identify and acquire a program being transmitted on selected subchannel SC is advantageously reduced. This is because the [channel map information] provide[s] formatted and linked information sufficient to enable processor 60 to directly configure and tune the system . . . This enables processor 60 to configure the system . . . to receive the selected sub-channel . . . without acquiring and using the Program Map Table (PMT) information in the MPEG compatible transport stream . . .

Id. col.7 ll.39-45 (emphases added). As the cited language suggests, the patentees were not disclaiming any and all use of the PMT, but rather, explaining the benefits of the patented invention over the prior art, namely, that it does not require the use of the MPEG PMT.⁵

The prosecution history also does not evidence a disclaimer of all use of the PMT. During the prosecution of the '074 patent, the examiner rejected all the asserted claims as anticipated by U.S. Patent No. 5,600,378 ("Wasilewski"), stating that Wasilewski discloses "channel map data [that] replicates data conveyed in the MPEG program map table . . . to indicate to the viewer which programs correspond to which channels." App. 41,325. To overcome the examiner's rejection, patentees argued that the amended claims were not anticipated because Wasilewski

stat[es] that the "PMT . . . (is) needed to demultiplex the service components of the selected program." In contrast, the channel map of the claim 1 system replicates the "packet identifiers used to identify individual packetized datastreams that constitute a program" in a "channel map" and consequently in the claim 1 system the PMT is NOT needed to demultiplex program components since the "channel map" contains the required information.

App. 41,376 (emphasis in original). In stating that the PMT is not needed to demultiplex program components, the inventors were distinguishing the Wasilewski system

⁵ Indeed, intervenor's brief appears to concede this point: "Far from supporting a disclaimer, the statements in the specification and prosecution history simply note that an advantage of the invention is dispensing with the necessity of using the PMT." Intervenor's Br. 22.

by making clear that the claimed invention was not dependent on the MPEG PMT, but there is no basis for concluding that the patentees intended a sweeping disclaimer of any and all use of the MPEG PMT. Indeed, as the Commission properly concluded: “Far from disavowing the acquisition or use of the PMT, the inventors noted that an advantage of the invention is dispensing with the necessity at this stage of the operation of going back to the PMT in the MPEG datastream.” *Initial Determination*, slip op. at 46. These statements made in order to obtain claim allowance are sufficiently clear to constitute a disclaimer of devices (or methods) in which use of the MPEG PMT is required to decode.⁶ However, we agree with the Commission that nothing in the above-quoted passage from the prosecution history suggests an intent to disclaim any and all use of the PMT.

The third issue of claim construction is whether the claims require that the device and method be capable of utilizing the channel map information. This relates to the interpretation of the terms “for identifying” and “suitable for use in identifying” in claims 1 and 23. Claim 1 requires a “means for assembling said identified information to form a channel map for identifying said individual packetized datastreams constituting said program.” ’074 patent col.11 ll.33-35 (emphasis added). Similarly, claim

⁶ See *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1324 (Fed. Cir. 2003) (“[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and narrows the ordinary meaning of the claim congruent with the scope of the surrender.”); *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448, 452 (Fed. Cir. 1985) (“[T]he prosecution history (or file wrapper) limits the interpretation of claims so as to exclude any interpretation that may have been disclaimed or disavowed during prosecution in order to obtain claim allowance.”).

23 encompasses a method for decoding MPEG compatible packetized program information, and requires assembly of channel map information to “form a channel map suitable for use in identifying said individual packetized datastreams constituting [a] program.” *Id.* col.14 ll.15-17 (emphasis added). The Commission concluded that claims 1 and 23 merely require the identification, assembly, and storage of the channel map information. *Initial Determination*, slip op. at 60-61. Thus, according to the Commission’s implied construction, once the VCT is transmitted and stored in the DTV processor’s memory, it is “necessarily . . . suitable for use as a channel map,” *id.* at 58, even if it cannot in fact be used for that purpose. Appellants argue that the Commission erred, and that the claim language requires more than the mere receipt and storage of the VCT in the DTV’s dynamic random access memory (“DRAM”); the channel map information must also be actually capable of being used for identifying the desired program.⁷ We agree.

