UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DISH NETWORK CORPORATION, DISH NETWORK L.L.C., and DISH NETWORK SERVICE L.L.C.,
Petitioners,

v.

ENTROPIC COMMUNICATIONS, LLC,
Patent Owner.

CASE: IPR2023-00393

U.S. PATENT NO. 8,792,008

PATENT OWNER'S PRELIMINARY RESPONSE

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I. INTRODUCTION

Patent Owner, Entropic Communications, LLC ("Entropic"), submits this Patent Owner Preliminary Response ("POPR") pursuant to 37 C.F.R. § 42.107(a) to the *Inter Partes* Review ("IPR") petition ("Petition") filed by Dish Network Corporation, Dish Network L.L.C., and Dish Network Service, L.L.C. (collectively, "Dish") for claims 1-18 of U.S. Patent 8,792,008 (the "'008 Patent"). The Board should deny institution.

Providers of cable and satellite services frequently need to understand the quality and other characteristics of the signals customers receive at their premises. Traditionally, service providers were primarily limited to sending a technician to the customer premises to investigate the issue on site. However, this solution has several disadvantages. *First*, there are a limited number of hours in the day when technicians are working and/or customers will permit access their premises, and thus, a limited window of time for the problem to be assessed and monitored. *Second*, the service issues and associated technician appointments not only frustrate customers, who have to plan for the technician's visit and deal with the lack of service caused by the issues with the service provider's network. Moreover, technicians are sent out only when the service provider becomes aware of a problem, which typically is when a customer calls to complain after having already experienced unacceptable quality or complete failure of their service. Given these problems, there is a need for service

providers to obtain data regarding their service without disturbing customers, without waiting for problems to interrupt the customer's service, and to reduce or eliminate the need for technicians to perform on-site diagnostics to determine the source of these service interruptions.

The '008 Patent discloses systems and methods that enable cable and satellite providers to remotely monitor the signal characteristics at a customer's premises, thereby allowing the cable and satellite providers to remotely diagnose service issues without having to wait for a customer complaint or send a technician to perform on-site diagnostics. The '008 Patent discloses that this monitoring functionality is built into the equipment already deployed to the customer premises and allows this monitoring to occur while customers use their equipment without interrupting services, such as television services or internet services. This transparent signal monitoring is achieved through concurrently outputting selected portions of a received signal to both a signal monitor/analyzer and a data processor, where the signal monitor/analyzes and reports a characteristic of the received signal back to the source of the signal. By concurrently outputting a received signal in this manner, the system disclosed by the '008 Patent allows a service provider (*e.g.*, the source of the signal) to monitor characteristics of the signal received at a customer's premises via the signal analyzer without interrupting service to the customer or sending technicians into the field to diagnose issues with the customer's service.

None of the prior art asserted in the Petition discloses concurrently outputting as recited in all of the independent claims of the '008 Patent (claims 1, 3, and 11). This failure is born out of the fact that the Petition seeks to assert references that disclose fundamentally different architectures for signal monitoring. Thus, no matter how much the Petition rearranges these references, they do not disclose or contemplate concurrently outputting the received signal to a signal monitor and a data processor as required by the independent claims. Accordingly, the Petition fails to articulate a *prima facie* case of obviousness for the independent claims of the '008 Patent.

Ground 1 and Ground 2 both fail due to their reliance on Maycock. The Petition relies on Maycock to (1) digitize and select multiple portions from a received signal comprising more than a single channel; (2) select and concurrently output a first portion of a digitized signal to a signal monitor and to output a second portion of the digitized signal to a data processor; and (3) to determine a characteristic of said digitized signal and report it back to the source of said signal. However, the components of Maycock identified in the Petition do not disclose anything resembling the digitization and subsequent sequence of selection, concurrent outputting, analyzing and reporting recited in the independent claims. In contrast to the '008 Patent, Maycock discloses an architecture that relies upon digitizing signals at some location, to transport them to a monitoring location, where

they are converted back to analog and then in analog form analyzed by hardware and also viewed by a human operator to view a reconstituted representation of what a customer may be seeing. This is fundamentally different from the claims of the '008 Patent, and therefore the Petition does not stand a reasonable likelihood of prevailing as the asserted combinations of Ground 1 and Ground 2 fail to disclose or render obvious the digitization, selection, concurrent outputting, or reporting recited in the independent claims.

Similarly, Grounds 3 and 4 fail. As an initial matter, the Petition fails to provide a legally sufficient motivation to combine the references. Institution should be denied for this reason alone. Further, Coyne, upon which the Petition relies, fails to disclose or render obvious concurrently outputting a digitized signal. Because Coyne fails to disclose concurrent output of a digitized signal, the Petition is forced to improperly assert that Coyne discloses a rapidly ***toggling*** switch (it does not) and that such a switch is equivalent to ***concurrently*** outputting. Therefore, as to Ground 3 and Ground 4, the Petition fails to establish a reasonable likelihood of prevailing, as the combinations fail to disclose or render obvious concurrently outputting a digitized signal as recited in independent claims 1, 3, and 11.

Because all of the grounds fail to render obvious the independent claims, the entirety of the Petition should be rejected. It is axiomatic that, if the prior art does not demonstrate that an independent claim is unpatentable, it cannot be used to

demonstrate that any corresponding dependent claim is also unpatentable. *See Hartness Int'l Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108 (Fed. Cir. 1987).

II. SUMMARY OF THE '008 PATENT

A. Background of the '008 Patent

The '008 Patent describes systems and methods for spectrum monitoring for use in equipment located on a premises of a customer of a network-based service, such as cable or satellite television. Ex. 1001, 1:34-2:17, 2:34-3:04, 4:51-5:11.

Traditionally, network-based service providers were limited in how they provided support to customers and troubleshot issues regarding the quality of service at a customer's location. *See id*., 1:34-36. For example, if network parameters fell outside acceptable ranges such that the quality of service suffered, a provider would need to send a technician to the customer premises to investigate the issue on site. *See id*., 1:34-36. A technician would be required because conventional methods of monitoring were "too costly and impractical for use in customer-premises equipment ('CPE')." *See id*., 1:42-45. However, as discussed above, this method was not only slow to remedy issues and expensive, it interrupted service to the customer while the technician worked. *Id*., 1:42-45. Accordingly, there was a need for a less expensive method by which network service providers could monitor the quality of service provided to a customer's premises without interrupting service. *See id.*

("Conventional methods and apparatuses for monitoring network parameters are too costly. . . .").

To meet this end, the '008 Patent discloses systems and methods for monitoring signals that can be implemented in equipment deployed by the provider at the customer's premises. *Id*., Abstract. This allows service providers the ability to monitor the signal the customer is actually receiving remotely and without the need for a service visit to the premises. *Id*. The deployed solution is designed to receive and digitize a received signal, such as a cable or satellite television signal, determine a characteristic of the digitized signal, and report the determined characteristic back to the source of the signal (*i.e*., a service provider). *Id*.