The language “for identifying” and “suitable for use” on their face suggest that channel map information must actually be capable of being used for the claimed func-

⁷ The dissent suggests that this issue was waived because Vizio did not raise this as an issue of claim construction before the Commission. See Dissenting Op. at 2. However, the issue of whether the “for identifying” limitation of claim 1 and the “suitable for use in identifying” limitation of claim 23 were satisfied was addressed by the full Commission as an issue of claim construction. See *Final Determination*, slip op. at 8-9 (“Respondents’ position that its design change leads to non-infringement, however, relied primarily on a claim construction of ‘suitable for use’ that is clearly incorrect.”) (emphasis added). In any event, the fact that the parties and the Commission to some extent chose to address this issue as one of infringement rather than claim construction can hardly result in a waiver.

tion.⁸ Additionally, the preamble of claim 1 is addressed to an “[a]pparatus for decoding a datastream of MPEG compatible packetized program information containing program map information to provide decoded program data,” ’074 patent col.11 ll.27-29 (emphasis added), while the preamble of claim 23 encompasses “[a] method for decoding MPEG compatible packetized program information containing program map information to provide decoded program data,” *id.* col.14 ll.9-11 (emphasis added). In general, a preamble limits the invention if it recites essential structure or steps, or if it is “necessary to give life, meaning, and vitality” to the claim. *Catalina Mktg. Int’l Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 808 (Fed. Cir. 2002) (quoting *Pitney Bowes, Inc. v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305 (Fed.Cir. 1999)). A preamble is not limiting “where a patentee defines a structurally complete invention in the claim body and uses the preamble only to state a purpose or intended use for the invention.” *Rowe v. Dror*, 112 F.3d 473, 478 (Fed. Cir. 1997).

Here, we conclude that the “for decoding” language in the preamble of claims 1 and 23 is properly construed as a claim limitation, and not merely a statement of purpose

⁸ See, e.g., *Revolution Eyewear, Inc. v. Aspex Eyewear*, 563 F.3d 1358, 1369-70 (Fed. Cir. 2009) (eyeglass device infringed because it satisfied limitation that the primary frame be “capable of engaging” magnetic members from the top, because it was actually capable of doing so); *Key Pharms. v. Hercon Labs. Corp.*, 161 F.3d 709, 712, 718 (Fed. Cir. 1998) (affirming judgment of non-infringement where claim required an adhesive layer “capable of retaining dispersed therein sufficient pharmaceutically active drug . . . to deliver to the skin a pharmaceutically effective amount of said pharmaceutically active drug over a 24-hour time interval,” and allegedly infringing product was not capable of delivering the pharmaceutically effective amount).

or intended use for the invention, because “decoding” is the essence or a fundamental characteristic of the claimed invention. *See Poly-Amer., L.P. v. GSE Lining Tech., Inc.*, 383 F.3d 1303, 1310 (Fed. Cir. 2004); *Jansen v. Rexall Sundown, Inc.*, 342 F.3d 1329, 1333 (Fed. Cir. 2003); *Griffen v. Bertina*, 285 F.3d 1029, 1033 (Fed. Cir. 2002); *Manning v. Paradis*, 296 F.3d 1098, 1103 (Fed. Cir. 2002). In *Griffen v. Bertina*, we construed language in the preamble of the claim describing “[a] method for diagnosing an increased risk for thrombosis,” 285 F.3d at 1031, and concluded that “[d]iagnosis is . . . the essence of this invention; its appearance in the count gives ‘life and meaning’ to the manipulative steps,” *id.* at 1033. We noted that without the invention’s intended purpose of diagnosis, “obtaining nucleic acid and assaying for a point mutation alone are merely academic exercises.” *Id.*⁹ Similarly, here the apparatus of claim 1 and the method of claim 23 would have little meaning without the intended objective of decoding. The decoding requirement of the preamble does not “only add[] an intended use,” *Marrin v. Griffin*, 599 F.3d 1290, 1294 (Fed. Cir. 2010), but rather, states an essential limitation to the claims.

Moreover, a construction that required only receipt and storage of the channel map information, and not the ability to decode using that information, could effectively broaden the claims to cover all devices and methods of decoding an A/65 compliant digital broadcast. FCC regulations require the transmission of DTV signals to comply with the ATSC A/65 Standard, 47 C.F.R. § 73.682(d), and require that all DTVs sold in the United States be capable of “adequately receiving” broadcasts compliant with the ATSC A/65 Standard, *see* 47 C.F.R. §

⁹ *See also Poly-Amer.*, 383 F.3d at 1310 (holding that the preamble phrase “blown-film” constituted a claim limitation where the inventor considered this feature a central characteristic of the claimed invention).

15.117(a), (b), (h), (i). Under the Commission’s interpretation, mere compliance with the FCC’s requirements could result in infringement. There is no indication in the specification or prosecution history that the claims reach all receivers that are capable of receiving and storing channel map information but are incapable of using it. Moreover, an interpretation that did not require the ability to use the channel map information would be contrary to the limited disclaimer appearing in the specification and prosecution history which, as discussed above, requires the ability to decode without utilizing PMT information. Under the Commission’s construction, a decoding apparatus that required use of the PMT—because it was not capable of using the claimed channel map information—would nonetheless infringe. Thus, we conclude that the apparatus of claim 1 and the method of claim 23 must actually be capable of using the channel map information to decode the datastream of MPEG program information.

Appellee and intervenor argue that even if the apparatus or method must use the channel map for decoding, only some of the data fields in the VCT channel map need to be “suitable for use,” “for identifying,” or “for decoding.” In other words, appellee and intervenor argue that not all of the channel map information needs to be “suitable for use,” so long as some of the data is “suitable for use.” We think this interpretation is untenable. The appellee’s attempt to parse a distinction between the “channel map” as a whole and “channel map information” makes no sense given the context of the invention. All four minimum data components in the channel map are required to be suitable for use for decoding, because the very purpose of the ’074 patent is to replicate all of the “program map information” from the MPEG PMT necessary “to identify and acquire a program,” thus reducing the time required for the decoder to tune into a program.

Furthermore, intervenor argues that the approach outlined here renders superfluous dependent claims 5 and 7. We disagree, and find these claims to be perfectly compatible with the proposed construction of claims 1 and 23. Claim 5 adds a “means for tuning to receive said program transmitted on said broadcast channel,” ’074 patent col.11 ll.56-57, and claim 7 adds the requirement that the decoder acquires said program “in response to User entry of said first and second identification numbers,” *id.* col.11 ll.66-67. Claims 5 and 7 are not rendered superfluous, because they impose additional limitations not encompassed within claims 1 and 23.

Thus, we conclude that the Commission properly construed the phrase “channel map information” to require replication of the program number, PCR_PID, elementary_PID, and stream_type data from the MPEG PMT. Additionally, the Commission correctly concluded that neither the language of the specification nor the prosecution history indicated the patentee’s intent to disclaim any and all use of the PMT, although the patentee did disclaim devices (and methods) in which use of the MPEG PMT is required to decode. Finally, we conclude that the claimed apparatus or method must be capable of utilizing the program number, PCR_PID, elementary_PID, and stream_type data to decode the MPEG compatible data-stream, and that mere receipt and storage of the channel map is insufficient to satisfy the limitations of claims 1 and 23.

II Validity

We now turn to the validity of the asserted claims, which the Commission found to be not invalid as anticipated by the A/55 standard nor obvious in view of the A/55 standard combined with U.S. Patent No. 5,982,411 (the “Eyer patent”). *Initial Determination*, slip op. at 68-70. Obviousness is a question of law based on underlying

factual inquiries, and thus we review the Commission’s ultimate determination de novo and factual determinations for substantial evidence. *See Crocs Int’l v. Int’l Trade Comm’n*, 598 F.3d 1294, 1308 (Fed. Cir. 2010). Whether a prior art reference anticipates a patent claim is a question of fact, which we review for substantial evidence. *Linear Tech. Corp. v. Int’l Trade Comm’n*, 566 F.3d 1049, 1066 (Fed. Cir. 2009).

A Anticipation

The Commission held that the ’074 patent is not anticipated by the A/55 standard, because the standard does not disclose replication of the necessary channel map information identified in the asserted independent claims of the ’074 patent. *Initial Determination*, slip op. at 68. The Commission found that although the A/55 standard discloses a “channel number,” it cannot be the same as the MPEG program number, because it has a “different syntax.” *Id.* The Commission also found that although the A/55 Standard discloses “time_base_PID,” this is not the same as the PCR_PID. *Id.* An anticipatory reference must show all of the limitations of the claims arranged or combined in the same way as recited in the claims. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1370 (Fed. Cir. 2008). Thus, the A/55 standard does not include two fields that are necessary to the claimed channel map. Therefore, there is no anticipation.