Specifically, the '008 Patent discloses a solution capable of performing spectrum monitoring. *See, e.g.*, *id*., Abstract, Figs. 1B and 1C. The solution includes an apparatus which (1) receives and digitizes a signal spanning a full spectrum signal inside an RF front-end **158**; (2) selects specific portions of the outputs of the front-end **158**, using a channelizer **152**; and (3) concurrently outputs one portion to a monitoring device **154** and another portion to a data processing device **156**. *Id*., 4:45-50. In this manner, the provider is able to monitor actual signal conditions at the customer's premises (sent to the monitoring branch) without interrupting service to the customer because signal continues to be provided to the data processor (along the other branch). *Id*., 4:45-50.

First, the front-end **158** (shown in blue below) receives an analog signal that spans an entire television spectrum (*e.g.*, signal S in Fig. 1B below, which includes the entire signal from the lowest frequency "F_{lo}" to the highest frequency "F_{hi}"). *Id*., 5:41-47. The signal is digitized using one or more analog-to-digital converters (ADCs) located in the front-end **158**, resulting in digital signal "D" depicted in Figure 1B below. *Id*., 5:41-47, 5:58-65, cls. 1, 3, 11.

A channelizer **152** (shown in green below) then selects a portion of the digitized signal for output to a signal monitor or analyzer **154** (shown in red below) and a portion of the digitized signal for output to a data processor **156** (shown in purple below), which are output concurrently. *Id*., 4:7-10, Fig. 1B, cl. 1. The channelizer **152** may select for outputting to either branch (monitoring and data processing): all of signal D (*e.g.*, a signal spanning an entire television spectrum), or any portion or portions of the signal D. *Id.,* 6:1-18.

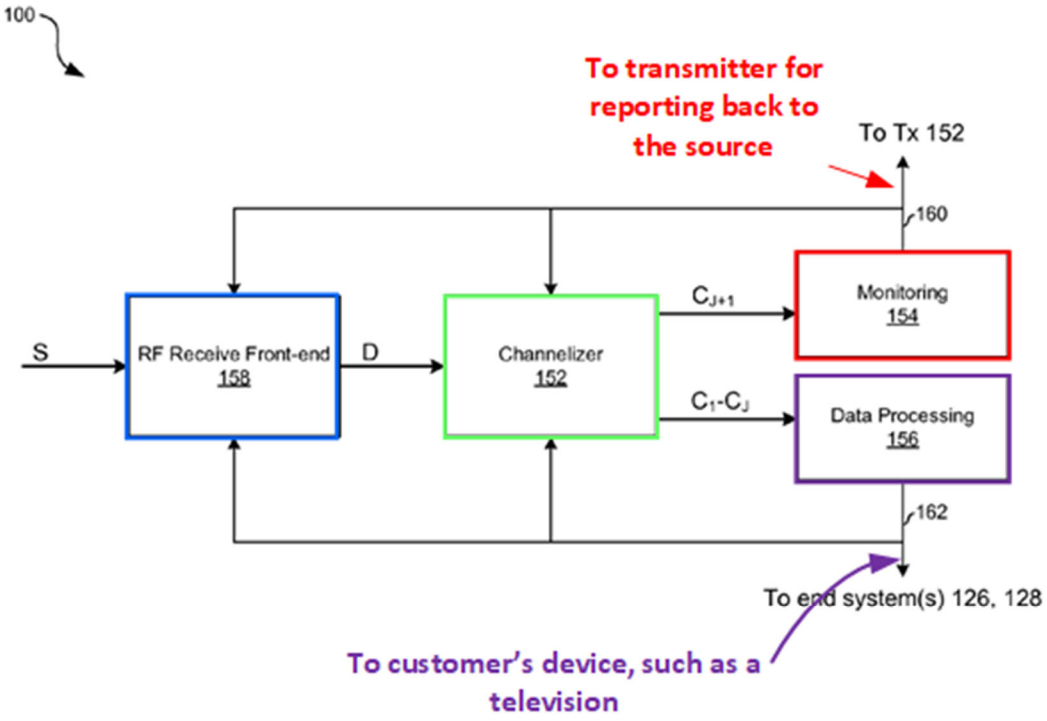


FIG. 1B

Id., Fig. 1B (annotated).

The signal monitor/analyzer **154** receives the portion of the digitized signal output to its branch and determines one or more characteristics related to the quality of the channel over which the signal received, the quality of the transmitted, and/or the performance of the communication system. *Id.*, 3:33-45. For example, the signal monitor may determine the signal to noise ratio, signal strength vs. frequency, or any other quality that may help assess characteristics of the channel over which the signal was received. *Id.* After determining such characteristic(s), that information is reported back to a source of the signal (*e.g.*, cable or satellite provider of the signal).

See, e.g., *id.*, 3:45-60, cl. 1, Figs. 1B and 1C. The '008 Patent discloses a number of different mechanisms which communicate the determined characteristic back to a service provider. *See id.*, 3:51-60.

All three independent claims (1, 3, and 11) recite similar elements. Claim 1 recites:

> **1**. A system comprising:
> an analog-to-digital converter operable to digitize a received signal spanning an entire television spectrum comprising a plurality of television channels, said digitization resulting in a digitized signal;
> a signal monitor operable to:
> analyze said digitized signal to determine a characteristic of said digitized signal; and
> report said determined characteristic to a source of said received signal;
> a data processor operable to process a television channel to recover content carried on the television channel; and
> a channelizer operable to:
> select a first portion of said digitized signal;
> select a second portion of said digitized signal; and
> concurrently output said first portion of said digitized signal to said signal monitor and said second portion of said digitized signal to said data processor.

Ex. 1001, cl. 1. Broadly, this claim recites a system that digitizes a received signal spanning an entire television spectrum to create a digitized signal, *id.*, cl. 1[a], and then portions of this digitized signal are selected. *Id.*, cl. 1[d][1]-[d][2]. The selected portions of the digitized signal are concurrently output, with a first portion going to a signal monitor and a second portion going to a data processor. *Id.*, 1[d][3]. Claims

3 and 11 recite similar elements. *See id.*, cl. 3[b] ("digitizing said received signal from F_{lo} to F_{hi} to generate a digitized signal"), 3[c]-[g] (selecting and then concurrently outputting a selected first portion to a signal analyzer and a selected second portion to a data processor); *see also id.*, 11[b] ("digitize said received signal from F_{lo} to F_{hi} to generate a digitized signal"), 11[c]-[g] (reciting similar elements as claim 3[c]-[g]). In summary, all the claims recite:

- Digitizing an input signal comprising multiple channels, either at least "a plurality of channels" (claims 3, 11) or "an entire television spectrum" (claim 1);
- Concurrently outputting selected parts of the digitized input signal to a signal monitor and a data processor;
- Analyzing the digital signal in the digital domain; and
- The analysis from the signal monitor is reported back to the source of the signal.

B. Claim Construction

The Petition was filed after November 13, 2018, and, as such, the proper claim construction standard to be applied is articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc), in accordance with its regulation, 37 C.F.R. § 42.100(b). *Apple Inc. v. Firstface Co.*, No. 2021-1001, 2021 WL 4156323, at *1 n.1 (Fed. Cir. Sept. 13, 2021).

Although the Petition is not explicitly offering a specific construction for any claim term, it provides a "clarification" as to two terms: (1) "a received signal spanning an entire television spectrum" and (2) "receiving a signal having a bandwidth that spans from a first frequency, F_{lo}, to a second frequency F_{hi}." Petition, 9-12. Entropic disagrees that this is simply a clarification. However, because none of the arguments presented below turn on any alleged difference between these two terms, Entropic reserves its right to respond to the Petition's construction of these terms.