B Obviousness

The Commission also held that the ’074 was not obvious in light of the A/55 standard in combination with the Eyer patent.¹⁰ The Commission found that all of the

¹⁰ The ALJ considered the question of obviousness in light of Eyer, the A/55 Standard, and the A/56 Standard. *Initial Determination*, slip op. at 68. However, on appeal appellants raise only the issue of obviousness in light of the Eyer patent and the A/55 Standard.

elements of the claimed invention were not disclosed in the prior art references. *Initial Determination*, slip op. at 69. Moreover, the Commission concluded, appellants failed to present sufficient evidence that one of ordinary skill would have known to replicate and place in a separate table all of the information necessary to locate individual packetized datastreams as required by the asserted claims of the '074 patent. *Id.*

The Eyer patent teaches the grouping of a plurality of broadcast programming channels, thus allowing a television viewer to easily navigate programs grouped according to a common service provider or other grouping criteria. Eyer patent, Abstract. The Commission concluded that Eyer does not teach replication of the PMT information in a channel map. *Initial Determination*, slip op. at 69. We agree; nothing in the Eyer patent directly discloses any replication of MPEG PMT data. At best, the Eyer patent incorporates by reference the A/56 standard, which the Commission found may teach “at most” replication of the MPEG program number. *See id.* Furthermore, as discussed above, the A/55 standard does not disclose replication of either the MPEG program number or the PCR_PID from the MPEG PMT. Thus, none of the prior art references cited by Vizio, alone or in combination, discloses replication of the identifiers for all of the MPEG program map information required by the claims.

Thus, the Commission correctly concluded that appellants failed to sustain their burden of proving that the asserted claims are invalid.

III Infringement

Appellants do not challenge the Commission’s finding of infringement by the legacy products under the claim construction we have adopted. We therefore affirm the

finding of infringement of claims 1, 5, and 23 as to the legacy products.

However, we conclude that under our claim construction described above, the work-around products cannot infringe claims 1, 5, and 23, because regardless of which data fields they use from the VCT, it is conceded that they do not convert all of the channel map information from the VCT into useable format.¹¹ Thus, the work-around products do not satisfy the “suitable for use,” “for identifying,” or “for decoding” limitations.¹²

¹¹ The dissent argues that we should not reach the merits of the work-around infringement argument because the ALJ stated that this argument “could be stricken.” *See Initial Determination*, slip op. at 60. However, that aspect of the ALJ’s decision was affirmed on the merits by the full Commission, and the Commission did not hold or suggest that the issue had been waived. *See Final Determination*, slip op. at 8-9. We cannot affirm on the ground of waiver, for we must adhere to the long-established principle of administrative law establishing that “[t]he grounds upon which an administrative order must be judged are those upon which the record discloses that its action was based.” *Sec. & Exch. Comm’n v. Chenery Corp.*, 318 U.S. 80, 87 (1943). Here the question of waiver implicates agency discretion, and we cannot properly substitute our decision on a discretionary issue for that of the Commission. *See Interstate Commerce Comm’n v. Bhd. of Locomotive Eng’rs*, 482 U.S. 270, 283 (1987) (A court “may not affirm on a basis containing any element of discretion . . . that is not the basis the agency used, since that would remove the discretionary judgment from the agency to the court.”). Even if the ALJ’s decision had been the final decision, the statement that he “could” have rested the decision on a waiver does not provide an alternative ground for a decision where it is clear that the ALJ did not rely on that ground.

¹² The dissent suggests that a remand is required to determine whether the software modification actually prevents the use of the channel map by the work-

We affirm the Commission's finding of infringement as to the legacy products, reverse the Commission's determination of infringement as to the "work-around" products, and remand for an order consistent with this opinion.

**AFFIRMED-IN-PART, REVERSED-IN-PART, and
REMANDED**

COSTS

No costs.

around products. However, neither the Commission nor the Intervenors sought a remand; nor did they dispute that the work-around products do not infringe if claims 1 and 23 are construed as requiring that the four data fields in the channel map be capable of being used.

United States Court of Appeals
for the Federal Circuit

VIZIO, INC. and AMTRAN TECHNOLOGY CO.,
LTD.,
Appellants,

and

TPV TECHNOLOGY LTD., TPV INTERNATIONAL
(USA), INC.,
TOP VICTORY ELECTRONICS (TAIWAN) CO.,
LTD.,
and ENVISION PERIPHERALS, INC.,
Appellants,

v.

INTERNATIONAL TRADE COMMISSION,
Appellee,

and

FUNAI ELECTRIC CO., LTD. and FUNAI
CORPORATION,
Intervenors.