III. THE PETITION FAILS TO SHOW THAT THERE IS A REASONABLE LIKELIHOOD THAT THE PETITIONER WILL PREVAIL ON A SINGLE CLAIM

Grounds 1-4 each rest upon references with fundamental architectural differences between each other and compared to the '008 Patent. These differences render the proposed combinations non-obvious and defeats any motivation to combine the teachings of the references as proposed in the Petition. Further, each Ground fails to disclose each and every limitation of the challenged claims. For example, all the Grounds at least fail to render obvious concurrently outputting selected portions of the digitized signal.

Neither the fundamentally different monitoring structure of Maycock nor the Petition's alleged "rapidly toggling" switch of Coyne (which is not even disclosed)

(*see,* Petition, 67-68) constitute concurrently output as claimed. For this reason and the others detailed below, institution should be denied.

A. Overview: Grounds 1 and 2 Fail to Establish Obviousness of Any Claim

The combinations put forth in Grounds 1 and 2 each fail to disclose the claimed invention for three equally compelling reasons. *First,* the combinations of Grounds 1 and 2 do not "concurrently output" part of a digitized received signal as claimed. Grounds 1 and 2 are haphazard and imprecise, alleging two different ways the element might be met. However, neither meets the element. In one case, the Petition's outputs from Maycock are entirely analog, ***not*** digitized. In the other case, the Petition's outputs are digital, but of the entirely wrong signal—the "received signal" is not being output at all.

Second, the claims recite an architecture that digitizes an input signal with at least two channels. The embodiment of Maycock upon which the Petition relies is designed to select one, and only one, channel at a time for processing. Ex. 1005, 2:23-29. Thus, Maycock cannot support the combinations of the Petition that hypothetically reconstruct processing, including digitizing and selecting, a spectrum of multiple channels. *Id.*, 3:23-27, 7:3-35.

Maycock's single-channel architecture also nullifies any alleged advantage of the combinations asserted in Grounds 1 and 2. The other references in Grounds 1

and 2—Zhang and Kidambi—disclose "wideband" analog-to-digital converters (ADCs). *See, e.g.*, Petition, 26-30. However, implementing a more capable ADC is useless in the relied upon embodiment of Maycock, as only a single channel is ever provided to Maycock's ADC **38**. One would need to completely modify the single-channel architecture of Maycock in order to recreate the claimed invention of the '008 Patent. The Petition fails to describe such a modification, to say nothing of illustrating why it would be obvious or why a POSITA would be motivated to make such a modification. Thus, Grounds 1 and 2 fail to disclose digitally selecting and outputting portions of a received signal that has two or more channels.

Third, the combinations of Grounds 1 and 2 do not disclose reporting a determined characteristic back to a source of the received signal. The only output signal in Maycock (and the only one the Petition relies upon with intentional vagueness) is not a report of signal analysis at all. Instead, Maycock's solitary output is a ***command*** to perform channel selection at the remote channel selector—the very channel selector that picks out one and only one channel for Maycock to digitize. A selection command has nothing to do with reporting a determined characteristic from monitoring. As the Petition relies upon outputting this command as the claimed reporting back to the source of a signal, Grounds 1 and 2 fail to disclose reporting a determined characteristic back to a source of the received signal.

B. Ground 1: The Petitioner Fails to Establish that Claims 1-18 Would Have Been Obvious Over Maycock, Zhang, and the General Knowledge of a POSITA

Ground 1 alleges that claims 1-18 are obvious over the combination of Maycock and Zhang. An obviousness determination, among others, "requires a finding that all claimed limitations are disclosed in the prior art . . . ." *Univ. of Strathclyde v. Clear-Vu Lighting LLC*, 17 F.4th 155, 160 (Fed. Cir. 2021) (citations omitted). For at least the three reasons set forth previously, Ground 1 fails to demonstrate disclosure of all the limitations of the claims.

1. Overview of Maycock

Before explaining how the Petition's reliance on Maycock fails to render the claims obvious, it is useful to explain the context and functionality of Maycock. According to Maycock, cable operators previously monitored the quality of their transmission by gathering data on amplifiers and other devices. Ex. 1005, 1:14-18. The data from those observations was returned to the cable operator along the same signal path as the outgoing signals, in the reverse direction. *Id.*, 1:18-23. Problematically, as cable systems switched to fiber optic delivery, the distances over which television signals were provided increased greatly, to 200 km or more. *Id.*, 1:45-50. This presented a significant problem because the return path, used to carry the prior art monitoring information, would have to be longer as well. *Id.*, 1:52-55. This additional length of the return path would lead to signal loss and degradation,

especially for the analog signals used. *Id.*, 1:55-2:5. Thus, to make the conventional return path workable over long distances would be impractical: "[t]he cost to build a return path system . . . would equal that of the forward path, making the system prohibitively expensive." *Id.*, 2:5-8.

Therefore, Maycock proposes a new two-location architecture—a channel selector location and a separate "monitoring location." *Id.*, Fig. 1 and Figs. 2 and 3, respectively. Maycock intends to grab the signal at one location and transport it successfully to another location for monitoring. *Id.*, 3:9-15, Fig.1. Thus, Maycock's first location, somewhere remote from the cable headend, comprises a channel selector **14** with several functions, including selection and repackaging of the signal in a digital form. *Id.*, 3:28-59. The channel selector chooses a television channel, processes and digitizes that channel, and ultimately outputs the channel in digital form. *Id.*, 2:20-29. Maycock presumes that, unlike analog signals, the digital form will be amenable to long-distance transport. *Id.*, 3:57-59. The digitized channel is then transported to the second location, which is the "monitoring location." *Id.*, 3:14-16. At the monitoring location, the channel is converted back to its original analog form so it can be analyzed in an analog format by hardware (*e.g.*, video analyzer **62**,) and so it can be displayed for visual observation on a video monitor by a human and tested as if it were the original. *Id.*, 2:25-30, 3:17-20.

Thus, the premise of Maycock is to choose a television channel of interest and digitize the channel for long-distance transport. *Id.*, 3:20-23, 2:36-40. Upon arrival at the "monitoring location," the analog channel is re-created so it can be viewed and tested. *Id.*, 3:17-20. Thus, Maycock's approach is fundamentally different from the approach of the '008 Patent: Maycock deploys equipment to transport the signal to some other monitoring location, while the '008 Patent deploys the signal monitoring alongside where the signal is located (*i.e.*, at the customer premises). The '008 Patent is not interested in transporting any of the television channels to a secondary location for analysis as Maycock does, because it does not need to.

Given the fundamentally different approaches and architectures between Maycock and the '008 Patent, the Petition struggles to recreate the claimed invention. That attempt fails as explained in detail below.

2. Maycock Fails to Disclose An Architecture Capable of Providing a Multi-Channel Input to an Analog-to-Digital Converter

Every claim of the '008 Patent recite digitizing a television spectrum/signal having at least "a plurality of channels" (claims 3, 11) or "an entire television spectrum" (claim 1). According to Maycock, "[t]he channel selection is made manually by an operator or automatically by a control computer (not shown) at the monitoring location." Ex. 1005, 3:20-23. Channel selection in the remote location (as seen in Figure 2) is controlled by commands supplied to modem **28**. *Id.*, 4:9-12.

The channel selection is performed by means of downconverter **26** controlled by a phase-locked loop, PLL **32**, which in turn determines the selected channel. *Id.*, 4:12-24. Accordingly, the output of down converter **26** is always a ***single television channel***. This single channel output is digitized by Maycock at the A/D converter ("ADC") **38** shown in Figure 2. Thus, Maycock fails to disclose either (1) digitizing a received signal comprising more than a single channel or (2) selecting multiple portions from such a received signal as claimed.

The Petition recognizes this defect and proposes a non-obvious combination that fails to teach the recited aspects of the claims. The Petition alleges that a POSITA would find it obvious to simply replace the ADC **38** of Maycock with an ADC capable of digitizing multiple channels from the secondary reference Zhang. Petition, 22-25. *First*, this combination does not meet the claims. As already discussed, ADC **38** of Figure 2 never receives a signal having more than one channel. Thus, adding a "more capable" ADC does not mean it can digitize multiple channels when it is still only provided with a single selected channel. No ADC can digitize more channels than it is provided, and in Maycock the entire channel selector **14** apparatus is intentionally designed to ***select*** a single channel.

Second, the amount of modification necessary to make the combination described in the Petition renders the combination non-obvious in at least that the proposed combination changes the principle of operation of the system disclosed in

Maycock. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *Plas-Pak Indus., Inc. v. Sulzer Mixpac AG*, 600 F. App'x 755, 758-59 (Fed. Cir. 2015) (citing *In re Ratti*, 270 F.2d 810, 813, (CCPA 1959)).

To begin with, all of the disclosure in Maycock concerning the channel selector apparatus would have to be discarded and replaced (*e.g.*, PLL **32**, downconverter **26,** etc.) with an apparatus fit for a multi-channel system. Further, Maycock's entire channel control system (RF modems **28** and **72** and the channel selector) would need to be rearchitected into a multiple-channel system. Then, demodulator **34** would also have to be replaced with some new apparatus capable of performing demodulation on multiple channels simultaneously. Maycock is already concerned about properly matching the capabilities of the demodulator to the ADC, further dissuading the POSITA from radically altered the architecture of Maycock with a new ADC and multiple channels. Ex. 1005, 4:28-38. The Petition deals with none of these details, waving its proverbial hands at the problem and concluding it would all be obvious. Accordingly, these proposed modifications of Maycock are clearly improper and the Petition fails to establish *prima facie* obviousness of the claims.

In summary, Maycock's ADC **38** never receives a signal having more than one channel. It is impossible to substitute an ADC from Zhang, to digitize, select, or output ***multiple*** channels because it never receives multiple channels. The enormous changes needed to change the architecture of Maycock into one where multiple channels are provided to the ADC impermissibly change the principle of operation of Maycock. Put another way, there is no motivation to modify the single-channel solution of Maycock with ADC art designed for multiple channels at once.

3. The Identified Components of Maycock Fail to Select or Concurrently Output Portions of Said Digitized Signal to a Signal Monitor/Analyzer and a Data Processor for Recovery of Data

It is telling that the Petition hedges its bets by identifying two entirely different items in Maycock as meeting the claim element requiring circuitry "concurrently output" of portions of a digitized signal. In fact, neither one works. These two components are the demultiplexer **52** and splitter **59** (*see* Figure 3). Petition, 41, 49-50, 54. Recall that the claims each impose numerous requirements relating to what is concurrently output:

- The concurrent outputs are sourced from a digitized input signal, which itself contains multiple channels;
- Two portions of the digitized input signal must be "select[ed]";

- One selected portion of the digitized input signal is sent to a signal monitor/analyzer which analyzes the digital signal; and
- The other selected portion is concurrently sent to a data processor for recovery of data.

Neither demultiplexer **52** nor splitter **59** satisfy these elements. Neither demultiplexer **52** nor splitter **59** (shown in Figure 3) are capable of selecting portions of a digitized signal that has multiple channels. In Maycock, only a single channel is disclosed as being provided to demultiplexer **52** and splitter **59**. Ex. 1005, 2:23-27. In contrast, the '008 Patent selects from among channels in the digitized signal. *See supra* Section II.A, p.5-6. Any rearchitecting of Maycock to accommodate Zhang and multiple channels runs into the problems already discussed in Section III.B.2.

This issues surfaces again in the details below. The Petition relies upon demultiplexer **52** providing an output to control computer **58**. Petition, 33-34. However, demultiplexer **52** is arranged to distribute ***bits***, not to select (nor even merely distribute) ***channels***. More specifically, the demultiplexer **52** operates on 10 bits of an input signal: it sends eight bits to the video digital-to-analog converter **54**, one bit to the audio digital-to-analog converter **56**, and one bit to the computer **58**. Ex. 1005, 6:2-7. The demultiplexer **52** does not operate at the level of selecting or demuxing ***channels*** because there is ***only one channel***. *Id.*, 2:23-27.

Moreover, demultiplexer **52** cannot concurrently output the received signal for another reason—it does not output any portion of the digitized received signal to a signal monitor. The Petition alleges it does, by sending a portion of its output to computer **58**. Petition, 33-35. However, the only output provided to computer **58** from demultiplexer **52** is a 1-bit data stream that is generated at the remote channel selection site by microprocessor **30**. Ex. 1005, 4:50-64, 6:4-7. The microprocessor **30** creates this 1-bit of data based upon information it obtains during operation from the down converter **26**, PLL **32**, demodulator **34**, audio demodulator **36**. *Id.*, 4:50-5:03. This data bit is only provided to control computer **58** by the demultiplexer **52** while the video and audio bits are routed elsewhere to digital-to-analog converters to "reconstitute" the video signal. *Id.*, 6:2-8. Thus, this data bit is ***about*** the selected channel, but it is not the channel itself or part of it. The Petition actually acknowledges that the 1-bit it relies upon is generated by the microprocessor **30** of Maycock and is ***not*** created by the digitization of any received signal. Petition, 35-36.

This is not what is described nor claimed by the '008 Patent. It is the received input signal (with multiple channels) that is distributed *See, e.g.*, Ex. 1001, cl. 11 ("select a first portion of ***said digitized signal***… and concurrently output said selected first portion … to a signal analyzer)" (emphasis added). In contrast, the

demultiplexer **52** sends to the control computer **58** only information ***about*** the received signal, ***not*** the received signal itself as the Petition alleges.

Splitter **59** is even simpler to distinguish from the claims of the '008 Patent—the splitter does not select anything because a splitter simply provides a mirror of the input on each output, which is true of splitter **59**. Ex. 1005, 6:12-14. The splitter **59** sends its full analog input signal to each of four components shown in Figure 3, monitor **60** (*id.*, 6:14-15), video analyzer **62** (*id.*, 6:20-23), decoder **66** (*id.*, 6:38-41) and BTSC audio decoder **68** (*id.*, 6:45-47).