2009-1386

On appeal from the United States International Trade
Commission in Investigation No. 337-TA-617.

CLEVINGER, *Circuit Judge*, dissenting-in-part.

I join the majority opinion in all respects but one. I dissent from the majority's decision to reverse and remand the Commission's determination that the so-called "workaround" products infringe claim 1 of U.S. Patent No. 6,114,074 ("the '074 patent"). The majority opinion asserts that there are three claim construction issues raised by the parties: "channel map information," whether the claims preclude the use of information other than channel map information, and whether the claims require that the device and method be capable of utilizing the channel map information. The first two issues indeed are appealed, and I agree with the majority's assessment of those two issues. The "third issue of claim construction," Maj. Op. at 17, is not appealed. The majority thus reaches beyond the issues raised by the parties, both below and on appeal, to sua sponte issue a claim construction ruling on the phrases "for identifying" and "for decoding." Maj. Op. at 17-20. As that issue is not properly before us, we should instead affirm.

Claim 1 of the '074 patent reads:

1. Apparatus for decoding a datastream of MPEG compatible packetized program information containing program map information to provide decoded program data, comprising:
 - means for identifying channel map information conveyed within said packetized program information; and
 - means for assembling said identified information to form a channel map for identifying said individual packetized datastreams constituting said program, wherein
 - said channel map information replicates information conveyed in said MPEG compatible program

map information and said replicated information associates a broadcast channel with packet identifiers used to identify individual packetized datastreams that constitute a program transmitted on said broadcast channel.

The majority construes the phrase "means for assembling said identified information to form a channel map for identifying" to read a limitation into claim 1 that requires a means to actually use the channel map instead of simply forming the channel map as required by the claim. Maj. Op. at 17-18. To support its construction of "for identifying," the majority also imports an additional limitation from the preamble of the claim that requires actual use of the channel map "for decoding." Maj. Op. at 19-20.

No party ever argued for constructions of "for identifying" and "for decoding" that require a device to perform a decoding step in the United States. That, of course, is because the parties recognized that claim 1 is an apparatus claim, yet the majority erroneously treats the claim as a method claim. A failure of the Commission to construe these phrases was not appealed.¹ As we have stated

¹ The majority does not contend, nor could it, that the ALJ addressed claim 1 as a matter of claim construction or that the issue was appealed to this Court. Instead, the majority errs in asserting that the issue was addressed by the "full Commission as an issue of claim construction." Maj. Op. at 18. The Commission reviewed only two findings that both relate exclusively to claim 23. *See Final Determination*, slip op. at 3. Neither finding deals with claim construction. *Id.* ("The Commission determined to review: (1) the finding that Respondents directly infringe claim 23 of the '074 patent through testing activities in the United States and (2) the finding

before, litigants waive their right to present new claim construction disputes if they are not timely raised. *See, e.g., Conoco, Inc. v. Energy & Envtl. Int'l, L.C.*, 460 F.3d 1349, 1359 (Fed. Cir. 2006); *Abbott Labs. v. Syntron Bioresearch, Inc.*, 334 F.3d 1343, 1357 (Fed. Cir. 2003). Yet, in order to reach a conclusion that Appellants' "workaround" products indeed workaround the patented technology, the majority must find a place in the claim to read in a use requirement. This is incorrect as a matter of law.

I

As an initial matter, it appears that Appellants raised the issue of the infringement of the "workaround" products late in the game at the Commission. As characterized by the ALJ:

One of respondents' experts, . . . asserted for the first time during his testimony of August 20, 2008 (near the end of the hearing) that the VCT stored in DRAM is not "suitable for use" and cannot be used in some of the chips used in some of respondents' DTVs. While this new argument could be stricken, as requested by complainants, it does nothing to alter the infringement findings.

See Initial Determination, slip op. at 60. This alone is reason enough for the panel to affirm, as Appellants do not appeal the ALJ's determination that the noninfringement argument on the "suitable for use" limitation was untimely raised.² *See Hazani v. Int'l Trade Comm'n*, 126

that respondents have induced infringement of claim 23 of the '074 patent.").

² The majority errs in asserting that the Commission reviewed the merits of the ALJ's finding that the

F.3d 1473, 1476-77 (Fed. Cir. 1997) ("We find no legal error in the administrative law judge's determination that the arguments that Hazani raised for the first time on reconsideration were untimely and could properly be rejected on that ground alone.").