Moreover, splitter **59** does not deal in ***digital*** signals, as claimed. It is located in the signal path after the digital-to-analog converter **54**. *Id.*, Fig. 3. Therefore, it receives and operates entirely on ***analog*** signals; it simply has no digitized signal available to it. *See id.*, Fig. 3 (displaying splitter **59** after video D/A converter **54**).

The claims of the '008 Patent recite the selection of channels from a ***digitized*** signal for monitoring and analysis. In contrast, splitter **59** is providing an ***analog*** signal, not a digitized one as in the claims. *Id.*, 6:9-14.

In summary, neither demultiplexer **52** nor splitter **59** (nor any amalgamation of them) meets multiple claim elements, in particular the requirements to select and concurrently output portions of a digitized signal. The Petition is unable to find any combination that works. This is not surprising considering the fundamental architecture differences between Maycock and the '008 Patent. The Petition does

not rely on Zhang to describe or suggest concurrently outputting portions of a digitized signal to a signal monitor and data processor. Accordingly, the combination of Maycock and Zhang proposed in the Petition fails to disclose the recited elements of the independent claims.

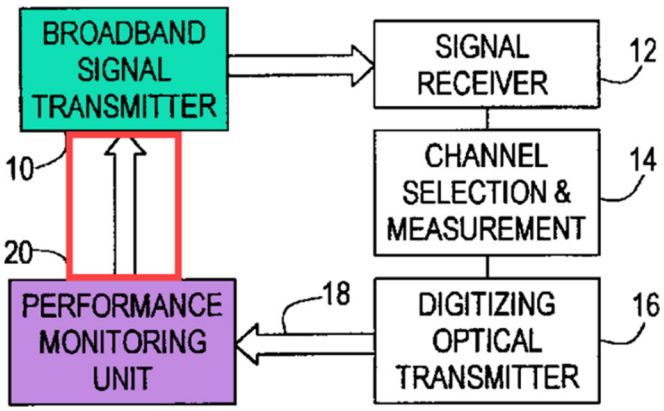
4. The Identified Components of Maycock Fail to Disclose Reporting a Determined Characteristic Back to the Source of Received Signal Comprising a Plurality of Channels

Claim 1 recites a system including "a signal monitor operable to: analyze said digitized signal to determine a characteristic of said digitized signal; and report said determined characteristic to a source of said received signal." Ex. 1001, cl. 1. Claims 3 and 11 similarly describe a signal analyzer which reports "said determined one or more characteristics [of the received signal] to a source of said received signal. *Id.*, cls. 3, 11. To satisfy its burden of proving obviousness, the Petition "cannot employ mere conclusory statements" and must instead articulate specific reasoning, based on evidence of record, to support the legal conclusion of obviousness. *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). The Petition fails to satisfy this burden as it relies on mere conclusory statements to support its combination's disclosure of at least reporting a determined characteristic back to the source of received signal comprising a plurality of channels. In fact, Maycock contradicts the Petition's arguments.

As described previously, the architecture of Maycock is designed to select a single video channel at some remote location and digitize it for transport back to a "monitoring location." At the monitoring location, the signal is converted back to analog to "reconstitute" it (Ex. 1005, 6:2-8), and thus make it available for analysis. The monitoring location (shown in Figure 3) supplies a monitor **60** for human viewing of the video channel. Ex. 1005, 6:14-15. Also provided is a console for a human operator including control computer **58**, input device **73 (**keyboard/mouse) and another monitor **64**. *Id.*, 6:27-29, 7:3-7. There is no need expressed for any characteristics of the signal to be reported elsewhere. They are used on-site, by the human personnel working with Maycock's system, watching the monitors **60**, **64** and using the control computer **58**. *See*, *id.*, 3:17-28, 6:14-29. Maycock, unsurprisingly, says nothing at all about sending monitoring data anywhere, much less back to a source of the original signal. This is conceded by the Petition. Petition, 36-39.

The Petition nonetheless ***infers*** that Maycock discloses reporting the determined characteristic to the source of the received signal. *Id*. The Petition points to no textual description at all to support this inference, merely highlighting an arrow between the monitoring unit **20** and signal transmitter **10** in Figure 1, shown below, and the ability of the computer **58** to collect and store various measurements to

conclude that Maycock discloses reporting the determined characteristic to the source of the received signal. *Id*.



Petition, 38 (annotating Ex. 1005, Fig. 1).

These inferences are mere conclusory statements. However, the situation is much worse for the Petition's allegations as this inference is not merely unsupported, it is contradicted by Maycock. The arrow relied upon by the Petition ***is*** described by Maycock. That arrow does ***not*** represent reporting of any measured characteristic. Instead, it represents the control commands sent to change the channel to be selected. Ex. 1005, 7:17-20. Maycock discloses that the monitoring unit **20** only communicates channel selection information to the signal transmitter **10** (*i.e.*, the arrow in Figure 1). In the detailed description (referring to Figure 3), Maycock states that the control computer **58** sends a "channel selector control signal" to the remote site via RF modem **72**. *Id.*, 7:7-12. ***This*** is what the arrow coming from the control computer represents—the command to select the channel

for monitoring. It has nothing to do with a "determined characteristic" of the digitized received signal as stated in the Petition.

Maycock does not disclose reporting signal characteristics to a signal source because it does not need to, since the monitoring personnel are on-site at the monitoring location. *See*, *id.*, 7:4-8. On the other hand, the '008 Patent ***is*** interested in reporting the "determined characteristic" back to the source. *See, e.g.*, Ex. 1001, cl. 1. ("a signal monitor operable to:…report said determined characteristic to a source of said received signal"). Because the '008 Patent contemplates deployment at a ***customer*** premises, there is a need to send monitoring data from the monitoring hardware back to the system operator for use in maintaining its system and fixing problems.

In sum, the Petition fails to identify any element of Maycock that is capable of reporting a determined characteristic to a source of the received signal. There is no disclosure of such, it does not make sense in the Maycock architecture, and the inference drawn by the Petition about a single arrow is directly rebutted by Maycock's own description of that arrow. The Petition does not rely on Zhang for describing these claim features. Accordingly, the combination of Maycock and Zhang proposed in the Petition fails to disclose the recited elements of the independent claims.

Ground 1 fails to establish a reasonable likelihood of success and institution should be denied. The Petition fails to show that Maycock and Zhang, either alone or in combination, or in further view of the general knowledge of a POSITA, discloses, teaches, or suggests all elements of independent claims 1, 3, and 11. As such, the Petition fails to show claims 1-18 are unpatentable based on obviousness.

C. Ground 2: The Petitioner Fails to Establish that Claims 1 and 2 Would Have Been Obvious Over Maycock, Kidambi, and the General Knowledge of a POSITA

Ground 2 alleges that claim 1 and 2 are obvious over the combination of Maycock and Kidambi. Like Ground 1 for Zhang, the Petition proposes that it would be obvious to simply provide an ADC (from Kidambi) capable of digitizing multiple channels, and replace the ADC **38** of Maycock. Petition, 57-59. The Petition does not rely on Kidambi to remedy any of the deficiencies of Maycock described above in Section III.B, and as such, Ground 2 fails for the same reasons as Ground 1—the Petition fails to establish that the identified components of Maycock satisfy all elements of claim 1. *See*, Petition, 61-62. Specifically, as described in Section III.B, Ground 2 fails to demonstrate obviousness for at least the following three reasons: (1) the combination fails to disclose digitizing and selecting multiple portions from a received signal comprising more than a single channel; (2) the combination fails to disclose a channelizer operable to select and concurrently output a first portion of a digitized signal to a signal monitor and to output a second portion of the digitized

signal to a data processor; and (3) the combination fails to disclose a signal monitor operable to determine a characteristic of said digitized signal and report it back to the source of said signal.

1. Maycock Fails to Disclose Digitizing and Selecting Multiple Portions from a Received Signal Having More Than a Single Channel

The Petition does not rely on Kidambi to teach this claim feature. Petition, 61-62. As discussed above, Maycock fails to disclose, teach, or suggest this claim element. *See* Section III.B.2. Therefore, the Petition fails to establish the proposed combination of Maycock and Kidambi discloses this element of the claims.

2. The Identified Components of Maycock Fail to Select or Concurrently Output Portions of Said Digitized Signal to a Signal Monitor/Analyzer and a Data Processor for Recovery of Data

The Petition does not rely on Kidambi to teach this claim element. Petition, 61-62. As discussed above, Maycock fails to disclose, teach, or suggest this claim element. *See* Section III.B.3. Therefore, the Petition fails to establish the proposed combination of Maycock and Kidambi discloses this element of the claims.

3. The Identified Components of Maycock Fail to Clearly Disclose Reporting a Determined Characteristic Back to the Source of Received Signal Comprising a Plurality of Channels

The Petition does not rely on Kidambi to teach this claim feature. Petition, 61-62. As discussed above, Maycock fails to disclose, teach, or suggest this claim

element. *See* Section III.B.4. Therefore, the Petition fails to establish the proposed combination of Maycock and Kidambi discloses this element of the claims.

Ground 2 fails to establish a reasonable likelihood of success and institution should be denied. The Petition fails to show that Maycock and Kidambi, either alone or in combination, or in further view of the general knowledge of a POSITA, discloses, teaches, or suggests all elements of independent claims 1, 3, and 11. As such, the Petition fails to show claims 1-18 are unpatentable based on obviousness.

D. Overview: Grounds 3 and 4 Fail to Establish Obviousness of Any Claim

In Grounds 3 and 4, the Petition asserts even less relevant references than in Grounds 1 and 2. The primary reference, Coyne, is a system designed to gather and potentially replicate a signal as part of a mesh network, primarily for military vehicles. Ex. 1008, [0013] (stating the invention is "capable of performing electronic surveillance monitoring" and can also be used as a "communications adapter" for relaying information to the "onboard systems of a military vehicle or other mobile platform"); *also id*., Abstract, [0015-0016], [0044], cl. 2.

The primary use case for the apparatus described in Coyne is electronic surveillance in military systems. *Id.*, Abstract, [0044], cl. 2. In fact, Grounds 3 and 4 of the Petition are built upon an embodiment of Coyne (*e.g.*, Figure. 4) that is self-described as "adapted to perform electronic surveillance monitoring." *See* Petition

66-72 (citing Ex. 1008, [0044]). Thus, Coyne, and in particular the embodiments relied on in the Petition, is directed towards a solution for a very different problem than the '008 Patent. While perhaps not relevant if anticipation were at issue (which it is not), this difference in field and goal is crucial to an obviousness inquiry.

Due to the designs of Coyne being directed at surveillance functions, Coyne is not concerned with telling the sender of the received signals anything. One does not alert the sender of the surveilled signals snooped upon. This is why Coyne shows no interest in reporting back to those senders that their signals have been surveilled, much less reporting "determined characteristics" about the received signals as claimed. Unsurprisingly, Coyne is entirely silent about any such reporting.

Furthermore, Coyne places itself in the field of systems designed to determine ***whether*** a signal is present at all. All three paragraphs of the "Discussion of Related Art" section describe systems for signal ***detection***. *See* Ex. 1008, [0003-05] ("Signal detection systems for scanning a wide range of electromagnetic frequencies and detecting signals of interest …"; "The filter bank disseminates received energy to a number of channels, and the energy in each channel is processed to detect which channels contain signals."). In summary, Coyne's system is designed to snoop on the spectrum to see what signals are present, which is why Coyne belongs in the art of signal detection. This is a quite different application of signal monitoring as that of the '008 Patent, where the cable or satellite operator ***knows*** what signals they are

sending out to customers, but simply want to monitor the ***condition*** (good, bad, or otherwise) of their own signals when they reach customer premises.

Given Coyne's direction to surveillance and signal detection, it is very unlikely that a POSITA would have considered Coyne to be reasonably pertinent when dealing with the quite different problem of a cable or satellite operator/provider attempting to monitor their own signals as they arrive at customer premises. Institution should be denied for this reason alone, especially in light of the Petition's conclusory expert testimony as to why a POSITA would combine the asserted references. *Johns Manville Corp. v. Knauf Insulation, Inc.*, Case No. IPR2018-00827, Paper 9 at 17 (PTAB Oct. 16, 2018) (citing *Securus Techs., Inc. v. Global Tel*Link Corp.*, 701 F. App'x 971, 976 (Fed. Cir. 2017)).

Furthermore, even if a POSITA would consider Coyne to be reasonably pertinent, Coyne fails to disclose or render obvious concurrently outputting portions of the digitized signal. The Petition's best effort is to rely upon an alleged "rapidly toggling switch" as disclosing concurrently outputting. Petition, 67. This argument fails for two reasons. *First*, Coyne's toggling switch is the antithesis of "concurrently outputting." ***Switching*** from A to B with that switch is the opposite of ***concurrently*** supplying A and B with signal. *Second*, Coyne does not actually disclose "rapidly toggling switch" as alleged in the Petition; it is an invention of the Petition. As neither Petrovic nor Zhang address this shortcoming of Coyne,

institution should be denied for failure to disclose or render obvious every limitation of the challenged claims.

E. Ground 3: The Petitioner Fails to Establish that Claims 3-5, 10-13, and 18 Would Have Been Obvious Over Coyne, Petrovic, and the General Knowledge of a POSITA

Ground 3 alleges that independent claims 3 and 11 are obvious over the combination of Coyne and Petrovic. However, in addition to failing to demonstrate that the combination discloses each and every element of the challenged claims, the Petition fails to provide anything more than conclusory expert testimony as to why a POSITA would combine Coyne and Petrovic. To demonstrate how truly deficient the combination of Coyne and Petrovic is, it is useful to provide a brief overview of the context and functionality of Coyne and Petrovic.

1. Overview of Coyne

Coyne discloses a method and system to separate incoming signals into multiple digital channels—each associated with a different frequency band—and then extract information from those channels. Ex. 1008, [0006-0007]. The invention of Coyne is intended to be used for "electronic surveillance monitoring" or as "a communications adapter to, for example, relay information to one or more downstream devices (*e.g.*, the onboard systems of a military vehicle or other mobile platform)." *Id.*, [0013]. Thus, the invention of Coyne can be used to send updated

satellite images or intelligence on the location of a target to a military vehicle, such as a helicopter during a mission. *Id.*, [0014].