II

In addressing the merits of Appellants' untimely defense, the ALJ pointed out that there is no use requirement in the claims of the '074 patent. He stated that:

Respondents assert this new argument or defense because some of their products allegedly now "skip" portions of the VCT stored in DRAM during subsequent processing steps, and thus the VCT is allegedly not "suitable for use" or cannot be used at all. However, the question of usability, or suitability, relates to the "channel map" and its contents, not how that channel map is later processed, or not processed.

The entire VCT is received and stored in DRAM in all of respondents' DTVs. As assembled in DRAM, the VCT contains all of the information required of the "channel map," in a format that can be understood and used by a properly programmed DTV. The fact that respondents claim

workaround products would continue to infringe claim 1 and that this deprives us of jurisdiction to review the ALJ's finding on waiver. Maj. Op. at 25. The Commission did not review either the ALJ's finding that the issue could have been waived or the ALJ's finding that the workaround products would continue to infringe claim 1. Rather, the Commission expressly stated that, aside from findings on testing and inducement related to claim 23, "[a]ll other determinations made in the ID became the Commission determination by operation of Commission rule 210.42(h)(2)." *Final Determination*, slip op. at 3.

not to use that information in some products, after specifically receiving and storing it, reflects their design choices but it does not affect the basic facts underlying infringement.

Initial Determination, slip op. at 60-61.

Notably, the ALJ's factual findings that "[t]he entire VCT is received and stored in DRAM in all of respondents' DTVs" and "the VCT contains all of the information required of the 'channel map,' in a format that can be understood" are clearly supported by substantial evidence and are not appealed. *Initial Determination*, slip op. at 61. As a result, Appellants are stuck with a bad set of fact findings and a failure to timely raise and appeal claim constructions.

III

Even overlooking the majority's decision to ignore the ALJ's waiver determination and Appellants' failure to timely raise a claim construction argument for the phrase "for identifying," the majority's argument still fails with respect to claim 1. Claim 1 is an apparatus claim and an accused infringer infringes an apparatus claim if it "makes, uses, offers to sell, or sells" the claimed apparatus "within the United States," or "imports [the apparatus] into the United States." 35 U.S.C. § 271(a). The ALJ found that there is a means for forming the channel map in the workaround DTVs. This finding is sufficient to sustain the Commission's infringement determination.

The majority is incorrect that the phrase "for identifying" imposes an additional requirement that an allegedly infringing DTV actually use the channel map for identifying. Imposing a method limitation on an apparatus claim is improper. See *Microprocessor Enhancement Corp. v. Tex. Instruments Inc.*, 520 F.3d 1367, 1374 (Fed. Cir.

2008) ("A single patent may include claims directed to one or more of the classes of patentable subject matter, but no single claim may cover more than one subject matter class."). This is so because it would be "unclear whether infringement [] occurs when one creates a system that allows the user to practice the claimed method step, or whether infringement occurs when the user actually practices the method step." *Id.* at 1374-75 (quoting *IPXL Holdings, L.L.C. v. Amazon.com, Inc.*, 430 F.3d 1377, 1384 (Fed. Cir. 2005)). Here, the majority's additional use limitation unnecessarily creates doubt about the timing of infringement and the definiteness of claim 1 when no such quandary exists in the plain language of the claim. Claim 1 does not require use of the channel map to occur; instead only a means for forming the channel map is required.

IV

Finally, as the Commission points out in its briefing, the Commission made no finding with regard to whether the format of the channel map stored in the workaround DTVs actually prevents use of the channel map by the workaround products. Of course this is because Appellants failed to raise the majority's claim construction arguments below, so the Commission never had a need to investigate beyond the conceded fact that the workaround products have a means for forming a channel map as part of the apparatus. The majority acts as the fact finder in the first instance to determine that the workaround DTVs would not infringe its new claim construction. At a minimum, the majority should remand to give the Commission an opportunity to make factual findings on how the workaround products function.

I do not see a need to address infringement of the method claim of the '074 patent, as affirming on claim 1

would be enough to sustain the Commission's Orders on appeal. I note, however, that Appellants' waiver of their "suitable for use" noninfringement argument and their failure to preserve claim construction would apply equally to claim 23.

For the foregoing reasons, I would affirm the Commission's determination that the "workaround" products infringe the '074 patent, and thus respectfully dissent on this point.