Crucial to the Petition is Figure 4 of Coyne, described as "a communications system adapted to perform as an electronic surveillance monitoring system (ESM) receiver." *Id.*, [0044]. In Figure 4 (shown below), the system **400** has a combiner **220**, an ADC **230**, and a channelizer **240**. *Id.* The combiner **220** combines radio frequency (RF) signals from multiple sources and the ADC **230** converts this combined analog signal into a digital signal. *Id.*, [0022]. The channelizer **240** then separates this digitized and combined signal into different channels, such as voice and video data. *Id.*, [0030].

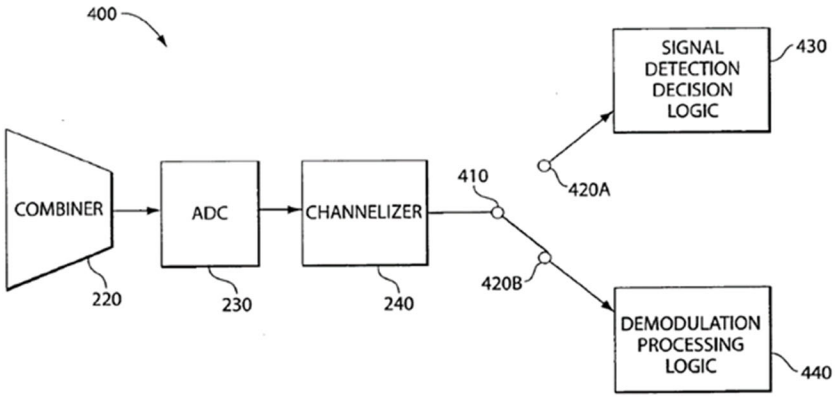


Fig. 4

Ex. 1008, Fig. 4.

Of critical, but ultimately fatal, importance to the Petition, is switch **410**. *See* Petition, 67-68. Coyne discloses that switch **410,** depicted above in Figure 4, can connect the channelizer **240** to ***either*** the signal detection decision logic **430** ***or*** the

demodulation processing logic **440**. *Id.*, [0044]. The signal detection decision logic **430** can determine whether certain channels contain a signal of interest. *Id.*, [0005], [0044]. Therefore, when there is a connection between the channelizer **240** and the signal detection decision logic **430**, the system functions as an electronic surveillance monitoring receiver. *Id.*, [0013], [0044]. Here the system examines the spectrum to see if anything of interest is present, and if so, where. If such signals of interest are present, the appropriate channelizer output(s) can be switched instead to demodulation processing logic **440** which can extract information present in the channels of interest. *Id.*, [0022], [0044].

2. Overview of Petrovic

Petrovic discloses systems and methods to allow content owners, referred to as customers, "to perform monitoring to obtain information regarding the use of (or the failure to use) [their] particular media content," including live or prerecorded music, radio, and television programming. Ex. 1009, [0003]. In other words, Petrovic discloses tools to prevent copyright infringement. Petrovic's monitoring scheme relies upon two "major components": control center **18** and monitoring sites **22**, which it also calls "Event Airplay Receiver[s]" ("EAR[s]"). *Id.*, [0040]. The monitoring sites **22** are located preferably in a physical location separate from the content owner, the broadcaster, and the ultimate receiver of the music, radio, and television programming. *Id.* Broadcast signals are received and analyzed at the

monitoring sites **22** to check for copyright compliance. *Id.*, [0043]. Any analysis done at the monitoring site is then communicated to the control center **18**. *Id.*, [0044].

3. The Petitioner Fails to Show Motivation to Combine Coyne and Petrovic

According to the Petition, it would have been obvious to add the monitoring and reporting functions disclosed by Petrovic to the system of Coyne. Petition, 63-64 (citing Ex. 1002, ¶¶ 211-14). This is fatally flawed for reasons of procedure as well as substance.

First, the procedural. As already described, Coyne and Petrovic are each from different fields of endeavor and there exists no motivation to combine them. Coyne is a surveillance tool that also has mesh network or other signal repeater functionality. Petrovic is a copyright enforcement monitor. Although Coyne and Petrovic are each concerned, in their own ways, with the ***content*** of signals they surveil, this is not sufficient to establish that a POSITA would have an objective reason to combine the references or that the resultant combination would have been obvious. Rejection of a claim based on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the conclusion of obviousness.

The Petition only offers conclusory expert testimony to support its purported motivation to combine. In *Johns Manville Corporation*, this Board stated when denying institution that "[d]emonstrating that a reference is analogous art or relevant to the field of endeavor of the challenged patent is not sufficient to establish that one of ordinary skill would have had reason to combine its teachings with other prior art in the manner set forth in the claim." IPR2018-00827, Paper 9 at 17 (PTAB October 16, 2018) (informative, designated Dec. 11, 2019) (citing *Securus Techs., Inc. v. Global Tel*Link Corp.*, 701 F. App'x 971, 977 (Fed. Cir. 2017)). In *Securus Techs.*, the Federal Circuit held that the Board correctly found that the proposed rationale to combine the asserted art was "simply too conclusory." 701 F. App'x at 976. This holding was based on Securus "assert[ing], without more, that because [the references] were drawn from the same general field of art, the skilled artisan would have turned to them to solve the problems identified" in the challenged patent. *Securus Techs.*, 701 F. App'x at 976-77 (citing *Microsoft Corp. v. Enfish, LLC*, 662 F. App'x 981, 990 (Fed. Cir. 2016)). The Federal Circuit criticized relying solely on the same field of endeavor, stating "[s]uch short-cut logic would lead to the conclusion that any and all combinations of elements known in this broad field would automatically be obvious, without the need for any further analysis. The Board, therefore, properly rejected Securus' assertion of obviousness." *Securus Techs.*, 701 F. App'x at 977.

Here, the Petition offers the same support for its motivation to combine that the Federal Circuit and this Board has rejected as "simply too conclusory." *See Johns Manville,* IPR2018-00827, Paper 9 at 17; *Securus Techs.*, 701 F. App'x at 977. Petitioners' expert, Dr. Schonfeld, only offers opinions that center around the field of endeavor disclosed in Coyne and Petrovic. *See* Ex. 1002, ¶ 211 ("Coyne and Petrovic both relate to the same or similar communications technologies. Both Coyne and Petrovic explicitly disclose systems for transmitting and receiving satellite signals."). Dr. Schonfeld concludes his motivation to combine section by stating:

> It would have been obvious in view of Coyne's and Petrovic's teachings to apply Coyne's receiver with Petrovic's monitoring and reporting in satellite communications systems. Coyne expressly teaches that its ***"invention relate[s] generally to communication systems, and particularly to digital signal processing" (Coyne, [0002]) and cable and satellite television systems indeed are communications systems involving signal processing.***

Ex. 1002, ¶ 214 (emphasis added). Thus, even if one would view Coyne and Petrovic as being in the same field of endeavor (which they are not), the Petition still fails to provide a sufficient motivation to combine these references for the Petition exhibits the same "short-cut logic" that "would lead to the conclusion that any and all combinations of elements known in this broad field would automatically be obvious,

without the need for any further analysis." *Securus Techs.*, 701 F. App'x at 977. However, as described above, Coyne and Petrovic are directed to vastly different applications of communication systems that are incompatible in practice. Like the Board in *Johns Manville Corporation* and the Federal Circuit in *Securus*, the Board should reject the Petition's assertion that the combination of Coyne and Petrovic is proper.

Second, the substantive. There is no motivation to combine Coyne and Petrovic. Coyne is not merely silent on reporting information back to the source of the received signal. Any reporting back of this information renders the system of Coyne unsatisfactory for its intended purpose. As detailed above, Coyne is concerned with military surveillance, and the Figure 4 embodiment relied on by the Petition is a surveillance system. Logically, and for obvious reasons, surveilled targets would not be informed they are under surveillance. Thus, a POSITA would not be motivated to modify the system of Coyne with any reporting functions disclosed by Petrovic. If a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *Plas-Pak Indus.*, 600 F. App'x at 758-59 (citing *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984)).

In summary, Coyne and Petrovic are directed towards different fields of endeavor and address different problems with different and incompatible solutions.

Further, Coyne is not reasonably pertinent to the field of endeavor of the '008 Patent as the cable/satellite operator already knows the content of what they are sending. The operators are interested in the ***condition*** (*i.e.*, quality) of the signal when it reaches customers. A POSITA has no motivation to look to Coyne to address the problems described by the '008 Patent. Therefore, the Petition provides no legally cognizable rationale to combine Coyne and Petrovic in the way proposed even if the POSITA had stumbled across them. Accordingly, institution on Ground 3 should be denied for this reason.

4. The Identified Switch of Coyne Fails to Concurrently Output Portions of Said Digitized Signal

Even if a POSITA would be motivated to combine Coyne and Petrovic (and they would not), Coyne and Petrovic, either alone or in combination, fail to disclose all elements of the independent claims. To attempt to meet the "concurrently outputting" element of the claims, the Petition relies upon Coyne's switch **410** by incorrectly asserting that the system of Coyne concurrently outputs information "through use of a rapidly toggling switch." Petition, 67. This argument fails for two reasons.

First, the switch as described in Coyne, even if capable of "rapid toggling" as suggested by the Petition, does not render obvious concurrently outputting. As described in Coyne, the switch **410** either outputs to the Signal Detection Decision

Logic **430** or the Demodulation Processing Logic **440**. Ex. 1008, [0044]. Nothing in the nature or design of this simple switch **410** is directed at providing two different outputs concurrently.

Second, the disclosure of Coyne never discloses, explicitly or implicitly, that switch **410** rapidly toggle. This argument relies on the wholly unsupported and conclusory opinions of Dr. Schonfeld. *See* Ex. 1002, ¶ 222 (stating, without citing any support, that Coyne discloses " concurrently output[ting] a first portion of a signal and a second portion of the signal provided that the toggling frequency is sufficiently high."). A search of Coyne's disclosure fails to include any disclosure as to toggling or, for that matter, the speed in which the switch could allegedly be toggled.

Rather, Coyne explicitly discloses that the Signal Detection Decision Logic **430** is used to detect a signal and, once the signal is detected, the switch **410** is switched to the Demodulation Processing Logic **440** for processing the detected signal. Ex. 1008, [0044]. This is described as a serial process—the signal is detected and ***if*** a signal is present, it can then be processed. There is no indication that Coyne is capable of rapid toggling as proposed by Dr. Schonfeld. Indeed, in order to achieve the Petition's aim of disclosing "concurrently outputting," the manufactured "rapid toggling" would have to be so fast that it entirely eliminates switching altogether. This is a pure conclusory invention by Dr. Schonfeld.

Moreover, the suggestion rewrites Coyne by rendering detection superfluous. If the signals are always being routed to Demodulation Processing Logic **440**, then Signal Detection Decision Logic **430** is useless and superfluous. There is no need to ask whether signals are present if they are all being demodulated and processed anyway. This is all inconsistent with the premise of Coyne. Coyne surveils the spectrum to find signals of interest, and once such signals are found, they are in turn examined, processed and possibly transmitted onward to other devices. The Petition's fundamental modification of Coyne in pursuit of recreating the '008 Patent's invention is improper and fails to establish *prima facie* obviousness. *Plas-Pak Indus.*, 600 F. App'x at 758-59 (citing *Ratti*, 270 F.2d at 813).

For at least the aforementioned reasons, Ground 3 fails and institution should be denied. Coyne and Petrovic, either alone or in combination, fails to render independent claims 3 and 11 obvious. As such, the Petitioner fails to show claims 3-5, 10-13, and 18 are unpatentable based on obviousness.

F. Ground 4: The Petitioner Fails to Establish that Claims 1, 2, 6-9, and 14-17 Would Have Been Obvious Over Coyne, Petrovic, Zhang and the General Knowledge of a POSITA

Ground 4 alleges that claims 1, 2, 6-9, and 14-17 are obvious over the combination of Maycock, Petrovic, Zhang, and the general knowledge of a POSITA. The Petition proposes that it would be obvious to improve the ADC of Coyne by incorporating the wideband ADC of Zhang. Petition, 76-78. The Petition, however,

does not rely on Zhang to remedy any of the deficiencies of Coyne described above in Section III.E, and as such, Ground 4 fails for the same reasons as Ground 3—the Petition fails to establish that the identified components of Coyne satisfy all elements of claim 1. Specifically, as described in Section III.E, Ground 4 fails to demonstrate obviousness for at least the following reasons: (1) there is no motivation to combine any reference with Coyne, let alone both Petrovic and Zhang, and (2) the combination fails to disclose concurrently outputting portions of the digitized signal.

1. The Petitioner Fails to Show Motivation to Combine Coyne, Petrovic, and Zhang

For the reasons discussed above in Section III.E.3, a POSITA would not look to Coyne to practice the claimed invention of the ’008 Patent. Further, there is no motivation to combine Coyne and Petrovic. Therefore, a POSITA would not have been motivated to combine Coyne and Petrovic in the manner the Petition alleges, and the addition of Zhang fails to remedy this deficiency. For this reason alone, institution on this ground should be denied.

2. The Identified Components of Coyne Petrovic, and Zhang Fail to Concurrently Output Portions of Said Digitized Signal

The Petition relies on Coyne, not Petrovic or Zhang, to teach this claim element. Petition, 81. As discussed above, Coyne fails to disclose, teach, or suggest this claim element. *See* Section III.E.4. Accordingly, the Petition fails to establish

the combination of Coyne, Petrovic, and Zhang renders this aspect of the claims obvious.

Thus, Ground 4 fails and institution should be denied. The Petition, therefore, fails to show Coyne, Petrovic, and Zhang, either alone or in combination, or in further view of the general knowledge of a POSITA, discloses, teaches, or suggests all the elements of independent claim 1. As such, the Petition fails to show claims 1, 2, 6-9, and 14-17 are unpatentable based on obviousness.

IV. CONCLUSION

All grounds of the Petition fail for a multitude of reasons. As the Petition fails to show that there is a reasonable likelihood that the Petition will prevail on a single claim, institution should be denied under 35 U.S.C. § 314(a).

Dated: June 20, 2023

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Certification of Word Count Under 37 C.F.R. § 42.24(d)

The undersigned hereby certifies that the foregoing contains 9,570 words according to the word count of the word-processing software used to prepare the foregoing.

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CERTIFICATE OF SERVICE

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